Abstracts

Oktober 2013

DOS Kongressen 2013

Radisson Blu Scandinavia Hotel 23.–25. oktober

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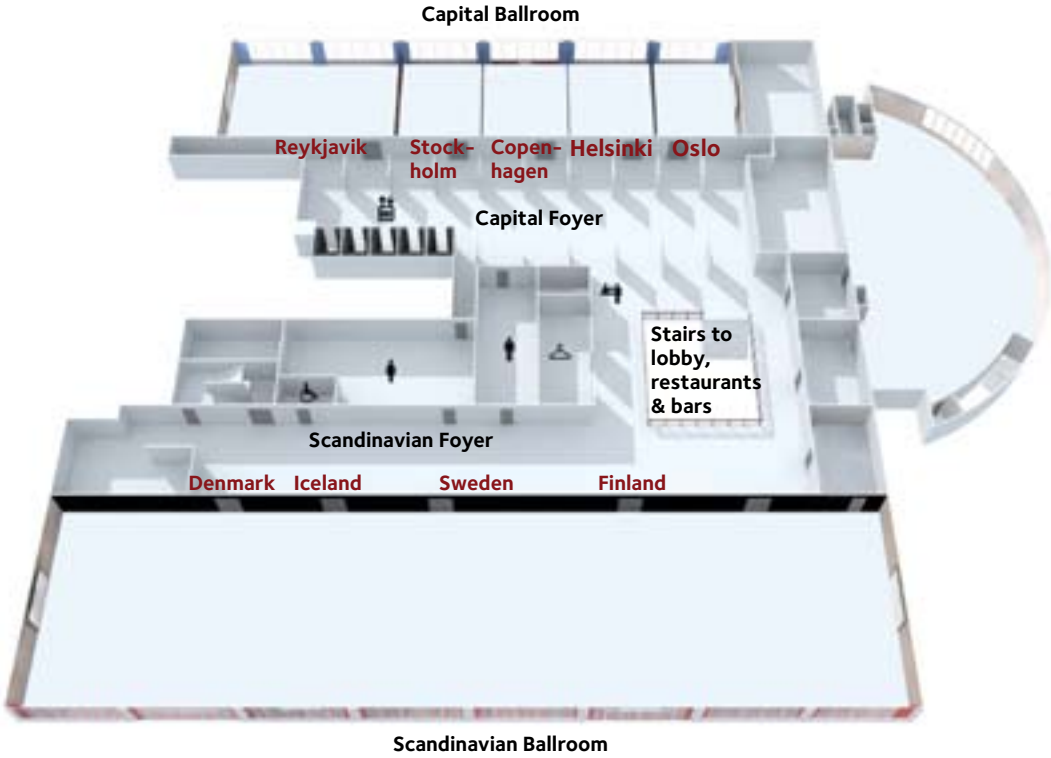
Indhold

Floorplan


Capital Ballroom
Reykjavik
Stock-holm
Copen-hagen
Helsinki
Oslo
Capital Foyer
Stairs to lobby, restaurants & bars
Scandinavian Foyer
Denmark
Iceland
Sweden
Finland
Scandinavian Ballroom

Dagsprogram

Onsdag d. 23. oktober 2013

		Lokale:
09:00 - 10:30	**DOS Symposium:** ***"Collesfrakturer"***	*Reykjavik*
09:00 – 10.00	**Session 1** *(Sports)*	*Stockholm/* *Copenhagen*
10:00 – 10:30	**Professorforelæsning:** ***Uffe Jørgensen***	*Stockholm/* *Copenhagen*
09:00 – 10:30	**Session 2** *(Hip 1)*	*Helsinki/Oslo*
10:30 - 11:00	***Kaffe i udstillingen***	
11:00 - 12:00	**Postersession I** **Postersession II** **Postersession III**	*Reykjavik* *Stockholm/Copenhagen* *Helsinki/Oslo*
12:00 - 13:00	***Frokost i udstillingen***	
13:00 - 14:30	**Møde i fagområderne** **Fagområde:**	
	DSHK	*Reykjavik*
	Håndkirurgisk Selskab	*Stockholm*
	Dansk Ortopædisk Traumeselskab	*Copenhagen*
	SAKS	*Helsinki*
	Fod/ankelselskabet	*Oslo*
	Børneortopædisk Selskab	*Directors*
	Ortopædisk Onkologi/ *Sarkomgruppen*	*2620(26.etage)*
	Ledende overlæger	*Chairmans*

		Lokale:
14:30 – 15:00	***Kaffe i udstillingen***	
15:00 – 17.30	**Møde i fagområderne (fortsat) samt:**	
	Ryginteressegruppen	*Executive*
	Skulder/albueselskabet	*Lillebror*
17:30 – 18.30	**Velkomst og Posterwalk**	*Capital Foyer*
18:00 – 21:00	*Danske Ortopæders Organisation (DOO)*	*Directors*
18.30 – 20:30	*YODA*	*Holdes i Islands Brygges Kulturhus*

Dagsprogram

Torsdag 24. oktober 2013

		Lokale
09:00 – 10:30	**DOS Symposium:** ***"Nationale kliniske retningslinjer for udvalgte skulderlidelser"***	*Reykjavik*
	Session 3 *(Knee)*	*Stockholm/Copenhagen*
	Session 4 (*Trauma 1)*	*Helsinki/Oslo*
10:30 – 11:00	***Kaffe i udstillingen***	
11:00 – 12:00	**DOS Honorary Lecture:** **Flemming Bro** ***"Implementering af ny viden og kliniske retningslinjer"***	*Reykjavik*
	DOS Symposium: ***"Fase IV målbeskrivelserne – hvor langt er vi kommet?"***	*Stockholm/Copenhagen*
	Session 5 *(Experimentel)*	*Helsinki/Oslo*
12:00 – 12:30	***Frokost i udstillingen***	
12:30 – 13:00	**Frokostsymposium:** **Arthrex A/S:** ***"Graftlink ACL Reconstruction using The Flipcutter Technique: Pearls and early results"***	*Stockholm/ Copenhagen*

		Lokale:
13:00 – 13.30	***Frokost i udstillingen*** *(fortsat)*	
13:30 – 15:00	**Session 6** *(Sports/Shoulder)* **Session 7** *(Spine)* **Session 8** *(Pediatrics)*	*Reykjavik* *Stockholm/Copenhagen* *Helsinki/Oslo*
15:00 – 15.30	***Kaffe i udstillingen***	
15:30 – 17:30	**Generalforsamling i DOS**	*Stockholm/Copenhagen/ Helsinki/Oslo*
19:00 – 19:30	***Gallamiddag, Velkomst***	*Casino Ballroom*
19:30 - ?	***Gallamiddag***	*Capital Ballroom*

Dagsprogram

Fredag 25. oktober 2013

		Lokale:
09:00 – 10.30	**Session 9:** *(Hip 2)*	*Reykjavik*
	Session 10: *(Tumor/pediatrics)*	*Stockholm/Copenhagen*
	Session 11: *(Trauma 2)*	*Helsinki/Oslo*
10:30 – 11:00	***Kaffe i udstillingen***	
11:00 – 12:00	**Guildal forelæsning:**	*Reykjavik*
	Thomas P. Rüedi	
	"The Evolution of Fracture Surgery in the 20th Century"	
	Session 12: *(hand)*	*Stockholm/Copenhagen*
	Session 13: *(Foot/ankle)*	*Helsinki/Oslo*
12:00 – 13:00	***Frokost i udstillingen***	
12:00 – 12:30	**Debatmøde:** *Proteseinfektioner*	*Directors*
13:00 – 14:30	**Session 14**	
	(Foredragskonkurrence)	*Reykjavik/Stockholm/ Copenhagen/Helsinki/ Oslo*
14:30 – 15:30	**Uddelinger:**	*Stockholm/ Copenhagen/Helsinki/ Oslo*

- DOS Fonden
- Guildal Fonden
- Vindere af foredrag og posterkonkurrence

15:30 – 16:00	***Kaffe og Adjourn***	*Capital Foyer*

Session 1: Sports/ arthroscopy

Onsdag den 23. oktober
09:00 – 10:00
lokale: Stockholm/Copenhagen

Chairmen: Kristoffer Barfod/Martin Lind

1. The influence of early weight-bearing after non-operative treatment of acute Achilles tendon rupture on biomechanical properties of the plantar-flexor muscle-tendon complex. A blinded, randomized, controlled trial.
Jesper Bencke, Kristoffer W Barfod, Hanne Bloch Lauridsen, Christian Dippmann, Lars Ebskov, Anders Troelsen

2. Reconstruction of the medial patellofemoral ligament in adolescents with open growth plates
Ditte Enderlein, Torsten Nielsen, Peter Faunø, Svend Erik Christiansen, Martin Lind

3. Traction related complications during hip arthroscopy.
Lone Frandsen, RN, Bent Lund, M.D, Svend Erik Christiansen, M.D, Torsten Grønbech Nielsen, PT, Martin Lind, Prof. M.D

4. ACL reconstruction in children. Results from the Danish Registry for Knee Ligament Reconstruction
Peter Faunø, Lene Wagner, Martin Lind

5. Outcome after posterior cruciate ligament (PCL) reconstruction.
Bjarne Mygind-Klavsen, Svend Erik Christiansen, Bent Lund, Peter Faunø, Mads Uldum Roesgaard, Martin Lind

6. Clinical outcome after PCL support bracing treatment for patients with acute posterior cruciate ligament injury
Sinan Said, Martin Lind, Torsten Grønbech Nielsen, Christina Mikkelsen, Bjørn Engstrøm

7. A validation study of the Danish Knee Ligament Reconstruction Registry.
Lene Rahr-Wagner, Theis Thillemann, Martin Lind, Alma Pedersen

8. Patient reported outcome are strongly associated by lower limb loading pattern, mechanical strength, and functional performance in ACL-patients – a cross-sectional study.
Anders Holsgaard-Larsen, Carsten Jensen, Per Aagaard

Session 2: Hip 1

Onsdag den 23. oktober
09:00 – 10:30
lokale: Helsinki/Oslo

Chairmen: Stig Storgaard Jakobsen/Per Kjærsgaard-Andersen

9. Microbiologic diagnosis based on implant sonication in hip and knee arthroplasty revision surgery
Christen Ravn, Michael Kemp, Per Kjærsgaard-Andersen, Søren Overgaard

10. A Randomized controlled Radiostereometric study comparing a novel porous titanium construct to a porous coated surface in cementless total knee arthroplasty
Nikolaj Sebastian Winther, Claus Lindkær Jensen, Thomas Lind, Claus Munk Jensen, Henrik Schrøder, Michael Mørk Petersen

11. The revision risk of 28480 primary total hip replacements (THR) in patients younger than 55 years of age. Results from the Nordic Arthroplasty Register Association (NARA)
Alma B. Pedersen, Frank Mehnert, Ove Furnes, Leif Havelin, Johan Kärrholm, Søren Overgaard

12. What do patients perceive as important preoperative information in total hip- and knee arthroplasty?
Jonas Vestergård Iversen, Henrik Husted, Mira Jørgensen, Anders Troelsen

13. Fall-related readmissions after fast-track total hip and knee arthroplasty, cause of concern or consequence of success?
Christoffer Jørgensen, Henrik Kehlet

14. Factors Influencing Health-related Quality of Life after Total Hip Replacement - a comparison of data from the Swedish and the Danish Hip Arthroplasty Registers
Max Gordon, Aksel Paulsen, Søren Overgaard, Göran Garellick, Alma B Pedersen, Ola Rolfson

15. Patient compliance and findings of hip pain, elevated metal ion levels and revision surgery during a centrally mandated recall of patients with Metal-on-Metal articulations.

Malchau Erik, Peter Gebuhr, Kristian Otte, Tommy Korsgaard Larsen, Anders Troelsen

16. Treatment of a displaced femoral neck fracture – cemented vs uncemented femoral stem in total hip arthroplasty

Michelle Fog Andersen, Thomas Jakobsen, Anne Soon Bensen, Niels Krarup

17. Neck narrowing and BMC after resurfacing, 2 year result from a randomised study

Minh That Pham, Jeannette Penny

18. No association between serum metal-ions and implant fixation in large-head metal-metal THA. A 5 year RSA study

Mette Holm Hjorth, Kjeld Søballe, Stig Storgaard Jakobsen, Nina D Lorenzen, Inger Mechlenburg, Maiken Stilling

19. Can the need for Arthroscopy be predicted in Patients undergoing Periacetabular Osteotomy?

Charlotte Hartig-Andreasen, Anders Troelsen, Theis Muncholm Thillemann, John Gelineck, Kjeld Søballe

Postersession I

Onsdag den 23. oktober
11:00 – 12:00
lokale: Reykjavik

Chairmen: Jeannette Østergaard Penny/Ole Ovesen

139. No increased risk of elevated metal ions and pseudotumour formation when using modular neck-stems bilaterally
Peter Revald, Claus Varnum, Poulsen Thomas K., Per Kjærsgaard-Andersen

140. Body composition preoperatively has no impact on clinical outcome after hip arthroplasty - A cohort study of 102 patients 1year after surgery
Anette Liljensøe, Jens Ole Laursen, Kjeld Søballe, Inger Mechlenburg

141. 3 year Follow-up of a Long-term Registry-based Multicenter study on Vitamin E Diffused Polyethylene in Total Hip Replacement
Nanna H. Sillesen, Meridith E. Greene, Audrey K. Nebergall, Anders Troelsen, Peter Gebuhr, Henrik Malchau

142. Effect of early progressive resistance training compared to home based exercise after fast track total hip replacement. A randomised controlled trial.
Lone Ramer Mikkelsen, Inger Mechlenburg, Kjeld Søballe, Søren Mikkelsen, Thomas Bandholm, Mette Krintel Petersen

143. 3 months home-training by a standardized program improves walking distance and knee extension strength in old patients 1-7 years after surgery with dual-mobility THA following femoral neck fracture.
Christina Frølich, Inger Mechlenburg, Sara Birch, Lone Lundager, Torben Bæk Hansen, Maiken Stilling

144. Preoperative planning in cementless total hip arthroplasty - Accuracy of digital templating
Mikkel Krüger Jensen, Søren Solgaard

145. Timing of preoperative prophylactic antibiotics for knee arthroplasties. A quality study after the introduction of the WHO checklist with a standard "time-out" before skin incision.
Arne Svensson, Lars Peter Jorn

146. No correlations between radiological angles and self-assessed Quality of Life in patients with Hip Dysplasia at 2-13 years of follow up after periacetabular osteotomy
Sara Birch, Anette Liljensøe, Charlotte Hartig-Andreasen, Kjeld Søballe, Inger Mechlenburg

151. Collateral Ligament Reconstruction of the Chronic Thumb Injury with Biotenodesis Screw Fixation
Robert Gvozdenovic, Michel Boeckstyns

154. Erythropoietin elicits a dose-dependent osteogenic effect on human mesenchymal stem cells
Jan Duedal Rölfing, Anette Baatrup, Maik Stiehler, Helle Lysdahl, Cody Bünger

155. The influence of hemostatic agents on bone healing after sternotomy in a porcine model
Rikke Falsig Vestergaard, Annemarie Brüel, Jesper Skovhus THomsen, Ellen Margrethe Hauge, Kjeld Søballe, John Michael Hasenkam

Postersession II

Onsdag den 23. oktober
11:00 – 12:00
lokale: Stockholm/Copenhagen

Chairmen: Henrik Eckardt/Lars Konradsen

158. Results after plate removal in midshaft clavicle fracture surgery: Focus on coexsisting soft-tissue shoulder injuries.
Ban Ilija, Poulsen Heidi, Troelsen Anders

159. Early experiences with the DHS blade in treating femoral neck fractures
Rasmus Stokholm, Lise Hellegaard, Steffen Skov Jensen

160. Retrospective review of radiographic referral, interpretation and treatment plan in a Danish emergency department in comparison to an international benchmark.
Mohamed Shalaby, Wajeha Malik, Christine Hilbrandt, Valentina Makolli, Thomas Houe

161. Feasibility of progressive strength training immediately after hip fracture surgery.
Lise Kronborg, Thomas Bandholm, Henrik Palm, Henrik Kehlet, Morten Tange Kristensen

167. Surgery for Kyphoscoliosis in Parkinson's Disease
Ebbe Stender Hansen, Dharmendra Singh, Cody Bünger

168. The physical and mental outcome of 100 patients having a Percutaneous Vertebroplasty because of pathological vertebral fractures.
Søren Lykke Lorentzen, Rikke Rousing, Stephan Hummel

172. Artificial Meniscal scaffold Implantation and Meniscal Allograft Transplantation.
Martin Rathcke, Peter Lavard, Michael Krogsgaard

173. Does bony hip morphology affect the outcome of treatment for patients with adductor-related groin pain? Long term results of a randomised controlled trial.
Per Hölmich, Kristian Thorborg, Per Nyvold, Jakob Klit, Michael Bachmann Nielsen, Anders Troelsen

174. Custom-made orthotics decrease medial foot loading during drop jump and single-leg squat in individuals with patellofemoral pain
Michael Rathleff, Camilla Richter, Jesper Bencke, Thomas Bandholm, Per Hölmich, Kristian Thorborg

175. DHAR – the Danish Hip Arthroscopy Register
Bent Lund, Søren Winge, Otto Kraemer, Svend Erik Christiansen, Martin Lind

Postersession III

Onsdag den 23. oktober
11:00 – 12:00
lokale: Helsinki/Oslo

Chairmen: Peter Holmberg Jørgensen/Stig Brorson Hansen

176. Tendon and skeletal muscle matrix gene expression and functional responses to immobilization and rehabilitation in young males: Effect of growth hormone administration
Anders Ploug Boesen, Kasper Dideriksen, Peter Schjerling, Christian Couppe, Michael Kjaer, Henning Langberg

181. Comparison of Two Humeral Head Resurfacing Implants. 2 year Results of a Randomized Controlled Clinical Trial
Inger Mechlenburg, Thomas Klebe, Kaj Døssing, Kjeld Søballe, Maiken Stilling

182. Clinical implications of positive cultures in revision shoulder arthroplasty
Thomas Falstie-Jensen, Janne Ovesen, Viggo S. Johannsen

184. Construct validity and responsiveness of functional measures used in subjects following an outpatient prosthetic rehabilitation program after a major lower limb amputation
Kajsa Lindberg, Joanne Boelskifte, Jimmy Johansson, Mie Rinaldo, Morten Tange Kristensen

185. Pneumococcal sepsis-induced Symmetrical Peripheral Gangrene
Taj Haubuf, Klaus Kjær Petersen, Kurt Fuursted, Alex Lund Laursen, Johnny Keller

186. Ultrasound guided core needle biopsy of peripheral nerve sheath tumors. A retrospective study.
Damgaard Jacob, Hauge Hansen Bjarne, Holmberg Jørgensen Peter, Keller Johnny, Hellfritzch Michel, Baad-Hansen Thomas

187. Local Recurrence Rate after Surgical Excision of Desmoid Fibromatosis.
Elinborg Mortensen, Thea Hovgaard, Michael Mørk Petersen

188. Persistent wound drainage after tumor resection and endoprosthetic reconstruction the proximal femur
Peter Horstmann, Werner Hettwer, Tomas Grum-Schwensen, Michael Mørk Petersen

190. Testing A New Type Of Osteosynthesis And After Care – In Treatment Of Antebrachium Fractures in Children, Preliminary Result Of A Prospectiv Case-Control Study.
Ture Karbo, Stig Sonne-Holm, Christian Wong

191. Normal distribution of seating balance for healthy Danish children
Line Kjeldgaard Pedersen, Ahmed Abdul-Hussein Abood, Ole Rahbek, Bjarne Møller-Madsen

192. Hamstring lengthening in CP patients by needle tenotomy is safe
Lauge Østergaard, Gert Rahbek Andersen

Session 3: Knee

Torsdag den 24. oktober
09:00 – 10:30
lokale: Stockholm/Copenhagen

Chairmen: Poul Torben Nielsen/Henrik Schröder

20. Does "safe-zones" for alignment and component position exist in primary TKA?
Morten Grove Thomsen, Henrik Husted, Thor Bechsgaard, Anders Troelsen

21. Is fast-track total knee arthroplasty safe regarding manipulation for unacceptable knee flexion?
Christian Wied, Morten Grove Thomsen, Lis Myhrmann, Lotte Skov Jensen, Henrik Husted, Anders Troelsen

22. Similar Fixation but Increased Stress-Shielding of an I-Beam compared with a Finned Tibial Component Stem Design. A Randomized RSA and DXA Study with 5 years Follow-up.
Maiken Stilling, Claus Fink Jepsen, Lone Rømer, Ole Rahbek, Kjeld Søballe, Frank Madsen

23. Absence of tourniquet does not affect fixation and stability of cemented TKA: a randomised controlled trial using RSA
Ashir Ejaz, Anders C. Laursen, Andreas Kappel, Sten Rasmussen, Mogens B. Laursen, Poul T. Nielsen

24. A questionnaire survey regarding the Danish activity on axis corrective osteotomy (ACO) in treatment of uni-compartmental knee osteoarthritis
Toke Kirchberg Nilsson, Andreas Kappel, Anders Christian Laursen, Poul Torben Nielsen

25. Early full weight-bearing in open-wedge high tibia valgus osteotomy: A randomized, controlled RSA trial with 2 years follow-up
Anders Christian Laursen, Thomas Lind-Hansen, Mogens Berg Laursen, Poul Torben Nielsen

26. Similar and good fixation of cementless and cemented Oxford® Partial Knee Tibial Trays at 2 years follow-up. A Randomized RSA Study.
Maiken Stilling, Frank Madsen, Claus Fink Jepsen, Kjeld Søballe, Per Wagner Kristensen, Anders Odgaard

27. How does strength training influence knee joint pain shortly following total knee arthroplasty?
Thomas Bandholm, Kristian Thorborg, Troels Haxholdt Lunn, Henrik Kehlet, Thomas Linding Jakobsen

28. Early outcome after aseptic revision total knee arthroplasty in Denmark. A 2 year nationwide study.
Martin Lindberg-Larsen, Christoffer Calov Jørgensen, Torben Bæk Hansen, Søren Solgaard, Anders Odgaard, Henrik Kehlet

29. Current trends of TKA fixation and cruciate ligament retention: Are surgeons on track?
Erik Malchau, Kirill Gromov, Henrik Husted, Henriks Malchau, Anders Troelsen

30. Tourniquet induced ischemia and changes in metabolism during TKA: a randomised controlled trial using microdialysis
Ashir Ejaz, Anders C. Laursen, Andreas Kappel, Poul T. Nielsen, Sten Rasmussen

Session 4: Trauma 1

Torsdag den 24. oktober
09:00 – 10:30
lokale: Helsinki/Oslo

Chairmen: Lonnie Froberg/Frank Damborg

31. Does choice of treatment of midshaft clavicle fractures affect early return to work?
Ban Ilija, Gromov Kirill, Troelsen Anders

32. Feasibility of implant-tracking in orthopaedic surgery: High completeness and minimal time consumption.
Heidi Poulsen, Kirill Gromov, Peter Gebuhr, Anders Troelsen

33. Virtual-reality simulation for the assessment of skills in hip fracture surgery
Poul Pedersen, Henrik Palm, Lars Konge

34. Breakage at the proximal screw in long Gamma 3 titanium intramedullary femoral nail
Nikolaj Sode, Lonnie Froberg, Michael Brix

35. Anamnestic medicine errors among hip fracture patients can be reduced by a pharmacist / pharmaconomist
Morten B. Andersen, Sanne H. Johansen, Marianne K. Jensen, Lise J. Nørregaard, Susanne D. Olsson, Henrik Palm

36. Ilizarov salvage procedure following failed osteosynthesis of the patella
Tine Nymark, Lars Schjøtz, Ole Skov

37. Healing and morbidity in femoral and tibial non-unions when using reamer-irrigator-aspirator system
Søren Kjær Petersen, Morten Schultz Larsen

38. Preoperative CT scan of tibial diaphyseal fractures distal to the isthmus influences treatment
Paulius Nekrasas, Juozas Petruskevicius, Søren Kold

39. Health related quality of life after severe trauma – comparison of EQ-5D with norm scores 15 years after injury
Thomas Laursen, Morten Wad, Sidsel Fruergaard, Claus Falck Larsen, Benny Dahl

40. Complications after osteosynthesis of distal radius fractures using a volar locking-plate
Roland Knudsen

41. Urinary tract infections and complications among hip fracture patients treated within a multimodal rehabilitation concept
Pia Søe Jensen, Nicolai Bang Foss, Ulrich Stab Jensen, Dorthe Gaby Bove, Henrik Palm, Henrik Kehlet

Session 5: Experimental

Torsdag den 24. oktober
11:00 – 12:00
lokale: Helsinki/Oslo

Chairmen: Casper Bindzus Foldager/Martin Lind

42. Vancomycin is superior to active/passive immunization against Staphylococcus aureus periprosthetic osteomyelitis in rats
Niels H. Søe, Nina Vendel-Jensen, Asger Lundorff Jensen, Janne Koch, Steen Seier Poulsen, Helle Krogh Johansen

43. Leukocyte-depletion in PRP decreases the proliferative effects of human chondrocytes
Morten Lykke Olesen, Martin Lind, Helle Lysdahl, Casper Bindzus Foldager

44. Local Delivery of Anticancer Drug to Treat Primary Breast Cancer and Bone Metastasis
Ming Sun, Miao Wang, Muwan Chen, Frederik Dagnaes-Hansen, Michael Robert Horsman, Cody Eric Bünger

45. The concentration of cefuroxime in cortical and cancellous bone can be detected by use of microdialysis – a methodological study
Mikkel Tøttrup, Hanne Birke Sørensen, Tore Forsingdal Hardlei, Kurt Fuursted, Kjeld Søballe

46. Systematized Water Content Calculation in Cartilage Using T1-mapping MR Estimations. Design of a Mathematical Model.
Juan Manuel Shiguetomi-Medina, Jose Luis Ramirez-GL, Ole Rahbek, Hans Stødkilde-Jørgensen, Bjarne Møller-Madsen

47. Erythropoietin exerts its osteogenic effect on mesenchymal stromal cells via pleiotropic cell-surface receptors and intracellular signaling pathways
Jan H. Duedal Rölfing, Anette Baatrup, Maik Stiehler, Jonas Jensen, Helle Lysdahl, Cody Bünger

48. Preparation of platelet-rich plasma (PRP) changes the composition of white blood cells in platelet-rich plasma
Morten Lykke Olesen, Martin Lind, Helle Lysdahl, Casper Bindzus Foldager

49. Lactic-acid based polymers used for delivery of drugs to the bone-implant interface may impair implant fixation and bone formation
Mette Sørensen, Jørgen Baas, Jeppe Barckman, Joan E. Bechtold, Kjeld Søballe

Session 6: Sports/Shoulder

Torsdag den 24. oktober
13:30 – 15:00
lokale: Reykjavik

Chairmen: Ilija Ban/Uffe Jørgensen

50. Failed Osteochondral Repair by MayoRegen® Scaffolds in Patients with Ostochondritis Dissecans
Christensen Bjørn Borsøe, Foldager Casper Bindzus, Eric Bünger Cody, Lind Martin

51. 2 years follow-up after TruFit® implantation for full thickness cartilage defects in the knee.
Lars Konradsen, Michael R. Krogsgaard

52. Incidence and clinical presentation of groin injuries in sub-elite male soccer
Per Hölmich, Kristian Thorborg, Christian Dehlendorff, Kim Krogsgaard, Christian Gluud

53. High injury incidence in adolescent female soccer: The influence of weekly soccer exposure and playing level
Mikkel Bek Clausen, Mette Zebis, Merete Møller, Per Hölmich, Niels Wedderkopp, Kristian Thornorg

54. Identification of the femoral attachment point for medial patellofemoral ligament (MPFL) reconstruction without the use of fluoroscopy - A cadaver study
Claus Ol Hansen, Mikkel Attrup, Per Hölmich

55. Increased medial foot-loading during drop jump and single leg squat in individuals with patellofemoral pain – a cross-sectional study
Michael Rathleff, Camilla Richter, Jesper Bencke, Thomas Bandholm, Per Hölmich, Kristian Thorborg

56. Patient reported outcome, revision rate and reason for revision following resurfacing hemiarthroplasty in patients diagnosed with osteoarthritis: 837 operations reported to the Danish Shoulder Arthroplasty Registry.
Jeppe Rasmussen, Anne Polk, Sørensen Anne Kathrine, Stig Brorson, Bo S Olsen,

57. Implant survival after total elbow arthroplasty: A retrospective study of 324 procedures performed from 1980 to 2008
Hans Christian Plaschke, Theis Thillemann, Stig Brorson, Bo Olsen

58. The effective analgesic dose of dexamethasone after outpatient shoulder surgery: a randomized, blinded trial.
Karen Toftdahl Bjørnholdt, Peter Nørgaard Mønsted, Lone Nikolajsen, Kjeld Søballe

59. Primary total elbow arthroplasty in complex fractures of the distal humerus: a retrospective study of 24 consecutive cases
Brian Weng Sørensen, Stig Brorson, Bo Sanderhoff Olsen

60. Short term reults after arthroscopic resection of synovial plicae in the radiohumeral joint: a case series of 68 procedures.
Jens Brahe Pedersen

Session 7: Spine

Torsdag den 24. oktober
13:30 – 15:00
lokale: Stockholm/Copenhagen

Chairmen: Thomas Andersen /Martin Gehrchen

61. Dural tears influence on length of admission and outcome in spinal surgery
Randi Holm, Dorte Clemmensen, Mikkel Andersen

62. Intervertebral disc degeneration followed by interference of end-plate nutritional pathway in adolescent porcine models
Ran Kang, Haisheng Li, Steffen Ringgaard, Kresten Rickers, Lin Xie, Cody Eric Bünger

63. Short-Term Mortality and Morbidity after Surgical Treatment of Fixed Spinal Deformities. Two-Years Experience in 102 Adult Patients
Tanvir Bari, Martin Gehrchen, Sven Karstensen, Sidsel Fruergaard, Benny Dahl,

64. TLIF surgery results in slightly higher risk of neurogenic leg pain 2 years after surgery compared to standard instrumented posterolateral fusion. Results from a randomized clinical trial.
Kristian Høy, Blazej Grycel, Thomas Andersen, Peter Helmig, Ebbe Stender Hansen, Cody Bünger

65. A Comparison of the Tokuhashi Revised and the Tomita Scoring Systems in a prospective Cohort of Patients with Metastatic Epidural Spinal Cord Compression (MESCC)
Søren Schmidt Morgen

66. Implementing DaneSpine
Karen Højmark, Ane Simony, Carsten Ernst, Mikkel Andersen

67. Vertebroplasty for treating painful vertebral body fractures, in patients with multipel myeloma
Ane Simony, Mikkel Østerheden Andersen, Niels Abildgaard, Marius Gaurilcikas

68. Long term outcome and health care utilizations following surgical treatment of adult spine deformity
Shallu Sharma, Thomas Andersen, Cody Eric Bunger, Rikke Soegaard

69. Moderate to Almost Perfect Inter- and Intrarater Agreement in Assessment of Adult Spinal Deformity using the SRS-Schwab Classification
Dennis Hallager Nielsen

70. 3D correction by novel growth instrumentation in severe deformities of the immature spinal
Cody Eric Bünger, Barbara Jensen, Haisheng Li, Ebbe Stender Hansen, Haolin Sun, Kristian Hoy

71. Physical and mental outcome of 500 patients with spinal stenosis operated by decompression alone.
Rikke Rousing, Frederik Busch, Henrik Grønvall

Session 8: Pediatrics

Torsdag den 24. oktober
13:30 – 15:00
lokale: Helsinki/Oslo

Chairmen: Martin Gottliebsen/Keld Daubjerg

71. Physical and mental outcome of 500 patients with spinal stenosis operated by decompression alone.
Rikke Rousing, Frederik Busch, Henrik Grønvall

72. Is Radio Freqency Ablation (RFA) Epiphysiodesis Safe for Joint Articular Cartilage?
Juan Manuel Shiguetomi-Medina, Ahmed Abood, Ole Rahbek, Hans Stødkilde-Jørgensen, Bjarne Møller-Madsen

73. Acetabular index 6 months after reduction of late presenting hip luxation predicts risk of secondary surgery for residual dysplasia of the hip
Louise Klingenberg, Klaus Hindsø, Andreas Balslev-Clausen

74. Identification of non-accidential injury in children in a Danish Emergency Room
Helen Latifi, Bodil Moltesen, Christian Wong

75. Precise and feasible measurements of lateral calcaneal lengthening osteotomies by radiostereometric analysis (RSA)
Polina Martinkevich, Ole Rahbek, Kjeld Søballe, Bjarne Møller-Madsen, Maiken Stilling

76. Calcaneal lengthening osteotomy for pes planovalgus using artificial bone graft material. Avoiding donor site morbidity
Martin Gottliebsen, Line Kjeldgaard Pedersen, Ivan Hvid, Michael Davidsen, Ole Rahbek, Bjarne Møller-Madsen

77. Effectiveness of reversible total epiphysiodesis using eight-plates. A retrospective clinical study.
Silas Hinsch Gylvin, Martin Gottliebsen, Christian Wong

78. Early experience with a follow-up programme, CPOP for children with Cerebral Palsy.
Kirsten Nordbye-Nielsen, Ole Rahbek, Bjarne Møller-Madsen

79. 11 years follow-up of congenital hip joint dislocation treated by Ludloffs Approach
Jesper Holbeck-Brendel, Line Kjeldgaard Pedersen, Ole Rahbek, Michel Bach Hellfritzsch, Peter Dalsgaard Nielsen, Bjarne Møller-Madsen

80. Adaptation and Validation of a Danish Translation of CPCHILD© Questionnaire
Peter Buxbom, Derek Curtis, Stig Sonne-Holm, Christian Wong

81. Operative treatment of elbow fractures in pediatric population: Does timing of surgical treatment influence the rate of reoperation and post operative complications?
Pernille Bovbjerg, Zaid Al-Aubaidi

82. Physeal injuries of the distal humerus – lessons from the Danish Patient Insurance Association.
Andreas Balslev-Clausen, Steffen Volkvardsen, Stig Sonne-Holm, Jens Krogh Christoffersen, Christian Wong

Session 9: Hip 2

Fredag den 25. oktober
09:00 – 10:30
lokale: Reykjavik

Chairmen: Thomas Jakobsen/Søren Solgaard

83. Analysis of 484 retrieved Metal-on-Poly Total Hip Arthroplasty liners: Prevalence of Non-Concentric Loading, Concentric Loading and Impingement
Nanna H. Sillesen, Leah Elson, Shannon L. C. Rowell, Young Min Kwon, Henrik Malchau, Orhun Muratoglu

84. Does reduced movement restrictions and use of assistive devices affect rehabilitation outcome after total hip replacement? A non-randomized, controlled study in 365 patients with six week follow up.
Lone Ramer Mikkelsen, Mette Krintel Petersen, Kjeld Søballe, Søren Mikkelsen, Inger Mechlenburg

85. Whole blood metal ion level in two populations of metal on metal hip arthroplasty and one standard total hip arthroplasty (THA)
Martin Schou, Jeannette Penny, Jens-Erik Varmarken, Søren Overgaard

86. Incidence of pseudotumor in large diameter head metal on metal hip arthroplasty, resurfacing hip arthroplasty and standard hip arthroplasty using magnetisc resonance imaging (MRI)
Martin Schou, Jeannette Penny, Jens-Erik Varmarken, Trine Torfing, Søren Overgaard

87. Risk for revision of cementless stemmed metal-on-metal (MoM) total hip arthroplasty (THA)
Claus Varnum, Alma B. Pedersen, Mäkelä Keijo, Johan Kärrholm, Leif I. Havelin, Søren Overgaard

88. A novel program for manual measurement of acetabular angles with improved intra- and inter-rater reliability
Sepp de Raedt, Marleen de Bruijne, Inger Mechlenburg, Maiken Stilling, Lone Rømer, Kjeld Søballe

89. MoM ion analyses; a comparison of full blood versus serum and two different laboratories
Morten Bøgehøj, Ole Ovesen, Søren Overgaard

90. Acetabular & Femoral BMD around a Large Diameter Head, Standard and Resurfacing THA. 2 Year Results
Jeannette Penny, Ole Ovesen, Jens-Erik Varmarken, Søren Overgaard

91. Patient matched implant (PMI) in reconstruction of severe acetabular bone loss and pelvic discontinuity after total hip arthroplasty.
Anne Mette Stausholm, Jens Stürup, Poul Torben Nielsen

92. 15-years in risk of cardiovascular events and bleeding in total hip and knee replacement patients receiving thromboprophylaxis in routine clinical practice: a nationwide Danish cohort study of 83,756 osteoarthritis patients
B. Pedersen Alma, Mehnert Frank, Sorensen Henrik Toft, Emmeluth Claus, Overgaard Soren, Johnsen Soren Paaske

93. Total Hip Artroplasty (THA) following Open Reduction and Internal Fixation (ORIF) of acetabular fractures. A case-kontrol study
Jesper Høeg Vinther, Søren Overgaard, Ole Ovesen

Session 10: Tumor/ Pediatrics

Fredag den 25. oktober
09:00 – 10:30
lokale: Stockholm/Copenhagen

Chairmen: Thomas Baad-Hansen/Bjarne Møller-Madsen

94. The Prevalence and Prognostic Impact of Comorbidity in Soft Tissue Sarcoma: A Population-Based Cohort Study
Katja Maretty-Nielsen, Ninna Aggerholm-Pedersen, Akmal Safwat, Steen Baerentzen, Alma Pedersen, Johnny Keller

95. Predictors for functional outcome and health related quality of life following limb sparing surgery for soft-tissue sarcomas
Casper Sæbye, Hanna Maria Fuglø, Tine Nymark, Akmal Safwat, Michael Mørk Petersen, Johnny Keller

96. Influence of the Extent of Surgery on Patient Survival after Total Joint Replacement because of Metastatic Bone Disease
Michala Skovlund Sørensen, Kristine Grubbe Gregersen, Hindsø Klaus, Petersen Michael Mørk

97. Local recurrence rate of Giant Cell Tumors of Bone
Peter Horstmann, Michael Mørk Petersen

98. Adaptive bone remodeling of the femoral bone after tumor resection arthroplastry with an uncemented proximally hydroxyapatite coated GMRS stem.
Mikkel Rathsach Andersen, Michael Mørk Petersen

99. Through knee amputation associated with high risk of reamputation

Nikolaj Sode, Steen Vigh Buch, Troels Riis, Søren Kring, Annette Sylvest, Benn Duus

100. Clinical outcome after treatment of paediatric elbow fracture; a comparison of supracondylar, lateral condyl and medial epicondyl fractures; is physiotherapy mandatory as adjuvant treatment?

Pernille Bovbjerg, Zaid Al-Aubaidi

101. Can the Ottawa Ankle Rules be applied in children with ankle injury? A prospective MRI study.

Mikael Hofsli, Trine Torfing, Zaid Al-Aubaidi

102. The proportion of distal fibula Salter Harris type I epiphyseal fracture in the pediatric population with acute ankle injury. A prospective MRI study.

Mikael Hofsli, Trine Torfing, Zaid Al-Aubaidi

103. Pitfalls in the treatment of pediatric supracondylar fractures of the humerus – a partial root core analysis of 101 cases from the Danish Patient Insurance

Steffen Folkvardsen Steffen Folkvardsen, Andreas Baslev-Clausen Andreas Baslev-Clausen, Jens Krogh Christoffersen Jens Krogh Christoffersen, Stig Sonne Holm Stig Sonne Holm, Christian Wong Christian Wong

104. Outcome of distal tibial physeal fractures; a comparison of Triplane, Tillaux and medial malleolus SH-III and IV fractures. A retrospective study.

Helene Højsgaard Jensen, Sidsel Hald Rahlf, Niels Wicbech Pedersen, Zaid Al-Aubaidi

Session 11: Trauma 2

Fredag den 25. oktober
09:00 – 10:30
lokale: Helsinki/Oslo

Chairmen: Michael Brix/Juozas Petruskevicius

105. Level of supervision in fracture-related surgery in Denmark. Experience from centres participating in the DFDB (Danish Fracture Database) collaboration.
Morten Jon Andersen, Kirill Gromov, Michael Brix, Anders Troelsen, DFDB Collaborators

106. Routine blood tests indicate increased mortality risk in lower limb amputation patients
Steen Vigh Buch, Nikolaj Sode, Troels Riis, Søren Kring, Annette Sylvest, Benn Rønnow Duus

107. High patient volume is associated with increased 30-day mortality after hip fracture.
Pia Kjær Kristensen, Theis Muncholm Thillemann, Søren Paaske Johnsen

108. External versus internal fixation of intra-articular distal tibial fractures - A systematic critical review
Peter Ivan Andersen, Bjarke Løvbjerg Viberg, Morten Schultz Larsen

109. Over- og undertriage ved modtagelse af multitraumatiserede patienter - En sammenligning af to triagesystemer
Torben Stryhn, Morten Schultz Larsen

110. Patient volume in hip fracture units is associated with increased length of hospital stay and increased surgical delay.
Pia Kjær Kristensen, Theis Muncholm Thillemann, Søren Paaske Johnsen

111. Demographic and short-term outcome changes within 10 years of a multimodal fast-track hip fracture program
Morten Tange Kristensen, Henrik Palm

112. Venous thrombosis following fractures below the knee, a nationwide cohort study
Liv Riisager Wahlsten, Henrik Eckardt, Gunnar Hilmar Gislason, Jonas Bjerring Olesen, Christian Torp-Pedersen

113. The management of anticoagulant therapy in hip fracture patients in Denmark
Peter Toft Tengberg, Nicolai Bang Foss, Henrik Palm, Anders Troelsen

114. Reliability of a Scoring System for Measurement of Implant Position after Internal Fixation of Undisplaced Femoral Neck Fractures
Marie-Louise Lervad Bartholin, Kolja Weber, Rune Dueholm Bech, Henrik Palm, Bjarke Viberg, Morten Schultz Larsen

115. Reoperation rates on proximal femoral fractures
Pernille Nygaard Vedel, Troels Riis, Annette Sylvest, Henrik Løvendahl Jørgensen, Benn Duus

Session 12: Hand

Fredag den 25. oktober
11:00 – 12:00
lokale: Stockholm/Copenhagen

Chairmen: Maiken Stilling/Anders Lorentzen

116. Satisfaction with Upper Extremity Surgery in Individuals with Tetraplegia
Hanne Gregersen, Mille Lybæk, Inger Lauge Johannesen, Pernille Leicht, Ulla Vig Nissen, Fin Biering-Sørensen

117. Xiapex® (collagenase clostridium histolyticum) – treatment of patients with Dupuytren's contracture – 1 year follow-up
Søren Larsen, Karina Liv Hansen, Tune Ipsen, Jens Lauritsen

118. High revision rates with the metal on metal Motec trapeziometacarpal total arthroplasty
Janni Kjærgaard Thillemann, Theis Muncholm Thillemann, Bo Munk, Karsten Krøner

119. Compensation claims from the use of an arterial tourniquet during limb surgery in Denmark in the years 1998 -2010
Lasse E. Rasmussen, Søren Larsen, Kim L Mikkelsen

120. Tendon Gene Therapy by Electroporation holds Potential to Modify Flexor Tendon Healing
Sys Hasslund, Hanne Gissel, Carl Christian Danielsen, Mette Koefoed, Lars Aagaard, Kjeld Søballe

121. Amputation of a spastic, paralysed arm after a stroke, prosthetic supply and functional outcome.
Pernille Leicht, Ellen Thomsen Rasmussen, Lisbeth Villemoes Sørensen, Stig Jensen

122. Treatment of proximal interphalangeal joint fractures by the pins and rubbers traction system – a follow up
Jessica Agneta Nilsson, Hans-Eric Rosberg

123. Small Joint Arthroscopy in Hands – technique and clinical uses in RA patients
Charlotte Schultz, Martin Andersen, Vendel Jensen Ninna, Niels H. Søe, Henning Bliddah

Session 13: Foot/ankle

Fredag den 25. oktober
11:00 – 12:00
lokale: Helsinki/Oslo

Chairmen: Jeannette Østergaard Penny/Lasse Danborg

124. Dynamic non-operative treatment of acute Achilles tendon rupture: The influence of early weight-bearing on clinical outcome. A blinded, randomized, controlled trial.
Kristoffer W Barfod, Jesper Bencke, Hanne Bloch Lauridsen, Ilija Ban, Lars Ebskov, Anders Troelsen

125. High volume injection, autologous conditioned plasma and placebo treatment in patients with chronic Achilles tendinopathy– A single blinded prospective study
Anders Ploug Boesen, Morten Boesen, Rudi Hansen, Peter Malliaras, Otto Chan, Henning Langberg

126. Modified Lapidus arthrodesis – Plantar plating and compression screw Retrospective evaluation of fusion rate and IM-1 angle correction
Kim Hegnet Andersen, Anna Kathrine Pramming, Jens Kurt Johansen, Jeannette Østergaard Penny

127. Surgical treatment of lesser-toe-MTP joint instability: Plantar plate repair using a plantar approach.
Anna Kathrine Pramming, Jens Kurt Johansen, Kim Hegnet Andersen, Jeanette Østergaard Penny

128. Development and validation of a novel ultrasonographic method for evaluation of Achilles tendon elongation after rupture
Kristoffer W Barfod, Anja Falck Riecke, Anders Boesen, Philip Hansen, Jens Friedrich Maier, Anders Troelsen

129. Achilles Tendon ruptures – treatment and complications: A systematic review
Christina Holm, Pernilla Eliasson

130. Complications after acute Achilles tendon rupture. A registry study of 324 patients from the Danish Patient Insurance Association
Thor-Magnus Sveen, Kristoffer W. Barfod, Lars Ebskov, Anders Troelsen

131. Prospective comparative study comparing the results of proximal crescentic osteotomies and open wedge osteotomies to patients with severe hallux valgus
Jens Ulrik Wester, Niels Herold, Palle Bo Hansen, Johnny Frøkjær

Session 14: Foredragskonkurrence

Fredag den 25. oktober
13:00 – 14:30
lokale: Stockholm/Copenhagen/Helsinki/Oslo

Chairmen: Ole Rahbek/Steen Lund Jensen

132. Prognostic Factors in 1065 Adult Non-Metastatic Soft Tissue Sarcoma: a Population-Based Cohort Study
Katja Maretty-Nielsen, Ninna Aggerholm-Pedersen, Akmal Safwat, Peter Holmberg Jørgensen, Alma Pedersen, Johnny Keller

133. Radiostereometric analysis (RSA) of two MoM cups, 2 year results from a randomized clinical trail (RCT)
Jeannette Penny, Ming Ding, Ole Ovesen, Jens Erik Varmarken, Søren Overgaard

134. Preoperative effects of progressive individualized explosive-type resistance training in patients with osteoarthritis scheduled for total hip arthroplasty (THA) -a prospective randomized controlled trial (RCT)
Andreas E B Hermann, Anders Holsgaard-Larsen, Bo Zerahn, Steen Mejdahl, Søren Overgaard

135. Is 8 weeks supervised early progressive resistance training after unicompartmental knee arthroplasty more effective than home based exercise?
Peter Bo Jørgensen, Søren Bie Bogh, Kjeld Søballe, Henrik Sørensen, Anders Odgaard, Inger Mechlenburg

136. 3 Year Multicenter RSA evaluation of vitamin E diffused highly cross-linked polyethylene liners and acetabular cup stability
Nanna H. Sillesen, Audrey Nebergall, Poul T. Nielsen, Mogens B. Laursen, Anders Troelsen, Henrik Malchau

137. Collagen conduit vs. microsurgical neurorrhaphy Two year follow up of a prospective blinded clinical and electrophysiological multicenter RCT

Michel E.H. Boeckstyns, Allan Ibsen Sørensen, Joaquin Fores Vineta, Birgitta Rosén, Xavier Navarro, Christian Krarup

138. Cup design is an important factor in survival of trapeziometacarpal total joint trapezium components.

Haider Ghalib Majeed, Torben Bæk Hansen

Posterudstilling

Fra onsdag den 23. oktober
10:30 –
lokale: Capital Foyer

(postere udvalgt til posterpræsentation listes også side 78-83)

139. No increased risk of elevated metal ions and pseudotumour formation when using modular neck-stems bilaterally
Peter Revald, Claus Varnum, Poulsen Thomas K., Per Kjærsgaard-Andersen

140. Body composition preoperatively has no impact on clinical outcome after hip arthroplasty - A cohort study of 102 patients 1year after surgery
Anette Liljensøe, Jens Ole Laursen, Kjeld Søballe, Inger Mechlenburg

141. 3 year Follow-up of a Long-term Registry-based Multicenter study on Vitamin E Diffused Polyethylene in Total Hip Replacement
Nanna H. Sillesen, Meridith E. Greene, Audrey K. Nebergall, Anders Troelsen, Peter Gebuhr, Henrik Malchau

142. Effect of early progressive resistance training compared to home based exercise after fast track total hip replacement. A randomised controlled trial.
Lone Ramer Mikkelsen, Inger Mechlenburg, Kjeld Søballe, Søren Mikkelsen, Thomas Bandholm, Mette Krintel Petersen

143. 3 months home-training by a standardized program improves walking distance and knee extension strength in old patients 1-7 years after surgery with dual-mobility THA following femoral neck fracture.
Christina Frølich, Inger Mechlenburg, Sara Birch, Lone Lundager, Torben Bæk Hansen, Maiken Stilling

144. Preoperative planning in cementless total hip arthroplasty - Accuracy of digital templating
Mikkel Krüger Jensen, Søren Solgaard

145. Timing of preoperative prophylactic antibiotics for knee arthroplasties. A quality study after the introduction of the WHO checklist with a standard "time-out" before skin incision.
Arne Svensson, Lars Peter Jorn

146. No correlations between radiological angles and self-assessed Quality of Life in patients with Hip Dysplasia at 2-13 years of follow up after periacetabular osteotomy
Sara Birch, Anette Liljensøe, Charlotte Hartig-Andreasen, Kjeld Søballe, Inger Mechlenburg

147. Removal of mobilisation restrictions following primary THR does not increase risk of early dislocation.
Kirill Gromov, Anders Troelsen, Kristian Stahl Otte, Thue Ørsnes, Henrik Husted

148. Block-step asymmetry 5 years after large-head MOM THA is related to lower muscle mass and leg power on the implant side.
Mette Holm Hjorth, Maiken Stilling, Nina D Lorenzen, Stig Storgaard Jakobsen, Kjeld Søballe, Inger Mechlenburg

149. No clinical important increase in perioperative bleeding during total hip replacement in users of serotonergic antidepressants
Annie Primdahl, Frank Damborg, Tine Nymark, Michael Dall, Jesper Hallas

150. Initial Hip Model
Tina Skytte, Lars Pilgaard Mikkelsen, Stig Sonne-Holm, Christian Wong,

151. Collateral Ligament Reconstruction of the Chronic Thumb Injury with Biotenodesis Screw Fixation
Robert Gvozdenovic, Michel Boeckstyns

152. Partial Scaphoid Implant (APSI). A Seven Years Follow-up
Nina Vendel, Lene Jensen, Niels H. Søe Søe, Lars B. Dahlin

153. Volar dislocation of the second and third carpometacarpal joint following a soccer tackle -a case story of a missed diagnosis in a 15 year old boy.
Anne Mørup-Petersen, Camilla Ryge, Dorte Engelund

154. Erythropoietin elicits a dose-dependent osteogenic effect on human mesenchymal stem cells
Jan Duedal Rölfing, Anette Baatrup, Maik Stiehler, Helle Lysdahl, Cody Bünger

155. The influence of hemostatic agents on bone healing after sternotomy in a porcine model
Rikke Falsig Vestergaard, Annemarie Brüel, Jesper Skovhus THomsen, Ellen Margrethe Hauge, Kjeld Søballe, John Michael Hasenkam

156. Topographical microstructures increase proliferation of human primary chondrocytes in vitro.
Natasja Leth Jørgensen, Anna Nielsen, Ole Zoffman Andersen, Morten Foss, Martin Lind, Helle Lysdahl

157. Dental Pulp Stem Cells Seeded on Modified Polycaprolactone Scaffolds Promotes Osteogenic Differentiation in Vitro
Jonas Jensen, Helle Lysdahl, David Kristian Evar Kraft, Jan Rölfing, Cody Bünger

158. Results after plate removal in midshaft clavicle fracture surgery: Focus on coexsisting soft-tissue shoulder injuries.
Ban Ilija, Poulsen Heidi, Troelsen Anders

159. Early experiences with the DHS blade in treating femoral neck fractures
Rasmus Stokholm, Lise Hellegaard, Steffen Skov Jensen

160. Retrospective review of radiographic referral, interpretation and treatment plan in a Danish emergency department in comparison to an international benchmark.
Mohamed Shalaby, Wajeha Malik, Christine Hilbrandt, Valentina Makolli, Thomas Houe

161. Feasibility of progressive strength training immediately after hip fracture surgery.
Lise Kronborg, Thomas Bandholm, Henrik Palm, Henrik Kehlet, Morten Tange Kristensen

162. Severe fractures after Segway related accidents in an amusement park
Morten Knudsen, Svend-Erik Heiselberg, Ole Brink

163. Tibia intramedullary nailing - comparison of physical activity and pain with or without secondary surgery
Katrine Borum, Peter Toquer Jessen

164. Tibia intramedullary nailing - secondary surgery - rate, indications and contexts.
Katrine Borum, Toquer Jessen Peter

165. Complication rates in unstable trochanteric fractures when type of osteosynthesis is dictated by the preference of the surgeon
Eske Brand, Jakob Klit

167. Surgery for Kyphoscoliosis in Parkinson's Disease
Ebbe Stender Hansen, Dharmendra Singh, Cody Bünger

168. The physical and mental outcome of 100 patients having a Percutaneous Vertebroplasty because of pathological vertebral fractures.
Søren Lykke Lorentzen, Rikke Rousing, Stephan Hummel

169. Evaluation of stratified surgical intervention based on the Aarhus Spinal Tumor Algorithm
Miao Wang, Cody Eric Bünger, Kristian Høy, Peter Helmig, Ebbe Stender Hansen, Haisheng Li

170. The epidemiology of surgically treated spinal fractures in Eastern Denmark
Thomas Pensbo-Madsen, Kiran Anderson, Corrado Lucantoni, Santhana Rambabu, Martin Gehrchen, Benny Dahl

171. Satisfactory Curve Correction Using Ultra Low Profile Segmental Pedicle Screw Implant in AIS
Martin Gehrchen, Jonas Walbom, Lars Valentin Hansen, Benny Dahl

172. Artificial Meniscal scaffold Implantation and Meniscal Allograft Transplantation.
Martin Rathcke, Peter Lavard, Michael Krogsgaard

173. Does bony hip morphology affect the outcome of treatment for patients with adductor-related groin pain? Long term results of a randomised controlled trial.
Per Hölmich, Kristian Thorborg, Per Nyvold, Jakob Klit, Michael Bachmann Nielsen, Anders Troelsen

174. Custom-made orthotics decrease medial foot loading during drop jump and single-leg squat in individuals with patellofemoral pain
Michael Rathleff, Camilla Richter, Jesper Bencke, Thomas Bandholm, Per Hölmich, Kristian Thorborg

175. DHAR – the Danish Hip Arthroscopy Register
Bent Lund, Søren Winge, Otto Kraemer, Svend Erik Christiansen, Martin Lind

176. Tendon and skeletal muscle matrix gene expression and functional responses to immobilization and rehabilitation in young males: Effect of growth hormone administration
Anders Ploug Boesen, Kasper Dideriksen, Peter Schjerling, Christian Couppe, Michael Kjaer, Henning Langberg

177. Outcomes of acute fixation of chondral lesions following patellofemoral dislocation
Knud Gade Freund, Lene Guldberg Hansen, Peter Kraglund Jacobsen

178. Trochleaplasty in the treatment of severe patellofemoral instability
Peter Lavard, Anette Hollm Kourakis, Michael Rindom Krogsgaard

179. Incidence of arthroscopy-identified cartilage injuries of the knee and proportion leading to repair procedures– A nationwide Danish cohort study 1996-2011
Anil Mor, Miriam Grijota, Mette Nørgaard, Jonas Munthe, Martin Lind, Alma Becic Pedersen

180. The influence of Patellar and Trochlear lesions on the results of anteromedial tibia tubercle osteotomy
Andreas Kiilerich Andresen, Jens Kristinsson

181. Comparison of Two Humeral Head Resurfacing Implants. 2 year Results of a Randomized Controlled Clinical Trial
Inger Mechlenburg, Thomas Klebe, Kaj Døssing, Kjeld Søballe, Maiken Stilling

182. Clinical implications of positive cultures in revision shoulder arthroplasty
Thomas Falstie-Jensen, Janne Ovesen, Viggo S. Johannsen

183. Translation and validation of Western Ontario Osteoarthritis of the Shoulder Index (WOOS) – The Danish Version
Jeppe Rasmussen, John Jakobsen, Stig Brorson, Bo S Olsen

184. Construct validity and responsiveness of functional measures used in subjects following an outpatient prosthetic rehabilitation program after a major lower limb amputation
Kajsa Lindberg, Joanne Boelskifte, Jimmy Johansson, Mie Rinaldo, Morten Tange Kristensen

185. Pneumococcal sepsis-induced Symmetrical Peripheral Gangrene
Taj Haubuf, Klaus Kjær Petersen, Kurt Fuursted, Alex Lund Laursen, Johnny Keller

186. Ultrasound guided core needle biopsy of peripheral nerve sheath tumors. A retrospective study.
Damgaard Jacob, Hauge Hansen Bjarne, Holmberg Jørgensen Peter, Keller Johnny, Hellfritzch Michel, Baad-Hansen Thomas

187. Local Recurrence Rate after Surgical Excision of Desmoid Fibromatosis.
Elinborg Mortensen, Thea Hovgaard, Michael Mørk Petersen

188. Persistent wound drainage after tumor resection and endoprosthetic reconstruction the proximal femur
Peter Horstmann, Werner Hettwer, Tomas Grum-Schwensen, Michael Mørk Petersen

189. Computer assisted 3D navigation for minimally invasive bone tumor biopsy and resection
Werner Hettwer

190. Testing A New Type Of Osteosynthesis And After Care – In Treatment Of Antebrachium Fractures in Children, Preliminary Result Of A Prospectiv Case-Control Study.
Ture Karbo, Stig Sonne-Holm, Christian Wong

191. Normal distribution of seating balance for healthy Danish children
Line Kjeldgaard Pedersen, Ahmed Abdul-Hussein Abood, Ole Rahbek, Bjarne Møller-Madsen

192. Hamstring lengthening in CP patients by needle tenotomy is safe
Lauge Østergaard, Gert Rahbek Andersen

193. Normal distribution of standing balance for healthy Danish children
Line Kjeldgaard Pedersen, Habib Ghasemi, Ole Rahbek, Bjarne Møller-Madsen

194. Radiographic results of Dega's Transiliac Osteotomy in children with subluxation and dislocation of the hip joints.
Benjamin Presman, Stig Sonne-Holm

Abstracts

The influence of early weight-bearing after non-operative treatment of acute Achilles tendon rupture on biomechanical properties of the plantar-flexor muscle-tendon complex. A blinded, randomized, controlled trial

1.

Jesper Bencke, Kristoffer W Barfod, Hanne Bloch Lauridsen , Christian Dippmann, Lars Ebskov, Anders Troelsen

Gait Analysis Laboratory, dept. of Orthopaedic surgery, Copenhagen University Hospital, Hvidovre, Denmark; Orthopaedic surgery, Clinical Orthopaedic Research Hvidovre, Copenhagen University Hospital, Hvidovre, Denmark; Copenhagen University Hospital, Bispebjerg, Denmark, Copenhagen University Hospital, Hvidovre, Denmark; Orthopaedic surgery, Copenhagen University Hospital, Hvidovre, Denmark

Background: Early weight-bearing has several potential advantages during treatment of Achilles tendon rupture, including better healing of the tendon. This may affect the biomechanical properties of the plantar- flexor muscle-tendon complex (PMTC) with possible consequences for functional performance and risk of re-injury.
Purpose / Aim of Study: To compare the biomechanical properties of the PMTC of both legs in patients randomized to early weight-bearing (WB) or non-WB in non-operative treatment of ATR.
Materials and Methods: The study was conducted as a RCT randomising 60 patients into two groups. In both groups, patients were treated non- operatively with dynamic rehabilitation. The intervention group was allowed full WB from day 1 of treatment. The control group was non-WB for 6 weeks. After 6 and 12 months the passive torque at 20 degrees dorsiflexion and stiffness during slow stretching in early, medium and late dorsiflexion (DF) were measured in both the affected (A) and unaffected (UA) leg.
Findings / Results: There were no significant differences between the WB and the non-WB groups when evaluating the PMTC properties. Compared to UA, the passive torque was significantly lower for A only at 6 months (91% ($p=0.01$) and 98% (ns.) at 6 and 12 months, respectively). Stiffness was significantly lower for A during the early part of DF at 6 months, and remained inferior at 12 months despite significant improvement ($p=0.019$) (71% ($p<0.001$) and 83% ($p<0.001$) at 6 and 12 months, respectively).
Conclusions: There was no effect of WB on the biomechanical properties of PMTC compared with non-WB. The reduced stiffness in A in the early part of DF may have implications for coordination of i.e. gait and running, and the fact that the stiffness is not normalised after 12 months may indicate a need for prolonged physiotherapy, irrespective of initial treatment regime.

Reconstruction of the medial patellofemoral ligament in adolescents with open growth plates

2.

Ditte Enderlein, Torsten Nielsen, Peter Faunø, Svend Erik Christiansen, Martin Lind

Orthopaedic Department, division of Sports Trauma, Aarhus University Hospital

Background: Medial patellofemoral ligament reconstruction (MPFL-R) has recently been broadly accepted as primary surgical treatment in adults. Reconstruction techniques with osseous fixation in femur cannot be used for patients with open growth plates. Operative treatment of patella instability in children therefore is a challenge and requires alternative MPFL-R techniques. Limited knowledge exists concerning outcome after MPFL-R in children and adolescents.
Purpose / Aim of Study: This study presents clinical outcome in a consecutive single clinic series of children treated with paediatric (MPFL-R) using a soft tissue femoral fixation technique.
Materials and Methods: 23 children aged 8-16 operated with 25 MPFL-R between 2008 and 2011 are included. Indication for surgery was two or more patella dislocations and ADL limitations. Surgical technique: Gracilis tendon was looped around the adductor magnus tendon and fixed through drillholes in the proximal medial patella edge. Clinical outcome were evaluated with Kujala score and NRS pain score preoperatively and at 1 year follow-up including incidences of recurrent instability episodes.
Findings / Results: Kujala score improved from 64 to 81. NRS pain score improved from 2,9 to 0,6 in activity. 4 patients (16%) experienced re- dislocation within the 1st year. 5 patients (20%) experienced subluxations. 1 patient with a re-dislocation was re-operated with adult MPFL technique. Cartilage injury was seen in 5 patients. 4 out of 5 patients with cartilage injury had recurrent instability.
Conclusions: There are clinical relevant improvements in knee function and pain after paediatric MPFL-R. Stability and strength of the reconstruction though seem to be inferior to adult MPFL-R techniques postoperatively. Cartilage injury is correlated to recurrent patella instability.

Traction related complications during hip arthroscopy

3.

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Background: Complications can arise from the traction during hip arthroscopy.
Purpose / Aim of Study: The aim of this investigation was to investigate traction related complications. We also investigated how the patients perceive and cope with traction related problems.
Materials and Methods: The investigation is based on a prospective cohort study partly supplemented with interviews. Data were collected by questionnaires from patients who had undergone hip arthroscopy as well as data from the patients files. 100 consecutive patients were included in the study. The questionnaire was used 10 and 90 days postoperatively. Questions were related to location and duration of symptoms. The questionnaire was supplemented with a semi-structured interview with 6 patients, who had experienced complications related to the traction.
Findings / Results: The results demonstrated that 74% of the patients had minimum one complication at the groin, knee or foot level. 32% had complications in the groin or perineal area in the form of swelling, scratches/bruising or sensibility changes. 49% had complications at knee level in the form of swelling, laxity feeling or sensibility changes. 37% had complications at foot or ankle level in the form of swelling, bruising or sensibility changes. Generally the complications were limited and disappeared within 2-4 weeks. Females had more complications than males. No difference was found in traction times between patients with and without complications (36/39 minutes). The interviews revealed that patients lacked information about complications in general the duration of complications and what they should to do to handle them.
Conclusions: The results are surprising as the existing literature report much lower complication rates related to traction than found in the present study.

ACL reconstruction in children. Results from the Danish Registry for Knee Ligament Reconstruction

4.

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Background: An increasing number of ACL ruptures are registered in children and adolescents. More information on the fate of ACL reconstruction is needed, since the evidence for surgical treatment in the young patient is low
Purpose / Aim of Study: To describe the outcome of ACL reconstruction in children and adolescents based on data from the Danish ACL Registry
Materials and Methods: The data are subtracted from the Danish national ACL registry. The analysis is based on population of 14.806 ACL reconstructed patients. Outcome was evaluated by risk of ACL revision, subjective outcome score (KOOS), Tegner function score and objective laxity scores. Three age groups (A: <13, B: 13-15, and C: 15-20 years) were compared to D: patients 20 years and older (adults). 95 patients in group A. 337 in B, 2.888 in C and 11.496 were above 20 years (group D)
Findings / Results: We found significantly increased risk for revision surgery in the age group B (6,7%) and C (4,9%) compared to adults (2,0%). Objective laxity did not differ between the four groups. Group A, B and C had higher KOOS4 (79.6, 76.6, 73.1 respectively)) score compared to the adults (69.7). Group B had higher KOOS QOL (76.6/73.1) and sports (71.1/66.4) scores than group C. Tegner activity score did not differ between the four groups. We could not detect any impact of the use of extracortical graft fixation in the youngest age group.
Conclusions: Patients between 13-20 years have an increased risk of graft failure. This is in contrast to the better subjective and objective knee function scores in the same age groups. These findings indicates that young ACL patients could benefit from a more careful guidance in their postoperative activity.

Outcome after posterior cruciate ligament (PCL) reconstruction

5.

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Background: PCL reconstruction are rarely performed compared to anterior cruciate ligament reconstruction.
Purpose / Aim of Study: The purpose of this study was to evaluate the clinical and functional outcome after PCL reconstruction either isolated or as multiligament reconstruction.
Materials and Methods: 197 patients who underwent PCL reconstruction during the period 2005 to 2010 were included. We performed a standardized follow-up in 2012/2013 consisting of subjective scores (Tegner activity score, KOOS and subjective IKDC) and objective measures including knee laxity (KT1000, 70 dgr), extension strength and overall IKDC score. We compared these follow-up data with data from the Danish Registry for Knee Ligament Reconstruction.
Findings / Results: 100 patients were available for follow-up, 42% with isolated PCL and 58% with multiligament injury. Mean follow up time was 60 month (37-99). KOOS scores at follow- up in the isolated PCL group was respectively: sympt. (73), pain (77), ADL (83), sport (57) and QOL (58). And in the multiligament group: sympt. (75), pain (81), ADL (86), sport (60) and QOL (58). Tegner scores was respectively 4.9 and 5.6 and subjective IKDC was 68 and 65. Comparison with data from the Danish Registry for Knee Ligament Reconstruction shows only minor differences in subjective outcome between Primary ACL reconstruction KOOS data and PCL reconstruction patients from this study. The average side to side difference in knee laxity was in the isolated PCL group 2.2 mm compared to 3.2 mm in the multiligament group.
Conclusions: Although the average side to side knee laxity between the two groups is 1 mm the functional outcome score is almost identical. Regarding KOOS scores after primary ACL reconstruction versus isolated or combined PCL reconstruction surgery there is only a minor difference in subjective outcome.

Clinical outcome after PCL support bracing treatment for patients with acute posterior cruciate ligament injury

6.

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Background: Posterior cruciate ligament (PCL) injury occurs typically due to high energy trauma. Patients with grade 3 injuries are often treated operatively while those with grade 1 & 2 can be managed conservatively by bracing.
Purpose / Aim of Study: The aim of the study is to evaluate the outcome of non-operative management of acute isolated PCL injuries.
Materials and Methods: From March 2004 to April 2012, 36 patients with isolated acute (< 4 weeks) PCL injury were treated with PCL support brace (Jack brace). A brace with tibial supporters designed to prevent posterior displacement at the knee. 29 ptt were from Capio Arthro Clinic in Stockholm and 7 ptt from Aarhus University hospital. 23 pt were present for a median follow up of 43 months. Functional outcomes were evaluated with Lysholm score, International Knee Documentation Committee subjective (IKDC), KOOS, Tegner, Werner scores as well as one leg hop test and anterior/posterior knee stability measured with KT-1000 arthrometer.
Findings / Results: There were 10 females and 13 males. Average age at the time of injury was 23 yrs. Mean Lysholm score was 86, median Tegner was 7, objective IKDC 2000 score showed 57% were nearly normal and 43% abnormal, KOOS scores for pain, symptoms, ADL, sport, QOL was 90,86,93,76,74 respectively. Average Werner score was 43, Average knee function (one leg hop) compared to non-injured knee was 96%. Average side-to-side difference at 70 degrees of knee flexion was 1mm.
Conclusions: PCL support bracing with attached tibial supporters designed to prevent posterior displacement at the knee yielded satisfactory clinical and functional results in the majority of the cohort study group.

A validation study of the Danish Knee Ligament Reconstruction Registry

7.

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Background: The Danish Knee Ligament Reconstruction Registry (DKRR) is a population-based database. The validity of the database is not known. It is of crucial importance to evaluate the registration completeness and to validate the data quality in such a database in order to be able to draw valid and reliable conclusions.

Purpose / Aim of Study: The aim of this study was to validate the DKRR by assessing the registration completeness of the ACL reconstruction (ACLr) code and detecting the validity of important key variables. Furthermore, we assessed data quality of patient-related outcome scores

Materials and Methods: All operation codes for ACLr from 2005 to 2011 were identified in the Danish National Registry of Patients and compared with the cases registered in the DKRR to compute the completeness of registration in the DKRR. We also assessed the validity of key variables using medical records as a gold standard to compute the positive predictive value (PPV). Finally, we assessed potential differences between responders and non- responders to subjective patient- related outcome scores (KOOS and Tegner scores) one year after surgery.

Findings / Results: The completeness of registration of patients in the DKRR rose from 60% (2005) to 86% (2011). Large-volume hospitals had a significantly higher completeness than small-volume hospitals. With a PPV between 85% and 100%, the validity of key variables was good. KOOS vs. Tegner scores for responders and non-responders were comparable.

Conclusions: The results show a good registration of ACLr procedures in the DKRR, but there is room for improvement mainly at small-volume hospitals. Overall, the validity of the key variables in the DKRR was good and no difference was found in KOOS and Tegner scores for responders vs. non- responders. Therefore, we conclude that the DKRR is a valid source for future research.

Patient reported outcomes are strongly associated by lower limb loading pattern, mechanical muscle strength and functional performance in acl-patients-a cross-sectional study

8.

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Background: Despite, being considered as two distinct constructs, associations between objective measures and self- reported outcomes (i.e. Knee Injury and Osteoarthritis Outcome Score (KOOS)) may specify focus areas in the rehabilitation of ACL-patients.
Purpose / Aim of Study: To investigate the extent to which a test-battery of 15 objective outcome measures of physical function are associated with KOOS-subscales in ACL-reconstructed patients, with the perspective of identifying areas of intervention that potentially could facilitate rehabilitation in this patient- group.
Materials and Methods: This cross sectional study was performed in 23 ACL-reconstructed men (mean age: 27.2±7.5 years and BMI: 25.4±3.2) 18-30 month post- surgery. KOOS-questionnaire was filled out and subsequently, patients performed a test-battery composed by: (i) bilateral and (ii) unilateral maximal counter movement jumps (CMJ). Kinematic data were synchronously recorded by a 6-camera Vicon MX system. Furthermore, patients performed (iii) one-leg maximal jump for distance and (iv) maximal isometric knee extensor and flexor strength (MVC). Backward multiple stepwise linear regression analysis was conducted using each of the 5 KOOS- subscales as the depended variables, and the 15 objective outcomes from the test-battery as independed variables.
Findings / Results: Strong associations between objective outcomes and KOOS subscales were observed: QOL ($r2=0.89$, $p < 0.001$), Pain ($r2=0.74$, $p < 0.002$), Sport/Rec ($r2=0.71$, $p < 0.001$) and ADL ($r2=0.57$, $p < 0.001$) along with a moderate association for Symptoms ($r2=0.18$, $p < 0.05$).
Conclusions: A very large proportion (57-89%) of the variation in KOOS (QOL, Pain, Sport/Rec, and ADL) was explained by the current objective test-battery. Thus, future research on ACL-rehabilitation should emphasise areas of intervention evaluated by the current test-battery.

Microbiologic diagnosis based on implant sonication in hip and knee arthroplasty revision surgery

9.

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Background: In order to determine prosthetic joint infection (PJI) the microbiological diagnosis in hip and knee arthroplasty revision is traditionally found by culture of joint aspirate and periprosthetic tissue (PPT). Poor sensitivity of these modalities has been explained by lack of access to the dormant biofilm bacteria on the implant surface.
Purpose / Aim of Study: To compare cultivation of joint aspirate and PPT with culture of sonication fluid from removed hip and knee prostheses.
Materials and Methods: In a prospective study at Odense University Hospital and Vejle Hospital we analyzed all prosthetic materials removed in revision surgery of any indication. The prostheses were individually sonicated due to a well-established protocol (Trampuz et al. N Engl. J Med., 2007). Aliquots of sonication fluid (SF) were cultured under aerobic and anaerobic conditions for up to 14 days, and considered positive with >10 colonies/ml. Conventional fluid and tissue sampling was performed systematically in each revision and cultured due to best practice for 5 days. PJI was defined by finding of the same bacterial specie in at least two out of five PPT samples, or in both joint fluid and PPT. Positive culture of one tissue sample or joint fluid alone was defined as contamination.
Findings / Results: In 160 consecutive revisions of total hip (94) and knee (66) arthroplasties conventional culture methods diagnosed 38 cases (24%) of PJI, whereas positive culture of sonication fluid was found in 52 cases (33%). Most common bacteria found in conventional / SF were S. aureus (9/10), S. epidermidis (13/13). P. acnes in large numbers were found only in SF (0/ 4). Contamination was found in 10 resp. 1 case.
Conclusions: Culture of SF revealed 14 more positive cultures than by conventional methods and fewer cases with contamination.

A Randomized controlled Radiostereometric study comparing a novel porous titanium construct to a porous coated surface in cementless total knee arthroplasty

10.

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Background: Aseptic loosening of the tibial component in total knee arthroplasty (TKA) remains a leading cause of revision surgery, and newer techniques are currently developed to meet the patients´ demands for increased durability of the implants.Regenerex is a novel porous titanium construct and a microcasting of normal trabecular bone. It has a porous structure and biomechanical characteristics very close to that of normal trabecular bone. It is believed that these characteristics will facilitate bone ingrowth and secure a better fixation to the host bone, thus increasing the implant survival.
Purpose / Aim of Study: The aim of this study was to evaluate the migration of the tibial component in a clinical randomized trial comparing the use of a novel titanium construct Regenerex, versus a well proven porous plasma spray (PPS) component.
Materials and Methods: 60 patients scheduled for a TKA were randomized to receive a modular tibial component coated with a new porous titanium construct (Regenerex®Biomet) or a porous coated component (Vanguard® Biomet). X-rays for Radiosteriometric analysis of tibial component migration were performed postoperatively and at 3, 6, and 12 months of follow-up. Patients were clinical evaluated by KSS score and the WOMAC score.
Findings / Results: Knee and function scores as well as the WOMAC score improved significantly from preoperatively to 1 year follow-up.the majority of migration appeared during the first 3 months. The dominant mode of migration of the Regenerex implant was subsidence, external rotation and posterior tilt. No statistically significant differences between MTPM or segment motion between the two groups were found.
Conclusions: The novel titanium construct had maximum total point motion comparable with other uncemented implants. Both groups showed stable migration pattern and good clinical results.

The revision risk of 28480 primary total hip replacements (THR) in patients younger than 55 years of age. Results from the Nordic Arthroplasty Register Association (NARA)

11.

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Background: During the last decades there has been a trend towards use of cementless implants in younger patients without clear evidence.
Purpose / Aim of Study: To evaluate the association between prosthetic concepts and risk of revision, particularly time trend of any association, among younger THR patients using NARA dataset.
Materials and Methods: We identified all primary THR due to osteoarthritis aged less than 55 years performed in four Nordic countries from 1995-2011(n=28480). Using Cox regression we calculated relative risk (RR) for any revision and aseptic loosening with 95% confidence interval (CI). Cemented implants were reference group
Findings / Results: In the period 1995-2011, no difference between cementless and cemented implants due to risk of any revision was observed. Hybrid implants had higher risk for any revision (RR=1.28, CI: 1.13-1.45), but time trend analyses revealed, that this only applies to hybrid implants inserted in 1995-1999 and 2004-2007. During 1995-2011, cementless implant had reduced risk for revision due to aseptic loosening (RR=0.52, CI:0.45- 0.59), but this was only evident for cementless implant inserted in 1995- 2003. No difference between hybrid and cemented implants in relation to risk of revision due to aseptic loosening. Within 2 years of THR, no difference between prosthetic concepts was observed in 1995-2007, but in 2008-2011 the cementless implants had elevated risk of any revision within 2 years with RR=1.11, CI:1.02-1.20 versus cemented implants.
Conclusions: Our large population-based study in younger patients provides evidence that, in general hybrid implant had higher risk for any revision and cementless implant had lower risk of revision due to aseptic loosening compared with cemented, but for any revision cause. The risks were clearly dependent on calendar year of primary THR and follow-up period.

What do patients perceive as important preoperative information in total hip- and knee arthroplasty? 12.

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Background: Preoperative information may influence the preoperative level of patient anxiety and expectations to the outcome of surgery. However, there is little knowledge concerning patient perception of what important information is and exactly what information patients should receive preoperatively
Purpose / Aim of Study: To investigate 1) what patients perceive as important preoperative information, 2) their preoperative anxiety level, and 3) their preoperative expectations to the outcome of surgery
Materials and Methods: A structured questionnaire concerning anxiety, expectations and the importance of different aspects of preoperative information was returned by 45 unselected total hip and knee arthroplasty patients after surgery was decided and prior to the patient education classes. Answers were given on VAS (0-10) or likert-style scales. Mean age of patients was 68.6 years (range: 29-81)
Findings / Results: Patients had very high expectations to reduced level of pain (median VAS 0), other symptoms (median VAS 0), and quality of life (median VAS 9) 1 year postoperatively. Patients experienced moderate anxiety concerning all aspects of the upcoming operation. The answers to questions concerning the preoperative importance of information on different aspects of admission, surgery, hospitalization, and the postoperative course were median VAS 8 to 10 (very or extremely important) in 43 of 45 questions
Conclusions: Patients have very high expectations to the surgery outcome and experience moderate preoperative anxiety levels. It seems patients are unable to differentiate the importance of different aspects of preoperative information indicating a need for information on all aspects perioperatively. Patient education classes should be multidisciplinary, include information on all aspects perioperatively, and aimed specifically to address patient expectations

Fall-related readmissions after fast-track total hip and knee arthroplasty, cause of concern or consequence of success? 13.

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Background: Falls are common in the elderly with potential severe consequences including fractures and other injuries. Few studies have investigated falls after discharge resulting in contact with hospital after fast-track elective total hip and knee arthroplasty, despite a potential increased risk of falling after these procedures.
Purpose / Aim of Study: A detailed analysis on falls with contact to hospital ¡Ü90 days. Outcomes: Time after index surgery, circumstances leading to falling and fall related injuries.
Materials and Methods: A prospective descriptive cohort study in 5145 procedures performed in 6 centres between Feb 1st 2010 and Dec 1st 2011, with 90 days follow-up through the Danish National Patient Registry and patient¡¯s medical charts. Falls were sorted according to injury (none, minor, moderate, major) and circumstances (high activity, extrinsic factors and surgery-related).
Findings / Results: Of 83 fall-related hospital-contacts (1.6%), 43 (51.8%) were treated in the emergency room only. Mean age was 70.8 (range 39-96) in fallers vs. 67.3 yrs. (18-97) in non-fallers (p= 0.004) with a median length of stay (LOS) following index surgery of 3 (Interquartile range: 2-3) vs. 2 (2-3) days (p= 0.022). 24.1% of falls were during the first week and 26.5% of all falls were due to high activity and extrinsic factors. 39.8% of falls resulted in no or minor injury, 9.6% in moderate and 50.6% in major injury. Multivariate analysis found age (OR:1.05 [95%CI:1.0- 1.08]; p-value:0.001), living alone (2.09 [1.20-3.62];0.009) and psychiatric disease (2.80[1.42-5.50];0.001), but not the use of walking aids (1.20[0.67- 2.16];0.544) or LOS ¡Ü4days (0.63[0.30-1.33];0.223) to be associated with surgery-related falls.
Conclusions: Falls after fast-track THA/TKA are not related to short LOS, but rather to inherent patient characteristics and external factors.

Factors Influencing Health-related Quality of Life after Total Hip Replacement - a comparison of data from the Swedish and the Danish Hip Arthroplasty Registers

14.

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Background: There is an increasing focus on measuring patient-reported outcomes (PROs) as part of routine medical practice, particularly in fields like joint replacement surgery where pain relief and improvement in health-related quality of life (HRQoL) are primary outcomes. Between-country comparisons of PROs may present difficulties due to differences in the provision of health-care and cultural differences. However, in order to understand how these differences affect PROs, common predictors for poor and good outcomes need to be investigated.
Purpose / Aim of Study: This cross-sectional study aim at investigating factors influencing health- related quality of life (HRQoL) one year after total hip replacement (THR) surgery in Sweden and in Denmark.
Materials and Methods: Data was retrieved from the Swedish (n=14 956 patients) and the Danish (n=1 210 patients) Hip Arthroplasty Registers according to preset selection criteria. Using linear regression models, we examined how sex, age, comorbidity and country of surgery are associated with different aspects of HRQoL measured by the EQ-5D index and EQ VAS.
Findings / Results: Danish patients had overall higher EQ- 5D index and EQ VAS than Swedish patients ($p<0.001$). After regression analysis, the estimated coefficients for sex, age, or the Charlson score did not differ between the countries for either the EQ-5D index ($p=0.55$) or EQ VAS ($p=0.08$) one year after THR.
Conclusions: We conclude that there are clear similarities in how basic predictors influence patient-reported outcomes (PROs) in patients with THR in Sweden and Denmark and these known predictors of good or poor HRQoL outcomes are not specific for each country.

Patient compliance and findings of hip pain, elevated metal ion levels and revision surgery during a centrally mandated recall of patients with Metal-on-Metal articulations

15.

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Background: In March 2012 a total stop in the use of Metal-on-metal (MoM) large head articulations (MoM) was mandated. This included a mandatory contact to all patients and prospective follow-up. The objective was to identify all patients with a potentially harmful condition related to the MoM articulation. However, it is unknown what the patient compliance is during a nationwide centrally mandated patient recall.
Purpose / Aim of Study: To investigate patient-compliance following a centrally mandated recall of patients with MoM implants and to investigate what rate of patients had hip pain, elevated metal ion levels and revision surgery.
Materials and Methods: Between 2004 and 2012 589 patients (64.7 % males) received MoM implants at our institution. At patient recall they received a questionnaire regarding hip pain and were summoned to a series of follow-ups. At follow-up serum levels of chrome (S-Cr) and cobalt (S-Co) were recorded. Patients with revision surgery were tracked and the cause noted. 30 patients were excluded from analysis due to death or emigration prior to patient recall.
Findings / Results: Of 361 males, 16% reported hip pain, 67% had no pain and 17% did not respond to the questionnaire (DNRQ). Of 198 females 18% reported hip pain, 56% no pain and 25% DNRQ. 90% of the males and 94% of the females with hip pain had metal ion levels measured. Of 241 males with ion metal measurements, 10 had S-Co and/or S-Cr > 7 ppm, with 2 reporting pain. Of 134 females with ion metal measurements, 24 had S-Co and/or S-Cr > 7 ppm, with 8 reporting pain. 4 patients had revision surgery due to ALVAL.
Conclusions: Patient compliance during the centrally mandated recall was high. One in six patients reported hip pain and for females a significant proportion had elevated metal ion levels. Following recall < 1 % had revision surgery attributable to the MoM articulation.

Treatment of a displaced femoral neck fracture – cemented vs uncemented femoral stem in total hip arthroplasty

16.

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Background: Total hip arthroplasty (THA) is a treatment of displaced femoral neck fractures in elderly patients and in Denmark, more cemented than uncemented stems are implanted. Debate remains concerning the choice of optimal implant fixation in THA with or without cement.

Purpose / Aim of Study: The aim of this study is to retrospective compare rates of implant survival and operative complications following THA treatment of displaced femoral neck fractures with either a cemented or uncemented femoral stem.

Materials and Methods: The population of this study consists of 2 consecutive groups of patients (n=262) who were treated for a displaced femoral neck fracture with either a cemented (Exeter, 33,6%) or uncemented (Corail/Ancafit, 66,4%) THA stem at the Regional Hospital of Viborg in the periode 01.01.2007 – 31.12.2012. In all cases, the THA was made with a Saturne dual mobility cup and patients were followed up to 3 months postoperatively. Data regarding rates of implant survival and operative complications were obtained by retrospective review of medical records.

Findings / Results: We found a statistical significant difference regarding rates of reoperation with 1,1% (95%CI 0,00003-0,061) for cemented and 2,1% (95%CI 0,045-0,13) for uncemented stem (p=0,03). The main cause of reoperation was fracture. There was no difference regarding dislocation or operative complications. Rates of dislocation were 3,4% (95%CI 0,007-0,096) for cemented and 4,6% (95%CI 0,020-0,089) for uncemented stem (p=0,65). Rates of operative complications were 5,7% (95%CI 0,019-0,13) for cemented and 8,6% (95%CI 0,049-0,14) for uncemented stem (p=0,03).

Conclusions: Our results indicate that cemented femoral stem are superior to cementless when rates of reoperation are compared. However further RCT´s are necessary to determine the optimal treatment for displaced femoral neck fractures.

Neck narrowing and BMC after resurfacing, 2 year result from a randomised study

17.

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Background: Resurfacing arthroplasty maintains bone mineral density in the femoral neck (FN) and prox. femur, important for later conversion to THA. Neck narrowing (NN) below the prosthesis has been described and may be a result of changes in strain patterns, but concerns are that continued NN could indicate aseptic loosening or vascular insult. NN could mean that bone is lost despite high BMD. Bone mineral content (BMC) is a more accurate measure of total bone stock

Purpose / Aim of Study: To measure the change in BMC at the prox. medial femur (G7) and FN following resurfacing and to establish if NN measured from X-rays can substitute BMC measurements. The zero hypothesis is, that there would be no change in BMC and secondary that no NN occurs and that NN and BMC are independent

Materials and Methods: 19 pts with primary OA from a RCT operated with an ASR, had DXA and X- ray images obtained within 3 days of surgery, at 8 w, 1 and 2 years. Following inter/intra rate reliability test, neck width was measured by the same observer on the 30 degree lateral view stereo x-rays images as headrim/neck ratio. BMC in G7 and FN were measured by DXA. ANOVA analyzed changes in BMC and head/neck ratio over time as well as the relationships between NN and BMC at FN and G7

Findings / Results: The intra-rate ICC (95 CI) was 0.97 (0.94- 0.99)BMC rose by 13% at FN and 3% at G7 ($p < 0.01$), but no changes were found in the mean head/neck ratio. We found the head/neck ratio to affect BMC at the neck ($p = 0.04$), but no statistical relationship was seen at G7 ($p = 0.19$)

Conclusions: In this cohort, BMC in the proximal femur and neck is increased within the first 2 years. Our results are limited by small numbers without major NN, but suggest that narrowing on X-rays are indicative of bone loss in the neck. As NN does not change BMC at G7 it should not influence a later conversion to THA

No association between serum metal-ions and implant fixation in large-head metal-metal THA. A 5 year RSA study

18.

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Background: The failure mechanism of metal-metal(MoM) total hip arthroplasty(THA) has been related to metal wear-debris and pseudotumor, but it is unknown if implant fixation is affected by metal wear-debris.
Purpose / Aim of Study: Study if the fixation of large-head (LH) MoM THA is affected by the metal wear-debris
Materials and Methods: 41 patients (31 male) at a mean age of 47 (23-63) years with a total of 49 MoM THA were followed with radiostereometric analysis post-operative and at 1, 2 and 5 years for analysis of implant migration. They also participated in a 5-7 year follow-up with measurement of serum metal-ions, questionnaires (Oxford Hip Score(OHS) and Harris Hip Score(HHS), measurement of cup and stem position and periprosthetic BMD
Findings / Results: Between 1-2 years Total Translation (TT) was mean 0.04 mm (95% CI: -0.07-0.14) (p=0.49) for the stems and between 2-5 years TT was mean 0.13 mm (95% CI: -0.25; -0.01) which was significant (p=0.03) but within the precision limit of the method. Between 1-2 and 2-5 years there was no significant TT or total rotation for the cups. We found a dichotomized migration pattern of TT between 2-5 years, where 6 cups and 6 stems had migrations above the precision limit of the method (2 pt. had both cup and stem migrations above precision limits).A positive association between total OHS <40 (n=4) and cup migration (p=0.04) was found, but no significant associations between cup or stem migration and female gender, stem and cup position, T scores <-1 or metal-ion levels>7ug/l.
Conclusions: Between 2-5 years, 6 cups and 6 stems had migrated above the precision limits of the method, but patients were asymptomatic and serum ion levels were <7ug/l. The remaining cups and stems were well-fixed between 1-5 years. Seemingly, metal wear-debris does not influence fixation of hip components in LH MoM THA at midterm follow-up.

Can the need for Arthroscopy be predicted in Patients undergoing Periacetabular Osteotomy? 19.

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Background: No consensus exists regarding the treatment of co-existing hip dysplasia and tearing of the acetabular labrum. Identification of such factors can aid in tailoring PAO to each patient.
Purpose / Aim of Study: The aim of this study were to identify risk factors predicting clinical failure in terms of the need for a hip arthroscopy (HA) after PAO, and to assess the results after PAO in patients with MRA diagnosed labral pathology.
Materials and Methods: Eighty-seven hips that underwent PAO from Jan 2010 to May 2011 were evaluated preoperatively and at 2-year follow-up. Mean age at surgery was 34.2 years (range 14.5 – 59 years). MRA was performed prior to PAO. At follow-up patients were divided into a non-HA and HA group. The two groups were compared clinically, radiologically and with patient reported outcome measures. Risk factors for predicting failure in terms of a HA after PAO were calculated.
Findings / Results: Twenty-four out of 87 hips (27.6%) had an HA within 2 years after PAO. Risk factors for failure were preoperative borderline dysplasia, a postoperative. AI-angle <0o, and preoperative acetabular retroversion and labral detachment. A high á-angle (>55o) combined with borderline dysplasia increased the risk of failure. Patients not requiring arthroscopic treatment had a statistically significant better outcome evaluated by patients reported outcome measures.
Conclusions: PAO resulted in great improvements at 2-year follow-up. As expected patients requiring a HA had less improvements indicating negative effects of intra- articular disease in dysplastic hips. We identified risk factors indicating that femoroacetabular impingement and labral disease is a concern in after PAO. In hips at risk simultaneous PAO and HA may be warranted.

Does "safe-zones" for alignment and component position exist in primary TKA?

20.

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Background: To achieve good clinical results and low revision rates after TKA, traditional recommendations have been to aim for anatomical AP alignment (0-7° of valgus) based on a perpendicular cut on the tibia. Accordingly, "safe-zones" for component position have been suggested. Recent studies, however, have challenged the suggested importance of these recommendations.
Purpose / Aim of Study: To investigate 1) the rate of TKAs inside traditional safe-zones of alignment and component position, 2) if outlier TKAs are associated with increased aseptic revision rates.
Materials and Methods: By random selection 678 primary TKAs inserted at our institution between 2007 and 2011 were included. 40 TKAs were excluded because of previous knee surgery or postoperative revision due to infection. Pre- and postoperative radiographs were assessed for anatomical alignment (AP) and position of the individual components (AP and sagittal). 15 of 638 TKAs (2.4%) undergoing revision due to aseptic complications were identified.
Findings / Results: Postoperative safe-zones were achieved for AP alignment in 74%, femoral component AP position in 68%, tibia component AP position in 78%, and femoral component sagittal position in 78%. We found no statistically significant relationships between alignment or component position outside safe-zones and rates of revision due to aseptic complications for AP limb alignment (p=0.86), femur- and tibia AP component positions (p=0.60 and p=0.87) and femur sagittal component position (p=0.52).
Conclusions: Limb alignment and position of TKA components within so-called "safe-zones" is not an easy target. It seems that TKAs outside the safe-zones are not associated with increased risk of aseptic revision. Further investigations looking at both long- term functional outcomes and patient satisfaction are needed.

Is fast-track total knee arthroplasty safe regarding manipulation for unacceptable knee flexion? 21.

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Background: Fast-track total knee arthroplasty (TKA) has significantly shortened the time available for physiotherapists to optimize knee Range of Motion (ROM) before discharge. Safety aspects concerning knee stiffness and the need for manipulation in a fast- track setting need to be illuminated.
Purpose / Aim of Study: The study aims were to analyze if fast-track TKA can be considered safe considering rates of knee manipulation and if there is an association between knee ROM at time of discharge and the need for later manipulation.
Materials and Methods: Primary TKAs operated in 2011 at our institution were eligible for inclusion (n=398). Of these, we excluded 20 that had revision surgery, and 19 that did not have standardized goniometric measurement of ROM at discharge. The study group consisted of 359 TKAs (338 patients/ 65% females). Knee manipulations within 1 year of surgery were recorded.
Findings / Results: Manipulation of the knee was performed in 21 of 359 knees (5.8%). Median length of stay was 2 days. The prevalence of knee manipulation showed a statistically significant association with the achieved knee flexion at discharge (p=0.02): 13.6 % if discharge flexion was < 70°, 6.6 % if discharge flexion was 70°- <85°, and 2.7 % if discharge flexion was ≥ 85°. Only one of 66 TKAs with a flexion ≥ 85° combined with an extension deficit of ≤ 5° underwent manipulation.
Conclusions: Compared with literature findings fast-track TKA surgery may be considered safe based on the acceptable rate of knee manipulations after TKA. Combined knee ROM of ≤ 5° extension deficit and ≥ 85° flexion at time of discharge can be considered a "safe-zone" with very low risk of manipulation. Extraordinary follow-up may be warranted in TKAs with discharge flexion < 70°.

Similar Fixation but Increased Stress-Shielding of an I-Beam compared with a Finned Tibial Component Stem Design. A Randomized RSA and DXA Study with 5 years Follow-up

22.

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Background: The tibial component often has a stem to aid fixation in the tibial bone.
Purpose / Aim of Study: The purpose of this study was to compare implant fixation, periprosthetic bone change, and clinical outcome of tibial components with different stem design.
Materials and Methods: 54 patients/knees (15 males) with knee osteoarthritis at a mean age of 77 years (70 – 90) were randomly allocated to receive tibial components with either an I-Beam stem (n=27) or a finned stem (n=27) (CoCr modular Tibial Tray Interlok, Biomet Inc). The tibial component was cemented on the cut surface (Palacos R bone cement) but not around the stems. Five patients (I-Beam stems) were lost to follow-up. Implant migration (Model-Based RSA), periprosthetic bone mineral density (BMD), and American Knee Society Score (AKSS) was evaluated through 5 years follow-up.
Findings / Results: At 5 years follow-up, total translation (p=0.10) was 0.84mm (SD 0.76) and 0.45mm (SD 0.49), and total rotation (p=0.08) was 1.51° (SD 1.27) and 0.81° (SD 0.85), for the I-beam stem and the finned stem tibial components, respectively. Between baseline and 1 year the periprosthetic BMD on AP scans decreased 10% (0.09 g/cm2) around I-beam and 2% (0.02 g/cm2) around the finned stem components (p=0.02). In the tibia below the stem BMD decreased by 6% and increased by 3% (p=0.01) at 1 year for the I- beam and finned stem components, respectively. At 2 years BMD loss progressed in general in both groups. 5 year DXA data are currently being analyzed. Knee score, function score, pain, and satisfaction were similar.
Conclusions: RSA showed similar stability of the tibial components with I-Beam and finned stems at 5 years follow-up. There was a heterogeneous BMD changes between the groups at 2 years that may jeopardize implant stability of the I-Beam stem and further analyses in the 5 year data are currently being done.

Absence of tourniquet does not affect fixation and stability of cemented TKA: a randomised controlled trial using RSA

23.

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Background: Use of pneumatic tourniquet to obtain a bloodless surgical field for total knee artroplasty (TKA) has always been highly debated and many parameters such as pain, bloodloss, range of motion, operation time and complications have been investigated. Achieving a stable fixation of the tibial component is still a major challenge and concern when doing TKA. Very little data regarding implant fixation is available.
Purpose / Aim of Study: To investigate whether tibial component fixation is compromised when tourniquet is not used and active bleeding occurs during TKA, assessed with radiostereometric analysis (RSA) and plain radiographs.
Materials and Methods: A RCT with 70 consecutive patients aged 50-85 (mean= 68) underwent primary unilateral TKA performed by a single surgeon. Patients were randomly allocated to one of two groups: Group A surgery with tourniquet and Group B surgery without tourniquet. Tantalum markers were placed in the tibial metaphysis and implant and RSA was performed postoperatively and at 2 months, 6months and 12 months.
Findings / Results: Plain radiograph were assessed for radio lucent lines and RSA performed. All implants appeared stable, except in one case of early loosening otherwise no differences between groups were observed. Micromotions of more than 1 mm and 1° were considered to be clinically relevant. RSA endpoints were maximum total point motion (MTPM), tibial subsidence, lift-off and rotations and translations along the x-, y, z- axis.
Conclusions: At 1 year follow up no cases of clinical loosening of implants had been observed. Performing TKA without use of tourniquet does not seem to affect the fixation of the cemented tibial component.

A questionnaire survey regarding the Danish activity on axis corrective osteotomy (ACO) in treatment of uni-compartmental knee osteoarthritis

24.

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Background: Uni-compartmental osteoarthritis of the knee joint has a wide range of different surgical treatment options including uni-compartmental knee arthroplasty (UKA), total knee arthroplasty (TKA) and ACO. ACO is not included in the Danish national registers for systematic analysis, as surgical registry codes cover several different procedures over many indications.
Purpose / Aim of Study: The study aims at estimating the Danish activity of ACO, pre-surgical assessment and surgical techniques.
Materials and Methods: A questionnaire survey among 42 orthopaedic departments and private clinics in Denmark selected on the basis of Danish Regions' and the Departments' own reports. In case of doubt, regarding a clinic's relevance to the survey, a questionnaire was submitted.
Findings / Results: 34/42 (81%) responded to the survey. Fifteen departments/clinics preform ACO with a total national activity estimated between 162 to 221 procedures/year [range 1-70 for single clinics]. Twelve (80%) departments use open wedge technique with internal fixation to treat medial osteoarthritis. Seven (47%) departments offer ACO (varus osteotomy) in lateral osteoarthritis. 8/15 (53%) departments performing ACO preform less than 6 procedures annually. 4/18 (22%) departments, that do not offer ACO, offer UKA instead of ACO.
Conclusions: More then half the departments preforming ACO have low annually activity. The pre-surgical assessment, indication for surgery and surgical options are of wide national variation, and we therefore propose to explore, which pre-surgical assessment and surgical procedure provide best outcome in uni-compartmental knee osteoarthritis.

Early full weight-bearing in open-wedge high tibia valgus osteotomy: A randomized, controlled RSA trial with 2 years follow-up

25.

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Background: In open-wedge, valgus osteotomy of the upper tibia, there are concerns regarding initial stability. Rehabilitation protocols vary depending on the surgical technique, type of implant, fixation method and tradition. Angle stable implants theoretically offer initial stability, and it has been indicated that early full weight-bearing is feasible.
Purpose / Aim of Study: To validate early full weight-bearing in patients with the Dynafix implant, by means of radiostereometric analysis (RSA), plain radiograph, and clinical outcome.
Materials and Methods: 26 consecutive primary open-wedge valgus osteotomies were performed. Patients were randomized at surgery between two rehabilitation protocols, one including full early weight-bearing, and one with 6 weeks restricted weight- bearing of 20 kgs. Migration and stability of the osteotomy was measured by RSA, post-operatively, at 6 weeks, and 1 & 2 years, with both reclining and standing analysis. Plain radiographs and clinical outcome (KOOS score) were recorded at the same intervals.
Findings / Results: No difference in stability or retainment of correction between the groups was detected. All patients in both groups were healed and stable in plain radiograph and clinically fully healed at end of trial. No significant differences in clinical outcome scores or pains were recorded: In both groups, pain and function improved substantially. Patients in the early weight- bearing group achieved the same clinical and radiological outcome of surgery, with faster and more convenient rehabilitation
Conclusions: Open-wedge high tibia valgus osteotomy using the Dynafix implant allows early full weight-bearing, without risk of instability or clinicallly relevant loss of corrrection, and with similar clinical outcome compared with restricted weightbearing.

Similar and good fixation of cementless and cemented Oxford® Partial Knee Tibial Trays at 2 years follow-up. A Randomized RSA Study

26.

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Background: The Cementless Oxford® Partial Knee Tibial Tray (TT) was introduced to the commercial market 5 years ago.
Purpose / Aim of Study: To compare fixation of cementless and cemented (gold standard) Oxford® Partial Knee TT up to 2 years follow-up by radiostereometric analysis (RSA).
Materials and Methods: 79 patients (48 men) were randomly allocated to surgery with cementless hydroxyapatite-coated or cemented Oxford® Partial Knee TT (Biomet Inc.) at 2 hospital sites. Femoral components were either single-pegged or double-pegged in the cemented group and double-pegged in the cementless group. Refobacin bone cement (Biomet Inc.) was used. Evaluation of implant migration, radiolucent lines (RLL), and clinical outcomes (OKS) was performed at 6 weeks, 3 and 6 months, and 1 and 2 years.
Findings / Results: Between 1 and 2 years follow-up cementless TT (n=25) migrated 0.06mm (sd 0.06) and cemented TT (n=45) migrated 0.12mm (sd 0.20) mean total translation (p=0.22). 13% (6/39) of cemented and 8% (2/25) of cementless TT migrated more than 0.2mm between 1 and 2 years follow- up (p=0.40). The cementless TT (n=25) migrated more than the cemented TT (n=55) at all follow-ups (p<0.01), however migration had stabilized at 6 months follow-up. At 2 years mean OKS was 40 (range 21- 47) (p=0.53) with similar improvement from baseline (p=0.11) and satisfaction was high in both groups. Analysis of RLL at 2 years follow-up is ongoing.
Conclusions: Cementless Oxford® Partial Knee TT migrate initially but stabilize at 6 months probably because of achieved bony anchorage. Between 1 and 2 years follow-up cementless fixation is as good as cemented fixation (gold standard). Functional results were good and similar in both groups.

How does strength training influence knee joint pain shortly following total knee arthroplasty? 27.

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Background: Loading and contraction failure (muscular exhaustion) are strength training variables known to influence muscle strength and muscle mass gains in healthy subjects, and may have potential benefits for rehabilitation after total knee arthroplasty (TKA).
Purpose / Aim of Study: To investigate the effect of loading and contraction failure on knee pain during strength training, shortly following TKA.
Materials and Methods: Seventeen patients (72.0 ± 10.7 yrs, 11 women) were included 1 to 2 weeks after their TKA. In a randomized order, they performed 1 set of 4 standardized knee extensions, using relative loads of 8, 14, and 20 repetition maximum (RM) (load experiment), and ended with 1 single set to contraction failure (14 RM load) (failure experiment). The kilograms, corresponding to the 8, 14, and 20 RM loadings, were determined no less than 72 hours prior, during a familiarization session. The patients rated their knee pain during each repetition, using a numerical rating scale. Patients as well as the pain assessor were blinded to the loads. 1.5 points was pre-specified as the minimal clinically important change in pain, and used to power the study.
Findings / Results: Two patients were lost to follow up. Knee pain increased with increasing load (20 RM: 3.1 ± 2.0, 14 RM: 3.5 ± 1.8, 8 RM: 4.3 ± 2.5, P=0.006), and repetitions to contraction failure (10% failure: 3.2 ± 1.9, 100% failure: 5.4 ± 1.6, P<0.001). Resting knee pain 60 seconds after the final repetition (2.7 ± 2.4) was no different from that recorded before strength training (2.7 ± 1.8, P=0.88).
Conclusions: Repetitions performed to contraction failure during knee extension strength training seems to induce a clinically relevant – but transient – increase in post-operative knee pain during strength training, shortly following TKA. Clinical.Trials.gov-identifier: NCT01713140.

Early outcome after aseptic revision total knee arthroplasty in Denmark. A 2 year nationwide study

28.

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Background: Limited data exist on early outcomes after revision total knee arthroplasty (TKA) (1,2) , and especially with a fast- track set-up (2).
Purpose / Aim of Study: To investigate length of stay (LOS), readmissions and mortality ¡Ü 90 days after aseptic revision TKA in Denmark (DK).
Materials and Methods: All patients undergoing TKA revision procedures in DK from 01.10.2009 to 30.09.2011 were analyzed using the Danish National Patient Registry with additional information from the Danish Knee Arthroplasty Registry. Only elective, aseptic revisions were included. The revisions were subdivided into 3 groups: 1. Replacement of both tibia- and femur components, 2. Replacement of one of the components (tibia or femur), 3. Replacement of the liner, patellar button or secondary insertion of the patella button.
Findings / Results: 1042 aseptic TKA revision procedures were performed in 42 centres in DK in the study period. Mean age was 65.7 (range: 27-92), median LOS 6 days (IQR: 4-10), mean LOS 8.5 (1-120) days, 90 days readmission rate 12.5 % and 90 days mortality 0.6 %. In group 1 (n = 713) median LOS was 7 days (4-10), readmission rate 12.5 % and mortality 0.8 %. In group 2 (n = 150) median LOS was 5 days (3-10) and readmission rate 16.0 %. In group 3 (n = 179) median LOS was 5 days (4-9) and readmission rate 9.5 %. No deaths in group 2 and 3.
Conclusions: Revision TKA procedures are performed in multiple centres in DK and the fast- track methodology is not implemented in relation to these procedures, calling for improvement. A multicenter study on revision TKA in a fast-track setting is in the planning phase. (1): Cram P et al. Total knee arthroplasty volume, utilization, and outcomes among medicare beneficiaries, 1991-2010. JAMA. 2012;308:1227-36. (2): Husted H et al. Fast-track revision knee arthroplasty. A feasibility study. Acta Orthop. 2011;82:438-40.

Current trends of TKA fixation and cruciate ligament retention: Are surgeons on track?

29.

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Background: Registry data from multiple countries have documented an ongoing shift in THA fixation towards uncemented fixation despite reports of inferior survivorship. Similar paradoxical trends in TKA surgery could be a concern.
Purpose / Aim of Study: To investigate: 1) current trends in TKA fixation and cruciate ligament retention, and 2) if these trends are in accordance with registry reported TKA survival.
Materials and Methods: Data regarding tibia component fixation, cruciate ligament retention (CR vs. PS) and implant survivorship in primary TKA were extracted from publicly available national joint registries' annual reports from 2008 through 2012. Reports from Australia (AUS), Denmark (DK), England-Wales (E-W), Norway (NOR), Sweden (SWE) and New Zealand (NZ) were assessed.
Findings / Results: During the 5-year period an increase in cemented fixation was reported by AUS (76% to 77%), DK (93% to 94%) and E-W (90% to 95%). A decrease in cemented fixation was observed in NOR (82% to 78%) and SWE (100% to 96%). NZ reported no change. AUS, DK, E-W, NOR, NZ and SWE reported significantly higher risks of revision comparing uncemented with cemented fixation. AUS reported an increase in the use of PS TKA and E-W reported no change. Both countries and DK reported a higher risk of revision for PS vs. CR TKA.
Conclusions: Cemented TKA still appears to be the gold standard in TKA surgery in most countries. However, there were considerable regional differences in current use of uncemented TKA (4-23 %). Countries with increases, though small in absolute numbers, in utilization of uncemented fixation and PS TKA should monitor this as it could result in deteriorating survivorship over time.

Tourniquet induced ischemia and changes in metabolism during TKA: a randomised controlled trial using microdialysis

30.

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Background: Use of tourniquet to obtain a bloodless surgical field during TKA is known to induce ischemia, especially beneath the cuff. Little is known regarding the extent of ischemia and metabolic changes in the skeletal muscle distal to the cuff. Microdialysis (MD) is a unique In vivo technique to monitor metabolites in the interstitial space of the tissue of interest.
Purpose / Aim of Study: Investigate the metabolic changes during ischemia and reperfusion in skeletal muscle distal to the tourniquet
Materials and Methods: A RCT with 70 consecutive patients aged 50-85 (mean= 68) underwent primary unilateral TKA. Patients were randomly allocated to one of two groups: Group A surgery with tourniquet and Group B surgery without tourniquet. Prior to surgery, MD catheters were inserted in the gastrocnemius muscle of both legs, non-operated leg served as reference. Dialysate samples were collected before and until 5hours after surgery at intervals of 20 min. Concentrations of ischemia markers pyruvate, glucose, lactate, glycerol were analysed.
Findings / Results: In group A, for a period of 60-75 min of tourniquet induced ischemia interstitial levels of pyruvate and glucose decreased significantly to 26 µmol/l CI95%[24;31] and 2,3 mmol/l CI95%[2;3] respectively, compared to the reference leg. Simultaneously, accumulation of lactate to 2,6 mmol/l CI95%[2,3;3,1] and glycerol 244 µmol/l CI95%[200; 249] were observed. A return to normal baseline values occurred during a period of 120-180 min. After 5 hours no changes were detected compared with baseline. In Group B no significant ischemia was detected.
Conclusions: We determined that performing TKA with tourniquet is associated with significant ischemia in the muscle distal to the cuff and ischemia markers are affected until 2-3 hours after surgery. Tourniquet induced ischemia may impair early recovery.

Does choice of treatment of midshaft clavicle fractures affect early return to work?

31.

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Background: Optimal treatment of displaced midshaft clavicle fractures is debatable. Most patients suffering a displaced midshaft fracture are young males with a high physical demand including a demand of early return to work. Whether choice of primary treatment affects the ability to return early to work is unknown. Primary surgical treatment has become popular and the potential of early return to work has been used as an argument to favour surgical treatment.

Purpose / Aim of Study: To investigate whether choice of primary treatment, operative or conservative, of acute, displaced, midshaft clavicle fractures affect early return to work.

Materials and Methods: This study presents secondary endpoints from a randomised controlled trial where surgical treatment with a superior locking plate is compared to non-surgical treatment with one-year follow-up. Early return to work is defined as return to pre-fracture work status at the six-week follow-up.

Findings / Results: A total of 63 patients (57 males) were enrolled in the study (median age 38 years, range: 19-63). 35 patients were allocated to non-surgical treatment and 28 patients were treated surgically. The two groups were comparable with respect to age, sex and ASA score (p- values: 0.31, 0.57 and 0.90). At time of enrolment a total of 58 of 63 patients were working. At 6-weeks follow-up 22 of 31 patients treated conservatively and 25 of 27 patients treated surgically had returned to their pre-fracture work status (p=0.03).

Conclusions: Choice of operative primary treatment of acute, displaced, midshaft clavicle fractures does seem to be associated with a higher frequency of early return to work. However, multiple other factors and longer term outcome should be considered in the choice of treatment.

Feasibility of implant-tracking in orthopaedic surgery: High completeness and minimal time consumption

32.

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Background: Currently no methods for tracking of implants, allowing intelligent monitoring of quality, exist. At present surgeons and administrators rely on implant labels in patient charts. In this study we introduce an online implant tracking system to be used with existing quality monitoring databases

Purpose / Aim of Study: We evaluate the introduction of an implant tracking system using unique implant barcodes, and evaluate the potential for continuous implant tracking and time consumption associated with this process

Materials and Methods: An implant tracking system was developed by Procordo Aps® and implemented as an addition to the Danish Fracture Database (DFDB). Orthopaedic implants used during surgery are scanned in the operating room (OR) using unique implant barcodes and are linked to the specific procedure enter into DFDB by the operating surgeon. We evaluated completeness of implant scans during a one-month period at two ORs at our institution. We also measured time consumption for experienced and untrained OR staff while scanning trauma and arthroplasty implants

Findings / Results: A total of 21 separately packed implants were used during the study period at the two OR's combined. 20 of these implants were successfully scanned (95%) and 18 were linked correctly to the surgical procedure (86%). When scanning implants for revision THR surgery and trochanteric nail surgery untrained OR staff used on average 208 and 117 seconds, respectively. This was significantly reduced ($p<0.05$) to 55 and 35 seconds respectively in the hands of an experienced OR nurse

Conclusions: It was possible to introduce specific implant tracking of orthopaedic implants at two operating rooms in one orthopaedic department, with 95% of possible implants being scanned shortly after introduction of the system. Time consumption performing these scans by the OR staff was minimal

Virtual-reality simulation for the assessment of skills in hip fracture surgery

33.

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Background: Unsupervised junior surgeons have been shown to be a risk factor for reoperations among hip fracture patients. The need for improved education is increasingly acknowledged, and virtual-reality simulation- based surgical training might improve initial skills. A reliable simulation test would make it possible to assess and certify junior surgeons before proceeding to supervised practice on patients.
Purpose / Aim of Study: The aim of the study was to develop a reliable simulation-based test for internal fixation of hip fractures.
Materials and Methods: Twenty physicians from one orthopaedic department were divided into two groups of ten untrained novices and ten experienced orthopaedic surgeons. Each physician was tested on three procedures regarding internal fixation of an undisplaced femoral neck fracture: Two screws, two hookpins and a sliding hip screw. Simulator metrics with discriminatory abilities were identified, including a combined score for implant position, use of image intensifier etc. By using the contrasting groups method a pass/fail-level was determined and its consequences explored.
Findings / Results: The percentage of maximum combined score (PM-score) was the only simulator metric that showed significant differences between the two groups. The PM-score showed an inter-case reliability of 0.83 between the three procedures. The mean PM-score was 31% (SD 32) for the novices and 76% (SD 10) for the experienced surgeons ($p<0.001$). The tests pass/fail-level was a PM-score at 58%, resulting in none of the novices passing the test and a single experienced surgeon failing the test.
Conclusions: It was possible to create a reliable test on the simulator. The test and the pass/fail-level could help assess and guarantee the quality of future junior surgeons in simulation-based training programs before proceeding to supervised practice on patients.

Breakage at the proximal screw in long Gamma 3 titanium intramedullary femoral nail

34.

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Background: Internal fixation with a long anterograde intramedullary femoral nail is a well established surgical technique for unstable intertrochanteric and subtrochanteric fractures of the femur. The nail is designed to be walked upon for at least 6 months before breakage. However; it is known that titanium loose up to 50% strength if scratches occurs during insertion of the K- wire or the collum screw.

Purpose / Aim of Study: We report a series of 8 patients osteosynthesised using long Gamma 3 titanium nails which all failed with breakage in the proximal cervical screw opening. Furthermore, 4 of these patients had a similar failure of the secondary nail after reoperation, for a total of 12 broken nails.

Materials and Methods: The study is a retrospective case series of patients treated for unstable intertrochanteric or subtrochanteric fractures with the long Gamma 3 titanium nail in the Southern Region of Denmark, from december 2010 to june 2012. Information was gathered through medical records and x-rays.

Findings / Results: The study included 8 patients, 4 female and 4 males representing 6 AO 31A3 fractures and 2 31A2 fractures. The median age was 68 years (35-90 years) and median BMI 25 (21-38). Median time to failure was 4 months (2-18 months) and median time to follow up 22,5 months (13-27 months). All nails were 11 mm in diameter. 5 patients had additional cables around the femoral bone. Post operative tip-apex distance was <25 mm in all cases. One patient had jamming of the collum screw.

Conclusions: We experienced an unexpected high number of nail breakage. We recommend careful insertion of the collum screw to avoid damage and thereby reducing tre strength of the nail.

Anamnestic medicine errors among hip fracture patients can be reduced by a pharmacist / pharmaconomist

35.

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Background: Hip fracture patients often have severe co-morbidity and use multiple types of medicine. Studies have shown that medicine anamnesis is often inadequately recorded on admission with risk of discrepancies and complications.
Purpose / Aim of Study: The purpose was to compare the medicine anamnesis recorded among hip fracture patients as usual in the emergency room (ER) with a secondary recording in the orthopedic department by a pharmacist / pharmaconomist.
Materials and Methods: 200 consecutive hip fracture patients (78% female, mean age 79 (range 22- 97)) admitted through the ER from Sept 2012 to March 2013 were included. The electronic ER medicine anamnesis was corrected within 48 hours in the orthopedic department by a pharmacist / pharmaconomist using min. 3 of following sources: Patient, patient record, national medicine database (PEM/ FMK-online), pharmacy, general practitioner and lists from relatives, visiting nurses or home care services. Only corrections accepted by medical doctors were recorded as errors.
Findings / Results: On average, each patient used 6 different drugs with 2 errors recorded. The total 413 errors was distributed as 209 (51%) drug omissions, 67 (16%) false prescribing, 64 (15%) false doses, 61 (15%) clinically relevant improper dosing time and 12 (3%) other errors. Most often errors were seen among ATC groups: nervous system (N), alimentary tract and metabolism (A), cardiovascular system (C), blood and blood forming organs (B) and respiratory system (R).
Conclusions: This study confirms that medicine anamneses among hip fracture patients are inadequately recorded on admission, where the available time and sources for information are suboptimal in the nowadays Danish health system. Secondary medicine anamneses by a pharmacist / pharmaconomist can in our eyes reduce the incidence of medicine errors and improve patient safety.

Ilizarov salvage procedure following failed osteosynthesis of the patella

36.

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Background: Patella fracture comprises approx 1% of all skeletal fractures. Failure of osteosynthesis of the patella fracture is rare, but can result in disrupted extensor mechanism, deep infection of the knee and soft tissue defects. Patellectomy, partial or complete, knee arthrodesis or femoral amputation has been described as treatment

Purpose / Aim of Study: We wanted to improve the treatment of failed osteosynthesis of the patella without compromising the knee joint.

Materials and Methods: From 2001-now 6 patients, mean age 68 years (range 49-77 years) with deep infection of the knee and failed osteosynthesis of the patella transferred to out unit 47 days (15-111 days) after primary operation. They had recieved 2 to 5 surgical revisions. We performed debridement, total synovectomia of the knee, revised the fracture and then stabilised the fracture using the Ilizarov technique, with two K- wires perpendicular to the major fracture plane mounted in two half-rings. In one case a gastrocnemius flap was used to cover an extensive tissue defect. Patients were allowed immediate weight-bearing. The knee was immobilised for two weeks, then allowed 0-30 degrees in week 3 and 4, 0-60 degrees in week 5 and 6.

Findings / Results: The Ilizarov was removed after 60 days (38- 103). At the end of follow-up, 218 days (134- 347) patients could extend between 0-5 degrees and bend the knee between 90-110 degree.

Conclusions: Using the Ilizarov technique proved effective in the treatment of these patients. However since the condition is rare, the treatment should be centralised to departments with expertice in treating such conditions as well as the possible need for plastic surgery.

Healing and morbidity in femoral and tibial non-unions when using reamer-irrigator-aspirator system

37.

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Background: Non-unions often needs autologous bone grafts as part of treatment. This is traditionally harvested from the iliac crest(ICBG). Limited graft volume and donor site morbidity are drawbacks to this method. With RIA it is possible to harvest larger amount of graft material and only few complications are described.
Purpose / Aim of Study: The purpose of this survey is to evaluate bone healing and donor site morbidity for RIA and ICBG.
Materials and Methods: 21 consecutive patients were treated with RIA in the period of 05.10.2010-21.10.2012. 25 patients treated with ICBG were chosen as controls and matched among other due to age, gender and location of non-union. X- rays and reports were retrospectively studied with respect to healing and complications. Crude assessment of the needed amount of graft material was based on preoperative x-rays. Donor site pain was evaluated through telephonic interview.
Findings / Results: 8 of 9 femoral non-unions treated with RIA achieved union while 6 of 6 treated with ICBG. On tibia 10 of 11 in the RIA group achieved union while 18 of 19 in the ICBG group. There were no significant difference in healing between RIA and ICBG. In 16 of 21 RIA patients graft material exceeding assessable volume compared to anterior ICBG. Based on telephone interview ICBG showed a tendency to have more donor site pan 3 days and one month postoperative, but the difference was not significant. One adverse event is reported. One patient got a diaphyseal, femoral fissure during gait that required intramedullary nailing.
Conclusions: This retrospective survey has shown no difference in union rates using RIA and ICBG in treating lower extremity non-unions. Patients treated with RIA experience less pain compared to IBCG. Besides larger amounts of graft material can be harvested from the femur using RIA, though severe complications can occur.

Preoperative CT scan of tibial diaphyseal fractures distal to the isthmus influences treatment

38.

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Background: In 2012 the Nordic radiation authorities raised concern about the increased use of computed tomography.
Purpose / Aim of Study: To investigate whether preoperative CT scanning of tibial diaphyseal fractures below the isthmus changes fracture treatment.
Materials and Methods: Retrospective analysis of 34 tibial diaphyseal fractures distal to the isthmus. Inclusion criteria: 1) a tibial diaphyseal fracture distal to the isthmus in a skeletally adult; 2) both preoperative AP and lateral x- rays as well as a preoperative CT scan including the ankle joint had been performed. Exclusion criteria: Fractures which from preoperative x-rays could be classified as a tibial Pilon fracture.
Findings / Results: The tibial fractures were classified from preoperative x-rays according to the AO classification: 9 type 42A, 2 type 42B, 1 type 42C, 4 type 43A, 13 type 43B, 5 type 43C. In 14 out of 34 cases the AO classification was changed after additional preoperative CT scan. The main diaphyseal fracture was fixed with a intramedullary nail in 11 cases, circular external fixator in 19 cases and other type of osteosynthesis in 4 cases. In 10 out of 34 cases a fracture component at the ankle joint was treated with additional screw fixation. In 9 out of 34 cases the preoperative CT scan revealed a fracture component at the ankle that was unseen on preoperative x-rays and 5 of those needed additional screw fixation. There were 32 of 34 patients who had an ipsilateral fibula fracture. The level of fibular fracture was 148 (106) mm above the tip of lateral malleolus for the 20 patients with an intra-articular fracture versus 204 (134) mm for the 12 patients without an intra-articular fracture (two-sample t test, $p = 0.2$).
Conclusions: Preoperative CT scan of tibial diaphyseal fractures distal to the isthmus is justified as the CT led to change in surgery in 5 out of 34 cases.

Health related quality of life after severe trauma – comparison of EQ-5D with norm scores 15 years after injury

39.

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Background: Previously, outcome studies of trauma patients have primarily focused on short-term survival but an increasing number of studies have focused on long-term outcome and health related quality of life (HRQL). Most of these studies have shown a reduced HRQL in severely traumatized patients up to 5 years after injury but long-term studies are few.
Purpose / Aim of Study: The purpose of the present study was to compare HRQL with norm scores 15 years after severe trauma.
Materials and Methods: Patients more than 18 years of age, admitted to the emergency department at Rigshospitalet from March 1996 through September 1997 were included in the study. In May 2012 survival status was obtained and the Danish version of the European Quality of Life-5 Dimensions (EQ-5D) questionnaire, was mailed to all patients alive. The EQ-5D results were compared with results from the general population.
Findings / Results: Of the original 171 patients, 92 patients received the EQ-5D questionnaire. 46 patients responded and 41 questionnaires were available for analysis. The average EQ-5D index score in the trauma population was significantly reduced compared to the index score in the Danish norm population; 0.671 vs. 0.873 respectively (P = 0.000). Comparing the EQ-5D index scores in patients with less severe and severe injury showed that that the median EQ-5D index score in patients with ISS <16 was 0.824 vs. a median score of 0.660 in patients with ISS ≥16 (P = 0.022).
Conclusions: Fifteen years after severe trauma patients report reduced HRQL and Injury severity predicted poor HRQL. Further studies are required to assess the possible impact of co-morbidities or additional injuries.

Complications after osteosynthesis of distal radius fractures using a volar locking-plate

40.

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Background: Open Reduction and Internal Fixation (ORIF) of distal radius fractures using a volar locking plate has become one of the most common acute operations performed. There is only a limited amount of literature, which is describing the possible complications.
Purpose / Aim of Study: Our aim was to register which complications patients suffered from following the above mentioned operation, and how often these complications occurred.
Materials and Methods: We included all patients (165) who in 2008 and 2009 had a distal radius fracture operated on in Kolding Hospital using a volar locking plate. We did a retrospective cohorte study using the patient's notes and X-rays. We registered any complication, which needed intervention. Some patients were operated using a "Locking Compression Plate" (LCP) and others using a "Distal Volar Radius plate" (DVR).
Findings / Results: 30/165 (24%) patients experienced a complication, which needed intervention. Of these 8 patients experienced more than one complication. Patients, who were operated using a LCP plate experienced more complications than those operated using a DVR plate. The difference was however not significant (p=0.054).
Conclusions: We registered more complications, which needed interventions, than we expected. There was a trend towards more complications when using LCP, but the difference was not significant apart from one subgroup of fractures. When 24% of patients experiences at least one complication, which require intervention, care must be shown not to over-treat these fractures. One must remember that some of these fractures can treated conservatively with no or limited sequelae. Other studies have shown similarly results regarding the frequency of complications.

Urinary tract infections and complications among hip fracture patients treated within a multimodal rehabilitation concept

41.

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Background: Urinary tract infections (UTI) are common among hip fracture patients, but whether this is associated with complications or prolonged hospitalization is not clear. The treatment of hip fracture patients includes early surgery, regional anaesthesia, early mobilisation, enhanced oral nutrition and urinary bladder catheters, which could cause nosocomial UTI.
Purpose / Aim of Study: To identify the incidence of pre-admission and nosocomial UTI, and the association with serious complications among hip fracture patients treated according to a well-defined multimodal rehabilitation concept, including urinary bladder catheters in the perioperative period.
Materials and Methods: Prospective observational study of 424 hip fracture patients aged >65, with urine culture tests on admission and the seventh postoperative day. All patients were treated with an indwelling urinary bladder catheter until the fourth postoperative day. Self- reported clinical symptoms on admission related to UTI were individually assessed, as were hospitalization length and serious postoperative complications such as pneumonia, delirium, cardiovascular events, renal failure, infections and reoperation.
Findings / Results: The incidence of admission bacteriuria (104 per ml, except e-coli 103) was 32% (137/424) with no significant association to self-reported clinical symptoms. The incidence of nosocomial bacteriuria was 58% (124/214; 73 without later urine culture test). Regression analysis showed no association between nosocomial bacteriuria and complications or prolonged hospitalization.
Conclusions: The incidence of preadmission and nosocomial bacteriuria was confirmed to be high among hip fracture patients, but not associated with self-reported clinical symptoms or decreased outcome.

Vancomycin is superior to active/passive immunization against Staphylococcus aureus periprosthetic osteomyelitis in rats

42.

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Background: Commonly used antibiotics e.g. vancomycin cannot always control S. aureus associated infections in orthopaedic implants and we have tested immunized groups against a vancomycin group.
Purpose / Aim of Study: In a prior study, we used vaccination to boost the immune system in a knee prosthesis model of osteomyelitis in rats to explore the effectiveness of the immune response achieved in active as well as passive immunization and tested this against the antibiotic peptide vancomycin.
Materials and Methods: Sixty Sprague-Dawley rats were operated and divided into two active immunization groups (N=14 ica+/12 ica-) and two passive immunization groups (N= 12 ica+/12 ica-). A fifth group had vancomycin (N= 10 ica+). The ica- gene controls the biofilm production. All groups were infected with S. aureus MN8,103 in the tibia and the femur marrow before insertion of the prosthesis. Each of the immunized groups was compared to a non- immunised control group and a vancomycin group where the rats received the antibiotics daily. After two weeks, the rats were sacrificed and all specimens were analysed.
Findings / Results: The active immunization groups showed a decrease of bacteria in the group that was infected with the ica+ strain. In the passive immunization groups there was a clear decrease of infection . The vancomycin group only had few bacteria in two specimens and was superior to the immunized groups.
Conclusions: Active and passive immunization against S. aureus osteomyelitis reduced the infection. However, immunization based on only single S. aureus virulence determinant may have less protective efficacy because of the multifactorial nature of the pathogenesis of Staphylococcal infection. Vancomycin reduced the infection significantly in nearly all parameters.

Leukocyte-depletion in PRP decreases the proliferative effects of human chondrocytes

43.

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Background: Numerous preparation methods are available for platelet-rich plasma (PRP) generation, but evidence defining the optimum composition is lacking.
Purpose / Aim of Study: The purpose of this study was to investigate the effects of PRP containing low and high leukocyte concentrations on both proliferation and the chondrogenecity of human chondrocytes in vitro.
Materials and Methods: Two PRP groups were generated from whole blood from 9 healthy donors (age 36- 58 years) using a two-step centrifugation protocol: low leukocyte PRP (llPRP) and standard PRP (sPRP). The PRP groups had similar platelet concentration but low and high leukocyte concentrations, respectively. Human chondrocytes were isolated from articular biopsies obtained from 3 patients with healthy cartilage (age 21-41 years), and cultured in monolayer for 7 days in either control media (DMEM/F12 with 10% fetal calf serum) or control media with llPRP or sPRP of 1%, 5% or 10% v/v concentrations. Proliferation was assessed using an XTT assay. qRT-PCR was used to perform quantitative gene expression analyses using primers for collagen type I (Col1a1) and II (Col2a1) and Sox9. Data were collected on day 2 and 7, and evaluated using three-way ANOVA analysis.
Findings / Results: llPRP group showed an average leukocyte concentration of 0.04 x 109 WBC/L, the sPRP group 10.33 x 109 WBC/L. We observed a positive proliferative effect by both PRP groups compared with the control group ($p<0.0001$). sPRP group showed an increased proliferation compared with the llPRP group ($p<0.05$). Presence of leukocytes did not affect the relative mRNA expression of Sox9, Col2a1, or Col1a1 in any of the formulations.
Conclusions: We conclude that a high absolute leukocyte concentration in PRP increase chondrocyte proliferation. Inclusion of leukocytes in PRP showed no effect on chondrogenic gene expression.

Local Delivery of Anticancer Drug to Treat Primary Breast Cancer and Bone Metastasis

44.

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Background: Up to 70% of the breast cancer patients have bone metastases at autopsy-based studies report. Until now, as for the treatment of bone metastases, local therapies, including radiation therapy and surgery, were performed mainly as palliative therapies. To effectively prolong the survival period and increase life quality of patients with breast cancer bone metastases, new strategy for treatment is needed.
Purpose / Aim of Study: To analyze the release profile of DESCLAYMR scaffold and test the anticancer effect of this scaffold loaded doxorubicin in breast cancer cell lines and nude mice model.
Materials and Methods: 1. Different concentration of doxorubicin loaded to optimize the drug release: the fluorescence intensity of doxorubicin in the buffer solution from each time point was quantified with a multilabel counter. 2. Cytotoxicity test of doxorubicin released from Desclaymr scaffolds in breast cancer cells by XTT and Methylene Blue assay 3. Anticancer effect of DESLAYMR loaded with doxorubicin was tested in nude mice with subcutaneous tumorand bone metastasis induced by breast cancer cell line, tumor volumes were monitored twice a week by caliper and bioluminescent images.
Findings / Results: 1. DESCLAYMR released up to 60% of the drug for up to 3 months in vitro. 2. In tumor cells, DESLAYMR loaded with doxorubicin had higher cell inhibitory rate compared with control group and a sustained cell inhibitory ability up to 12 weeks. 3.Average tumor volumes in treatment group increased slower than in non-treatment group from 3 days to 14 days after treatment. metastasis rate is lower in treatment group than in non-treatment group.
Conclusions: DESCLAYMR scaffold loaded with doxorubicin has a sustained release in vitro up to 3 months and tumor growth and metastasis inhibitory effect in vivo.

The concentration of cefuroxime in cortical and cancellous bone can be detected by use of microdialysis – a methodological study

45.

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Background: Determining penetration of antimicrobials into bone tissue remains a difficult task. The most commonly used method is bone biopsy. Different approaches have been used. However, most seem to share methodological and practical limitations.
Purpose / Aim of Study: The aim of this study was to validate and apply microdialysis for measuring cefuroxime concentrations in bone tissue.
Materials and Methods: Initially in vitro studies were conducted in order to determine in vitro recovery by gain and by loss, appropriate flow rate and calibration concentrations. The experiments were repeated at different temperatures to assess the impact of this variable. The prerequisite that recovery remains constant over a relevant period of time were tested in vivo in swine. In order to assess whether microdialysis in drill holes in cortical bone solely reflects bone concentrations, an experimental study in pigs was conducted where one of two symmetric drill holes in the tibia was sealed with bone wax. All holes were drilled using a 2 mm drill. In all experiments CMA 63 catheters were used. Flow rate was 2 µl/min and was produced by a CMA 107 precision pump. All samples were analyzed with an UHPLC-method. Intra-cortical placement of the catheters was verified by CT.
Findings / Results: 2 µl/min was found to be an appropriate flow rate, producing in vitro recoveries of approximately 40-45 %. Recovery by gain was comparable to recovery by loss. Increasing temperature increased recovery. In vivo, recovery was found to be constant over time. No significant difference in area under the curve, maximum concentration nor time of maximum concentration could be detected between sealed and non-sealed drill holes in cortical bone.
Conclusions: Microdialysis seems to be a reliable method for determination of the concentration of cefuroxime in bone tissue.

Systematized Water Content Calculation in Cartilage Using T1-mapping MR Estimations. Design of a Mathematical Model

46.

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Background: Water is present in all human body. Healthy tissues encompass an intricate balance of water inside cells and extracellular matrix. Disease can cause this relation to be altered. It has been published that MR technology is able to measure water content, but no quantitative method has been described
Purpose / Aim of Study: Development of a mathematical model to measure the water content in tissue using T1-values obtained from MR
Materials and Methods: T1 values were obtained from 45 samples from tissue-mimicking gelatin with previously known water concentrations. We analyzed the samples in a 1.5 Tesla by calculating absolute T1 values in real maps through inverse angle phase inverse sequence recuperation (11 inversion times, from 200 to 2200 msec) at 37(±0.5) °C. Regions of interest were manually delineated and the mean T1 value was estimated using a T1-map analysis software. The collected data was modeled in a linear regression by fitting the values in the equation Water Content ~ T1-value at 95% confidence level
Findings / Results: The model was found to be statistically significant against a null model ($p < 0.001$). R2 value was 0.973, meaning that 97.3% of the variation in Water Content can be explained by the T1 value. We validated the method with 150 bootstrap repetitions to an R2 corrected index of 0.9715. If T1 Signal Intensity is increased by 1 unit, Water content is increased by 0.019% [95% CI: 0.00018 – 0.00020], $p < 0.001$. Water content in percentage can be predicted with absolute T1 values by the equation Water Content = (0.476 + T1 Signal Intensity * 0.000193) * 100
Conclusions: Water content can be calculated using absolute MR T1 values from. This technology allows quantification of disease manifestations such as edema and offers bases for new research. This experimental model has to be validated for human tissue

Erythropoietin exerts its osteogenic effect on mesenchymal stromal cells via pleiotropic cell-surface receptors and intracellular signaling pathways

47.

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Background: We have previously shown that EPO elicits osteogenic and angiogenic potencies in vitro and in vivo. However, the cellular mechanisms in human mesenchymal stromal cells (MSCs) remain unknown.
Purpose / Aim of Study: The aim of this study was to investigate the presence of pleiotropic EPO receptor EPOR/CD131 on the cell surface and to determine the involvement of intracellular pathways TOR Serine-Threonine Kinase (mTOR), Janus Kinase 2 (JAK2) and PI3K.
Materials and Methods: MSCs from two donors were cultured at 3000 cells/cm2 and treated with 20 IU/ml EPO for 24 hours. Flow cytometry and confocal microscopy were the primary outcome measurements for receptor experiments. Mineralization assays, Arsenazo and Alizarin Red, assessed intracellular pathways after 10 and 14 days. Specific pathway blockers were used: rapamycin, AG490, LY294002 and wortmannin. The positive control was 20 IU/ml EPO and proliferation medium served as negative control. Results were normalized to cell number and isotype controls were employed. Statistics consisted of one-way ANOVA and Fisher's LSD post hoc testing of the pathway inhibitors vs. EPO group. The skewed flow data were analyzed with Mann Whitney test.
Findings / Results: Both EPOR and CD131 receptors were observed on the cell surface of MSCs. Co- expression of EPOR and CD131 was observed in nearly all cells (range 95.7- 99.5%). All pathway inhibitors diminished mineralization ranging from 18 ±2% to 70 ±9% relative to the EPO group ($p<0.0001$). Hence, all three examined pathways contribute to osteogenic differentiation. Because rapamycin inhibition was most pronounced (82 ±2%), mTOR pathway is the chief contributor to osteogenic EPO signaling.
Conclusions: For the first time, cellular mechanisms of EPO's osteogenic effect on MSCs are described. The non-hematologic EPOR/CD131 receptor triggers mTOR, JAK2 and PI3K signaling.

Preparation of platelet-rich plasma (PRP) changes the composition of white blood cells in platelet-rich plasma

48.

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Background: The majority of studies regarding platelet- rich plasma (PRP) uses a simple two step preparation protocol, but none has yet considered how this approach alter white blood cell (WBC;leucocytes) composition.
Purpose / Aim of Study: The purpose of this study was to investigate how a two-step PRP preparation protocol affects WBC composition.
Materials and Methods: Blood samples were obtained from 4 healthy donors (age 26-31 years). Four different plasma supernatant suspensions were prepared from whole blood (WB) after the first separation spin (250g, 10min) of a two- step centrifugation protocol. With the line separating the buffy coat layer (specific gravity = 1.06) and the red blood cell (RBC) layer (specific gravity = 1.09) serving as reference line for the volume of the standard suspension (sPRP), three larger volumes at 2.5mm, 5mm, and 7.5mm below the standard reference line were collected. Complete blood count analyses from each sample were performed with an automated hematology analyzer. All quantitative measurements were described using summary statistics (n, mean, standard error).
Findings / Results: The leukocyte concentration in WB ranged from 3.69-7.52x109 WBC/L (mean 5.03±1.72x109 WBC/L) containing 55.5% ±5.1% neutrophils, 32.8%±3.6% lymphocytes, and 8.4%±0.9% monocytes. In sPRP the leukocyte pool contained 5.7% ±2.1% neutrophils (9.7-fold decrease compared with WB), while the lymphocytes represented 81.1%±6,7% (2.5-fold increase). Below the standard reference line the leukocyte pool gradually resembled WB, but with increasing RBC concentrations.
Conclusions: The separation spin changed the composition of the leukocyte pool in the plasma supernatant. We showed that in order to avoid RBC contamination in an often-used PRP preparation protocol the leukocyte composition changes from predominantly neutrophils in WB to lymphocytes in PRP.

Lactic-acid based polymers used for delivery of drugs to the bone-implant interface may impair implant fixation and bone formation

49.

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Background: Local delivery of augments to stimulate bone formation at the bone-implant interface is desirable.
Purpose / Aim of Study: We investigate two polymers coatings, poly(D,L-lactide) (PDLLA) and poly(lactic- co-glycolic acid) (PLGA), as local delivery systems and their effect on early implant fixation.
Materials and Methods: 12 dogs each received 4 experimental implants surrounded by a 1-mm gap, two implants in each proximal humerus. Implants were: untreated titanium, PDLLA, PLGA, PLGA+1.0mg simvastatin. Observation was 4 weeks. We performed quantitative histomorphometry to assess fractions of new bone and fibrous tissue. Mechanical evaluation by push-out test. Statistical analysis by ANOVA and paired t- test for the histomorphometrical data and by Friedman and Wilcoxon for the mechanical data. We considered p-values <0.05 statistically significant.
Findings / Results: Both polymer coatings resulted in significant inferior mechanical implant fixation compared to untreated titanium implants -most pronounced in the PLGA groups. Simvastatin did not counteract the negative effect of the polymer. We found significantly more new bone formation on the surface of untreated implants compared to the all coated implants. The coated implants had significantly increased on-growth of fibrous tissue.
Conclusions: The residues from the polymer degradation may result in local acidosis impairing deposition of hydroxyapatite and may decrease bone mineralization. The coating may also act as a simple barrier for bone on-growth making osseointegration impossible until the polymer has disappeared. We were not able to determine if simvastatin has any positive or negative effect on implant fixation. This study suggests that PDLLA and PLGA are not suited as local delivery vehicles to the bone-implant interface. Caution is warranted when choosing delivery vehicle for this purpose.

Failed Osteochondral Repair by MayoRegen® Scaffolds in Patients with Ostochondritis Dissecans

50.

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Background: Osteochondral injuries are very difficult to treat and existing treatment options are often expensive and relatively ineffective.
Purpose / Aim of Study: To evaluate the osteochodral repair in patients treated with a nano-composite multi- layered biomaterial consisting of collagen type I and hydroxyapatite (MaioRegen®).
Materials and Methods: Ten patients with osteochondritis dissecans (OCD) in the knee (n=6) or on the talus (n=4) were treated with the MaioRegen® scaffold. The patients underwent CT and MRI 1 year postoperatively and the bone and cartilage formation was evaluated, the latter using MOCART.
Findings / Results: One patient was excluded due to severe swelling of the knee and implant removal 5 days postoperatively. Two additional patients experienced swelling of the knee, but were treated conservatively and recovered. MRI: One of nine patients had complete filling of the osteochondral defect (Hypertrophy n=3, incomplete repair n=5), and complete integration with adjacent tissue was seen in two of nine patients. In all nine patients the surface of the repair tissue was damaged and the tissue had a heterogeneous structure. In all nine patients the signal intensity of the repair tissue was hyperintense compared to native cartilage. The subchondral lamina and the subchondral bone were not intact in any of the cases. CT: No patients had complete regeneration of the bone. In five patients there was no evidence of bone formation in the defect.Two patients had between 25-50% bone filling. CT two patients were not available.
Conclusions: Treatment of OCD with MayoRegen® resulted in incomplete cartilage repair and a profound lack of bone formation. Three patients experienced postoperative swelling, which may be attributed to the implant. This study illustrates the importance of thorough clinical follow-up in patients treated with novel devices.

2 years follow-up after TruFit® implantation for full thickness cartilage defects in the knee

51.

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Background:
Purpose / Aim of Study: To present our short-term experience with an artificial osteochondral scaffold plug for cartilage repair in the knee.
Materials and Methods: 22 patients treated over a 2 year period. Median patient age 37.5 years (range 24-49). 8 women. 20 medial femoral condyle defects. Median defect size 1 cm2 (range 0.6 to 3). All defects previously debrided or microfractured. 1 plug implanted in 13 cases, 2 in 7, 3 in 1, and 4 in 1 case. KOOS and Tegner scores and standard MRI pre-op, and 1 and 2 years post-op. CT scans 1 and 2 years post-op.
Findings / Results: KOOS values: Dimensions: Symptoms; Pain; Function in daily living; Sport; Quality of Life. Pre-op: 62; 39; 43; 2; 11 1 year post-op: 73; 64; 66; 25; 30 2 years post-op: 79; 69; 79; 34; 34 Normals: 89; 88; 90; 78; 80 For comparison: Normals: age- matched subjects without knee problems. Tegner: pre-op: median 2; 2 years post- op: 3. Between 1 and 2 years post-op: plugs removed in 3 cases; MACI performed in one of these cases. CT scans after 1 year: Volume with no evidence of trabecular bone occupied 115-120% of the primary plug volume. At 2 years: median 80% of the primary plug volume without evidence of trabecular bone. MRI showed partial fill of the cartilage defects after both 1 and 2 years.
Conclusions: KOOS scores improved but were far from normal, and Tegner activity scores remained low for this young and previously active group. CT showed evidence of early bone resorption changing into very limited bony tissue fill of the intraosseos part of the plug. Substantial surface defects were still present in the plug areas after 2 years. Artificial scaffold plugs were believed to be a treatment option for medium size full thickness femoral condyle cartilage defects. However, after 2 years we found that the effect on patient reported outcome was marginal.

Incidence and clinical presentation of groin injuries in sub-elite male soccer

52.

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Background: Groin injuries are prevalent and often long- standing in soccer.
Purpose / Aim of Study: The aim of the present study was to describe the occurrence and clinical presentation of groin injuries in a cohort of sub-elite soccer players during a season.
Materials and Methods: Physiotherapists allocated to each of the participating 44 soccer clubs recorded baseline characteristics and groin injuries sustained by a cohort of 998 sub-elite male soccer players during a full 10-month season. All players with groin injuries were examined using the clinical entity approach, which utilises standardised reproducible examination techniques to identify the injured anatomical structures. The exposure time and the injury time were recorded. Injury time was analysed using multiple regression on the log of the injury times as the data was highly skewed. Effects are thus reported at relative injury time (RIT).
Findings / Results: Adductor-related groin injury was the most common entity found followed by iliopsoas- related and abdominal-related injuries. The dominant leg was significantly more often injured. Age and previous groin injury were significant risk factors for sustaining a groin injury. Groin injuries were generally located in the same side as previously reported groin injuries. Adductor-related injuries with no abdominal pain had significantly longer injury times compared to injuries with no adductor and no abdominal pain (RIT 2.28, 95% CI 1.22 to 4.25, P=0.0096). Having both adductor and abdominal pain also increased the injury time significantly compared to injuries with no adductor and no abdominal pain (RIT=4.56, 95% CI 1.91 to 10.91, P=0.001).
Conclusions: Adductor-related groin injury was the most common clinical presentation of groin injuries in male soccer players and cause long injury time, especially when combined with abdominal-related injury.

High injury incidence in adolescent female soccer: The influence of weekly soccer exposure and playing level

53.

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Background: In a health-perspective, soccer has important benefits, such as reduced risk of obesity and diabetes, but also includes an inherent risk of injury. Soccer is increasingly popular among adolescent females. Previous studies report varying injury-rates (2.4-5.3 injuries per 1.000 hours), using traditional medical-staff or coach reports, methods that significantly underestimate injury-rates when compared to self-report via text-messaging (SMS).
Purpose / Aim of Study: The aim of this study was to investigate the injury-incidence and the association between soccer-exposure, playing-level and injury-risk, using self-report via SMS.
Materials and Methods: 499 girls aged 15-18 years reported soccer-injuries and exposure weekly, by answering standardised SMS questions, followed by individual injury-interviews, during a full soccer season (February-June, 2012). Generalized Estimating Equation with Poisson-link was used to estimate injury-rates and relative risks, as players were clustered within teams. A priori, soccer-exposure and playing-level were chosen as independent variables.
Findings / Results: A total of 424 soccer-injuries were recorded. Total injury incidence was 15.3(13.1-17.8) and time-loss injury-incidence was 9.7(8.2-11.4) per 1.000 hours of soccer-exposure. Higher average weekly exposure in injury-free weeks was associated with lower injury-risk (p-value for trend<0.001), and players with low exposure (≤1 hours/week) were up to 10 times more likely to sustain a time-loss injury compared to other players (p<0.01). Playing-level was not associated with the risk of time-loss injury (p>0.05).
Conclusions: The injury-incidence in adolescent female soccer is high, and players with low soccer-attendance have a significantly increased injury-risk. Future studies should investigate the causal mechanism for this association.

Identification of the femoral attachment point for medial patellofemoral ligament (MPFL) reconstruction without the use of fluoroscopy -A cadaver study

54.

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Background: Anatomically reconstruction of the MPFL as suggested by Schöttle is a well established technique. A free gracillis graft is fixated on the proximal medial boarder of the patella and tunnelled under the second layer of the medial patello- femoral soft tissue complex and fixated at the anatomical femoral attachment point for the native MPFL. A reproducible anatomical and radiographic point for the femoral attachment point has been established in a cadaver study. Incorrect femoral attachment can lead to an unsuccessful result of the surgery. The use of peroperative fluoroscopy to identify the anatomical femoral attachment point for the MPFL is not routine in many centres.

Purpose / Aim of Study: Evaluation of the accuracy of identification of the femoral MPFL insertion point without use of fluoroscopy under standardized conditions.

Materials and Methods: Twelve fresh frozen cadaver knees were used in this study. Five experienced surgeons in sports traumatology were asked to dissect and mark the femoral MPFL point with a nail according to the description by Schöttle. Fluoroscopic examination was done, in the true lateral position. The 12 knees with the nail markings were then calibrated into a "standard knee size" by means of a zooming tool, to correct for differences in sizes of the individual knees.

Findings / Results: Only 4 of the 12 MPFL markings were placed within a distance from 5 mm. of the anatomical MPFL point. Furthermore there was a trend that the individual surgeons placed their markings within a limited area - even when suboptimal.

Conclusions: This study indicates that the ability to identify the femoral MPFL attachment point without use of fluoroscopy is low. We recommend the use of peroperative fluoroscopy for identification of the femoral attachment point in MPFL reconstruction surgery.

Increased medial foot-loading during drop jump and single leg squat in individuals with patellofemoral pain – a cross-sectional study

55.

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Background: Symptoms from patellofemoral pain (PFP) occur during high load activities such as jumping and squatting. The forces imposed on the patellofemoral joint during these activities are transmitted from the foot and up to the patellofemoral joint.This implies that the pattern of foot loading is important for the pathogenesis of PFP. No studies have yet investigated loading of the foot duringjumping and squatting in individuals with PFP.
Purpose / Aim of Study: To compare medial-to-lateral plantar forces during drop jump and single leg squat in patients with PFP and healthy controls.
Materials and Methods: 23 young adults with PFP were compared to 20 age and gender matched individuals without knee pain. Foot loading (plantar pressure distribution) was collected during drop jump and single leg squat using pressure sensitive Pedar insoles. Plantar pressure data from the most pain-full side was used in individuals with PFP, including an identical proportion of right and left feet among pain-free individuals. Primary outcome was medial-to-lateral peak force calculated as the peak force under the medial forefoot in percent of the total peak force under the entireforefoot during drop jump. Mean forces under the forefoot were analysed using the same approach. Both measures were found to have high test-retest reliability (Limits of Agreement mean ± 15%).
Findings / Results: On average, individuals with PFP had a 22-32% higher medial-to-lateral peak force during drop jump and single leg squat, $p<0.03$, and 19-23% higher medial-to-lateral mean force, during the same activities, $p<0.04$.
Conclusions: Individuals with PFP have a more medially directed foot loading compared to healthy controls during high load activities. This may influence the distribution of forces transmitted proximally to the knee, and be an important factor in the development of PFP.

Patient reported outcome, revision rate and reason for revision following resurfacing hemiarthroplasty in patients diagnosed with osteoarthritis: 837 operations reported to the Danish Shoulder Arthroplasty Registry

56.

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Background: Resurfacing hemiarthroplasties in the shoulder for the treatment of osteoarthritis is commonly used but previous studies have not been able to adequately describe revision rates and reasons for revision.
Purpose / Aim of Study: The primary aim was to evaluate patient reported outcome, revision rate and reasons for revision following resurfacing hemiarthroplasty in patients diagnosed with osteoarthritis. The secondary aims were to compare arthroplasty designs and to evaluate age as a possible risk factor.
Materials and Methods: We included all patients reported to the Danish Shoulder Arthroplasty Registry between 2006 and 2010 diagnosed with osteoarthritis and treated with resurfacing hemiarthroplasty. 837 arthroplasties in 772 patients were eligible. Western Ontario Osteoarthritis of the Shoulder index (WOOS) was used to evaluate outcome 1 year postoperatively. Revision rates were calculated by checking reported revisions to DSR until December 2011 and by checking deaths with the Danish National Register of Persons.
Findings / Results: 82.2 % returned a complete questionnaire. Mean WOOS was 67.4 range 0.0-100.0. Patients aged 55 years or younger had a statistically and clinically significant worse adjusted WOOS compared to older patients (mean difference 14.2 [8.8; 19.6 CI 95%], P<0.001). There was no significant difference in WOOS between resurfacing hemiarthroplasty designs. Sixty three (7.5 %) of the arthroplasties were revised. The most common reason for revision was glenoid attrition (n=18). There were no differences in revision rates or adjusted risk of revision with regard to age or resurfacing hemiarthroplasty design.
Conclusions: Resurfacing hemiarthroplasty for the treatment of osteoarthritis of the shoulder joint is, at the short term, associated with a good patient reported outcome but a relatively high revision rate.

Implant survival after total elbow arthroplasty: A retrospective study of 324 procedures performed from 1980 to 2008

57.

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Background: Total elbow arthroplasty (TEA) is an established treatment for late stage arthritis of the elbow. Recent literature advocates TEA in comminute distal humeral fractures in the elderly. However, information on implant survival and risk factors for revision is sparse.
Purpose / Aim of Study: The aim of this retrospective study was to evaluate the survival and risk factors for revision of TEAs inserted in eastern part of Denmark in the period from 1980 till 2008.
Materials and Methods: The Danish National Patient Registry, (NPR) provided social security numbers on patients, who underwent TEA procedures in the period from 1980 till 2008. Based on review of medical reports and linkage to the NPR we calculated revision rates and evaluated potential risk factors for revision including, age, gender, indication for TEA, and implant design.
Findings / Results: 324 primary TEA procedures performed on 234 patients were evaluated at a mean follow up of 8.8 years (range 3-27 years). The overall 5- and 10-year survival rates were 90% (95 % CI = 88-94) and 81% (95% CI= 76-86), respectively. TEAs performed due to fracture were associated with an increased RR of revision of 2.28 (95% CI=1.19-4.36) compared to rheumatoid arthritis (RA). Furthermore, age above 60 years was associated with an increased RR for revision of 2,2 (95% CI = 1.4-4.0) There were no differences in revision rates related to gender or implant design.
Conclusions: We found acceptable implant survival after 5 and 10 years. There were no significant differences in revision rates between linked and unlinked design. However, primary TEA due to fracture and advanced age at time of surgery was associated with an increased risk for revision.

The effective analgesic dose of dexamethasone after outpatient shoulder surgery: a randomized, blinded trial

58.

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Background: It is well established that dexamethasone, given in a single dose of 4-16 mg preoperatively, prevents postoperative nausea and vomiting. Dexamethasone has also been shown to reduce pain after surgery, but the optimal dose is unknown.
Purpose / Aim of Study: We hypothesized that a higher dose of dexamethasone could provide or improve an analgesic effect, and therefore compared the current (antiemetic) dose of 8 mg to a high dose of 40 mg.
Materials and Methods: This was a GCP-monitored, blind, parallel group, placebo-controlled, randomized clinical trial conducted at Horsens Regional Hospital. Seventyfive patients undergoing arthroscopic subacromial decompression and/or acromioclavicular joint resection as outpatient surgery were randomized to receive either dexamethasone 8 mg (D8), dexamethasone 40 mg (D40) or placebo (D0) intravenously before surgery. Primary outcome was pain intensity (numeric rating scale 0-10) 8 hours after surgery. Secondary outcomes were average and worst pain during the first night and on the following morning, and analgesic consumption in the recovery room. Pain intensity, analgesic consumption and side effects were recorded by patients for four days after discharge, and a final follow-up regarding side effects was made after two months.
Findings / Results: There was no difference in pain intensity after 8 hours between D8 and D40 (median (IQR): D40: 2 (1-4), D8: 2(1- 3), p=0.60). For D0 results were (median (IQR)) 4 (2-7). D40 was significantly different from D0 (p=0.02), also during the first night and on the following morning. No difference was found in use of analgesics. No serious side effects were observed.
Conclusions: Dexamethasone 40 mg has a significant analgesic effect continuing into the day after surgery, but does not significantly reduce pain intensity compared to dexamethasone 8 mg.

Primary total elbow arthroplasty in complex fractures of the distal humerus: a retrospective study of 24 consecutive cases

59.

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Background: Osteoporotic fractures of the distal humerus has increased within the last 40 years. The results of osteosynthesis on distal humerus fractures in elderly are variable and studies show up to 42 percent less-than-good results according to Mayo Elbow Performance score (MEPS). Total Elbow Arthroplasty (TEA) has gained popularity in the treatment of complicated distal humerus fractures in elderly, but only few results have been reported.
Purpose / Aim of Study: To evaluate short- to medium term outcome of TEA in complex fractures of the distal humerus.
Materials and Methods: A consecutive series of 24 complex distal humerus fractures operated with TEA at Herlev Hospital in the period 2006-2012 was evaluated with the MEPS, plain radiographs, complications and overall satisfaction.
Findings / Results: 18 patients were followed up. 6 patients, of which 3 had died, were lost to follow up. AO classification: 15 C3, 1 B2 and 2 A2 fractures. Mean follow-up was 20 months (range 4-54). Mean MEPS was 94 (range 65-100). Mean flexion was 109 degrees (range 90-140). According to MEPS there were 14 excellent, 3 good and 1 fair result. Patient satisfaction: 7 excellent, 9 good, 2 fair and 1 poor. There was one revision due to infection treated successfully with revision and three months of antibiotics. In two patients the locking split had loosened. One was referred to re-insertion and one chose yearly controls. Two patients had persistent dysaesthesia of their 5th finger, but were able to discriminate between sharp and blunt. 5/24 (21%) presented complications to the surgery of which 3 (12,5%) were severe.
Conclusions: Our study suggests that TEA in complex fractures of the distal humerus in elderly patients can result in acceptable short- to medium term outcome. However, the optimal treatment for complex fractures of the distal humerus has yet to be determined.

Short term reults after arthroscopic resection of synovial plicae in the radiohumeral joint: a case series of 68 procedures

60.

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Background: Synovial plica in the posterolateral corner of the radiohumeral joint has previously been described as a differential diagnosis to lateral epicondylitis of the elbow. Small case series have shown promising results after artrhoscopic resection of these plicae.
Purpose / Aim of Study: The aim of this study was to evaluate the short term results after plica resection of the elbow.
Materials and Methods: In this follow-up study, we included a consecutive series of 68 arthroscopies (62 patients) with arthroscopic plica resection of the elbow . Inclusion criteria were 6 months of lateral elbow pain and unsuccessful conservative treatment. Patients had either ultrasonography verified plicae or pain on palpation of the plica. Patients were evaluated with an Oxford Elbow Score (OES) preoperatively, after 3 months and after mean 22 months (range:12-31) of follow-up. Furthermore, baseline characteristics were recorded including, gender, age, BMI, occupation, smoking and cartilage damage.
Findings / Results: Mean age was 44 years (range:18-66). In 13 elbows, International Cartilage Repair Society (ICRS) grade 1 lesions were present in association with the plica. Preoperatively mean OES was 18 (95%CI:17-20). At 3 and 22 month followup OES increased to 34 (95%CI: 31-36) and 35 (95%CI 32-38), respectively ($p<0,01$). Cartilage injury and gender did not affect the outcome. We reported no complications.
Conclusions: Arthroscopic plica resection of the elbow indicates an improved OES after 3 and 22 months. A randomized prospective trial is needed to validate the effect of arthroscopic treatment of synnovial elbow plicae.

Dural tears influence on length of admission and outcome in spinal surgery

61.

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Background: Decompression of lumbar spinal canal is one of the most frequent operations on the spine. The most common complication seems to be a peroperative dural lesion.
Purpose / Aim of Study: The aim of this study is to determine the frequency of iatrogenic dural tear, influence on the length of hospital admission and outcome one year postoperative.
Materials and Methods: The Danish Spine Register "DaneSpine" documents the majority (99.6 %) of lumbar spine operations at the Sector for Spine Surgery and Research, Region of Southern Denmark. Within the framework of this register, consecutive operations involving decompression of the lumbar spinal canal were studied regarding the incidence of Iatrogenic dural lesion, length of hospital admission and one year postoperative outcome.
Findings / Results: A total of 1419 patients had lumbar neural decompressive surgery - 738 patients were treated for spinal stenosis and 681 for herniated disc. The overall incidence of dural tear was 7.7 % (109 dural tear). Patients with spinal stenosis accounted for 81 of the lesions (incidence 11%) and the remaining 28 lesions (incidence 3 %) occurred while operating patients with herniated disc. The risk of dural tear after secondary surgery was 11.9% versus 6.2% for primary. The length of hospital admission increased from 2.9 to 4.5 days ($p = 0.00$) among patients with a dural tear. In the patient-based outcome parameters there were no significant differences in outcome between patients with and without a dural lesion.
Conclusions: The incidence of iatrogenic dural tears was 7.7 %. The incidence of dural tear was almost doubled in secondary surgery. Patients with dural tear were hospitalized 1.6 days longer. However, this did not affect the one year outcome negatively.

Intervertebral disc degeneration followed by interference of endplate nutritional pathway in adolescent porcine models

62.

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Background: Insufficient nutritional supply has been proposed as the final common pathway of intervertebral disc degeneration (IDD). Inconsistently, Polymethylmethacrylate (PMMA) bone cement blocking the pathway did not result in IDD in mature animal models. As nowadays there is a tendency to apply vertebroplasty treatments in younger patients, thus we investigated this PMMA blocking affect in adolescent animal models.
Purpose / Aim of Study: To examine the intervertebral disc changes after interference of endplate nutritional pathway.
Materials and Methods: In each of 8 adolescent pigs, two lumbar intervertebral discs were either blocked by cement in both endplate pathway, or stabbed by scalpel in annulus fibrosus, with intact disc as normal control. Magnetic resonance imaging (MRI) including T1, T2- weighted, T2-weighted 3D, sagittal T2 mapping, was performed pre and 3 months post intervention. Postcontrast series T1-weighted MRI also performed at the end.
Findings / Results: The cement blocking area was 38.92¡À10.05 % (from 27.09% to 50.56%) of vertebral bodies on both sides of disc. After 3 months, these cement blocked discs showed severe IDD, with the percentage of disc height index (%DHI) and Nucleus Pulposus area (%NP-area) significantly lower than the normal controls. And the NP T2 value was 188.43¡À75.66 ms also significantly lower than the normal control 356.71¡À38.99 ms (P=0.0089). Similar results were found in positive controls of annulus injury discs. Further post-contrast MRI showed damaged nutrient transport pathway in the cement blocked discs.
Conclusions: Severely interfering endplate nutritional pathway in adolescent porcine models caused IDD. More concern about adjacent IDD needs to be taken when PMMA bone cement is used in vertebroplasty or balloon kyphoplasty treatments, especially in younger patients.

Short-Term Mortality and Morbidity after Surgical Treatment of Fixed Spinal Deformities. Two-Years Experience in 102 Adult Patients

63.

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Background: Increasing evidence suggests that improved sagittal balance is of major importance to obtain improved health related quality of life in the surgical treatment of adult spinal deformities. The two primary surgical techniques used are pedicle subtraction osteotomy (PSO) and vertebral columna resection (VCR).

Purpose / Aim of Study: To assess short-term complications after surgical treatment of fixed spinal deformities.

Materials and Methods: In a prospective cohort study, all complications in adult patients undergoing posterior correction of fixed spinal deformities in the thoracolumbar region from February 1st 2010 through January 31st 2012 were included. Patients were excluded if they had undergone previous posterior instrumentation on more than five levels for a degenerative condition. Also, patients with previous malignant, infectious or traumatic conditions of the spine were excluded . Survival status and the neurologic condition was assessed at the one-year follow-up.

Findings / Results: A total of 102 patients were operated with a mean age of 61 at the time of surgery (range 19 - 86). 52 were men and 50 women. A median number of 10 levels were instrumented with pedicle screws (range 5 - 17). 81 % of the patients underwent PSO and 19% VCR. The 30-day mortality was 1.2% and the primary complication was dura lesion (16%). Two patients (2 %) had permanent neurological deficit corresponding to 1 ASIA motor grade deterioration and four patients (4 %) patients had persisting sensory deficits.

Conclusions: This prospective one-center study confirms recent national database reports suggesting that surgical treatment of fixed spinal deformities carries a relatively low risk of short-term mortality and severe neurological complications.

TLIF surgery results in slightly higher risk of neurogenic leg pain 2 years after surgery compared to standard instrumented posterolateral fusion. Results from a randomized clinical trial

64.

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Background: TLIF has gained increasing popularity obtaining circumferential fusion using a posterior procedure only
Purpose / Aim of Study: Due to cage insertion close to the exiting nerve root concerns has been raised whether the procedure carries an increased risk of subsequent neurogenic pain due to damage of the dorsal nerve root ganglion.
Materials and Methods: Pain drawings from 100 pat. (40 male, 58 female) included in a RCT comparing TLIF to posterolateral instrumented fusion (PLF) was analyzed. 51 had TLIF, 47 PLF. Mean age 49(TLIF)/45(PLF). Pain drawings were completed preoperatively,1y, 2y follow-up. The pain drawing consisted of a front and back outline of a person as well as the area under the feet. Six different symbols could be used for marking pain: dull/aching, burning, numbness, pins and needles, stabbing/cutting and muscular cramps. Pain drawing analysis were done assessing presence and type of pain marks in both legs.
Findings / Results: A slightly higher number of pats. in the TLIF group reported any leg pain at 2y: No leg pain 47% (PLF) 37% (TLIF), Unilateral leg pain 31% (PLF) 25% (TLIF), Bilateral leg pain 22% (PLF) 37% (TLIF), p=0.270. Likewise looking at pain radiating below the knee: No leg pain 55% (PLF) 45% (TLIF), Unilateral leg pain 29% (PLF) 25% (TLIF), Bilateral leg pain 16% (PLF) 29% (TLIF), p=0.294. Numbness and pins & needles on the anterior aspect of the lower leg were marked by 10% and 12% of TLIF patients compared to 6% and 4% in PLF pats. (p=0.498/0.197). Looking at the posterior aspect of the lower leg numbness and pins & needles were marked by 10% and 10% of TLIF pat. compared to 16% and 8% in PLF (p=0.332/0.774).
Conclusions: TLIF pats. were more likely to have bilateral leg pain 2y after surgery and a used pain symbols more commonly associated with neurogenic pain to a slightly higher extent than patients with PLF

A Comparison of the Tokuhashi Revised and the Tomita Scoring Systems in a prospective Cohort of Patients with Metastatic Epidural Spinal Cord Compression (MESCC)

65.

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Background: Expected survival time in patients with acute symptoms of MESCC is a crucial element in the pre-operative evaluation. Consequently, expected survival is a variable in preoperative scoring systems such as the Tokuhashi Revised score (TRS) and the Tomita score (TS). Because of the improved survival among cancer patients it is relevant to reassess the validity of these two systems in a prospective, consecutive, and large cohort of patients with MESCC.
Purpose / Aim of Study: To validate and compare the TRS and the TS in patients with MESCC.
Materials and Methods: During 2011 we included 544 patients with acute symptoms of MESCC. All patients were scored with the TRS and with the TS and were divided into the corresponding prognostic groups. One-year survival status was obtained in all patients and compared to the estimated survival of each group as predicted by the scoring systems. Survival curves were estimated with the Kaplan Meyer methods and were evaluated with the Log Rank test.
Findings / Results: The mean age was 65 years (range 20- 95) and 57% of the patients were men. The most common primary tumors were lungs (23%), prostate (21%), and breast (18%). The positive predictive values regarding one-year survival were 47% for the TRS and 14% for the TS. The actual survival for each of the TRS prognostic groups was significantly different ($P < 0.0001$). The same applied to the TS groups but with some overlap of CI's. In both the TRS and the TS groups the survival was shorter than estimated ($P < 0.0001$).
Conclusions: The TRS and TS accurately separated the patients into groups according to survival but the estimated survival was, contrary to what we expected, longer than in our cohort and a modification of the scoring systems may be necessary to improve prediction regarding survival. The TRS was more accurate than the TS in predicting one-year survival.

Implementing DaneSpine

66.

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Background: During several years, the Danish helath system lacks proper documentation of spinal surgery outcome. The first attempt to establish a national database – DiscusBasen - supported by the Danish National Board of Health was closed down in 2005 due to a coverage rate of less than 20% . In 2009 The Danish Society of Spinal Surgery (DRKS) acquired DaneSpine (DS), with the ambition to establish a national Danish spine database. Sector for Spine Surgery and Research (SSSR), Region of Southern Denmark implemented DS in June 2010.

Purpose / Aim of Study: The aim of this study was to investigate the registration rate and follow-up of surgical procedures in DaneSpine, and estimate the cost of running DS at a centre of our size.

Materials and Methods: Surgical procedure codes registered in the patient administration system was compared to the number of operations recorded in DaneSpine in 2010. Time and costs required for collection and data entry were estimated.

Findings / Results: 486 spinal interventions at SSSR were performed in the second half of 2010. In DS 484 interventions (99.8%) were recorded. At follow-up after one and two years data were available from 406 and 372 patients, corresponding to 84/77 %. The annual cost of administering DS is approximately DDK. 380 000 with an expected output of 1,200 interventions - equivalent of DDK. 300 per patient.

Conclusions: With our setup DaneSpine is a reliable tool, to collect data and monitor our activity and surgical outcome.

Vertebroplasty for treating painful vertebral body fractures, in patients with multipel myeloma

67.

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Background: Multiple myeloma is a disease that causes osteolytic destruction of the bones and has a incidents of 6/100000, with causes 300 new patients a year. 40 % of the patients have painful vertebral body fractures, at the time they are diagnosed with the disease. Vertebroplasty (VBP) is an invasive procedure with cement augmentation of vertebral fractures. It was introduced in France, by radiologist, in the 90's as a treatment for haemangiomas in the vertebral bodies. It is now used for treating osteoporotic fractures and fractures caused by cancer.

Purpose / Aim of Study: The aim of this study was to assess the safety and efficacy of VBP for vertebral body fractures in myeloma patients

Materials and Methods: This is a retrospective review of 18 patients with multiple myeloma, treated with PVP at the Spine Center at Odense University Hospital, from 2004- 2010. The median age of the patients was 62,5 years, 11 males and 7 females. The PVP procedure was performed at 71 levels, from TH6-S2. The procedure was performed in local anesthetic, and the patients could leave the hospital after 4 hours. All patients had a preop X-ray and MRI scan with STIR. The patients had a postop X-ray after 3 months and Visual Analog Scale was used, preop and after 3 months, as assessment for pain.

Findings / Results: The median VAS(back) was preop 7,6 and 3,2 post op after 3 months. ($p < 0,05$). 5 patients didn't participate in the 12 weeks follow up, 1 had died, 4 was admitted to hospital. The patients had a significant reduction of the back pain. We had leakage in 8 of the 71 treated levels (12,5%), none of them causing any neurological symptoms. There were no cases of infections, pulmonary embolisms or other complications.

Conclusions: PVP is an effective and safe procedure in the treatment of painful vertebral Fractures, in patients with multiple myeloma.

Long term outcome and health care utilizations following surgical treatment of adult spine deformity

68.

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Background: The long term effects of scoliosis surgery in adults on health and heath care use is undetermined

Purpose / Aim of Study: To assess the long term impact of deformity surgery on the pain, employment, self reported benefits and health-care use and investigate if any process/patient variables influence the health improvement and degree of healthcare use

Materials and Methods: 123 patients having undergone deformity correction surgery between 1992- 2009 (mean age 42.45 years) were included. They filled Scoliosis life quality,-Dallas Pain and EQ-5D questionnaires at follow up. Data on primary and hospital based health care sectors use were obtained from The National Health Insurance Service Registry and The National Patient Registry. Follow-up ranged between 1.4-18.6 years

Findings / Results: A significant reduction in use of pain medication was seen (p=0.00). Long term employment status was maintained in level to pre-surgery without deterioration. Activity related endurance improved in 38% patients. Perceived emotional-cosmetic improvement ranged between 40-77%. EQ-5D score was significantly poorer (0.6 vs. 0.8) in operated patients compared to matched controls.Surgery had highest impact on health care use for the first 2 years after surgery. Spine related hospital use decreased in the followup. Primary-sector use increased in the follow-up due to increasing visits to the general practitioners (GP) and physical therapists (PT). Education level was significantly associated with the variability in EQ-5D and hospital utilization. Unemployed work status was associated with higher visitations to the GP and PT.

Conclusions: Deformity correction surgery in adults does not lead to an alarming rise in the long-term hospital use but primary care use increases. Patients experience maintenance of working status and improved activity with low complication rate.

Moderate to Almost Perfect Inter- and Intrarater Agreement in Assessment of Adult Spinal Deformity using the SRS-Schwab Classification

69.

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Background: The lack of consensus regarding classification of adult spinal deformities constitutes a challenge in choosing the optimal treatment for each patient. Recently the Scoliosis Research Society- Schwab Adult Spinal Deformity Classification (SRS-Schwab) has been proposed. This system includes four coronal curve types and three sagittal modifiers that are correlated to health related quality of life: Pelvic incidence minus Lumbar lordosis (PI-LL), Pelvic tilt (PT) and Global alignment based on Sagittal vertical axis (SVA). Each modifier has three grades: 0, + and ++.

Purpose / Aim of Study: To analyze inter- and intrarater agreement in a large consecutive series of patients using unmarked radiographs classified by spine surgeons with different levels of experience.

Materials and Methods: SRS-Schwab classification of 67 consecutive adult patients referred for surgical evaluation of a spinal deformity was done blinded by two senior spine surgeons, one attending, and one spine fellow. After two weeks the classifications were repeated on re-coded radiographs. Crude agreement (%) and Fleiss' Kappa coefficients (k) were calculated.

Findings / Results: Interrater agreement averaged 67% (k = 0.70) for curve type, 72% (k = 0.70) for PI-LL, 81% (k = 0.80) for PT, 90% (k = 0.90) for Global alignment and 39% (k = 0.55) for Entire grade. Intrarater agreement averaged 86% (k = 0.79) for curve type, 89% (k = 0.78) for PI-LL, 94% (k = 0.88) for PT, 96% (k = 0.93) for Global alignment and 70% (k = 0.67) for Entire grade. According to Landis and Koch the observed agreements were considered substantial to almost perfect for curve type and sagittal modifiers (PI-LL, PT, SVA) and moderate for Entire Grade.

Conclusions: Our results correspond to previous findings and support the use of the SRS-Schwab classification system in assessment of adult spinal deformities.

3D correction by novel growth instrumentation in severe deformities of the immature spinal

70.

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Background: In surgical management of severe spinal deformity in the Infant ideally spinal growth and 3D correction should be preserved. The current techniques do not fulfill these goals. We developed a new double rod growth system based on 3 platforms and multiple growth tubes applied by MIS as a stand alone or with osteotomy.
Purpose / Aim of Study: Aims of study were 1)to analyze 3D correction. and truncal height at index surgery 2) To measure spinal growth per year in relation to different underlying pathologies.. 3) To monitor adverse events.
Materials and Methods: In total 32 children aged mean 8 years (3 - 11), with mean 78 degrees (55 - 124) scoliosis , 50 degrees (10-105) kyphosis and up to 30 degrees rotation were operated using pedicle screws, hooks and double growth tubes mounted on a cranial, apical and caudal platform. Scoliosis correction is achieved by distraction,, rotation by apical compression and distraction, whereas the sagittal contour is created outside the growth tube areas. Underlying pathology were neuromuscular (8), congenital (7), syndromic 6,juvenile idiopathic 7 and miscellaneous 4. Lengthening procedures in GA were one day admissions undertaken every 5 -6 months.
Findings / Results: Mean index OR time was 175 min (100 - 240). the lengthenings 30 min (10 - 120). The index surgery resulted in a mean 60% frontal Cobb correction, and a 70% correction of kyphosis. In 3 cases osteotomies were integrated. Truncal lengthening was up to 22 cm over 3 years, instrumented growth after index surgery, mean 1.8cm/year. Complications were loss of screw/rod lock 3 pat, hygroma formation 3 pat. necessitating 6 reoperations and. asymptomátic metal debris.
Conclusions: Our hybrid double rod growth system has radically improved management of severe spinal deformities. Major improvements of the implants to minimize debris are needed..

Physical and mental outcome of 500 patients with spinal stenosis operated by decompression alone

71.

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Background: Spinal stenosis, an abnormal narrowing of the spinal canal, is very common among elderly people. Symptoms include pain, numbness, parasthesia and loss of motor control and are often worsened by walking and standing. The condition may be disabling for the patients and some will need decompression surgery, to relive the symptoms. In case of instability fusion may be considered. The outcome after decompression alone is not well described in the literature.
Purpose / Aim of Study: The purpose of this study is to describe quality of life and the physical and mental outcome of the first 500 patients with spinal stenosis operated at the Sector for Spine Surgery and Research, Region of Southern Denmark, by decompression alone.
Materials and Methods: All patients are operated at the Sector for Spine Surgery and Research, Region of Southern Denmark. The data is collected in DaneSpine, the Danish national database for spine operated patients. STATA is used for statistical work. The operations are performed by specialists in spine surgery. Well-known and validated questionnaires are used for assessment of mental and physical health and for quality of life, SF-36, ODI, and EuroQol. VAS used for pain estimation and the walking distance is assessed by questionnaire.
Findings / Results: The VAS score for back pain and leg pain is reduced significantly one year after surgery. Furthermore the mental and physical score of SF-36 and the ODI is improved, the distance of walking is increased and the quality of life, estimated by EuroQol, is improved significantly one year after surgery.
Conclusions: For patients with spinal stenosis and disabling symptoms as pain, numbness, parasthesia and loss of motor control, decompression relieves the symptoms and the patients improve in both mental and physical health.

Is Radio Freqency Ablation (RFA) Epiphysiodesis Safe for Joint Articular Cartilage? 72.

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Background: Epiphysiodesis made with RFA has resulted, in animal models, an effective procedure that disrupts the growth plate and induces LLD. This procedure involves an increase of temperature (>92 °C) of the targeted region causing thermal damage. To our knowledge, no study that investigates the effect of this procedure in the adjacent joint articular cartilage has been reported
Purpose / Aim of Study: Proof of concept that epiphysiodesis made with RFA is a safe procedure that disrupts the growth plate without damaging the adjacent joint articular cartilage
Materials and Methods: RFA Epiphysiodesis RFA was done for 8 minutes in vivo in 40 growing pig tibia physis. In addition, three tibiae were ablated for 16 minutes, and three more for 24 minutes. As a damage reference, 6 tibiae were ablated on the joint articular cartilage for 8 minutes. MRI was done ex vivo after the procedure to evaluate the joint articular cartilage in all samples using T1-weighted, T2-weighted and water content sequences under a 1.5 T magnetic field
Findings / Results: The intentionally-damaged articular cartilage showed intensity changes on the MR. This images were used as reference for damage. We found no evidence of articular cartilage damage on the 40 8 mins procedures. The tibiae ablated for 16 mins showed a larger lesion on the physis but the articular joint cartilage was intact. No articular cartilage damage was found on the tibiae ablated for 16 mins
Conclusions: Epiphysiodesis using RFA is safe for the adjacent articular joint cartilage. This study resembles possible results of RFA epiphysiodesis on humans. Previous studies suggest that an 8 min ablation is enough to disrupt the growth plate. This study shows that RFA can be done safely in the growing physis even on triple-long procedures. It is important to highlight that all this evidence was obtained on an animal model

Acetabular index 6 months after reduction of late presenting hip luxation predicts risk of secondary surgery for residual dysplasia of the hip

73.

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Background: Persistent dysplasia in developmental dysplasia of the hip leads to early osteoarthritis in the adult. Secondary procedures may therefore be necessary to correct residual dysplasia after initial treatment for late presenting hip dislocation. Timing of secondary procedures can be difficult as some hips normalize spontaneously

Purpose / Aim of Study: To identify early prognostic radiografical markers for residual dysplasia

Materials and Methods: A consecutive series of 60 patients with late presenting hip dislocation treated with reduction under anesthesia from 2002 to 2005 were identified in the hospital database (GS- open). Patients with neuromuscular dislocations or septic arthritis (8) or insufficient radiological records (5) were excluded leaving 47 children and 52 hips in the study group. X-rays were evaluated with respect to acetabular index (AI), center-edge-angle (CEA), Shentons line and the sharpness of the lateral corner.

Findings / Results: There were 37 closed and 15 open reductions at a mean age of 16.5 months. 22 hips had secondary procedures at an average age of 55 months. The procedures were proximal femoral osteotomy(3), Salter osteotomy (15) and combined Salter and femoral osteotomies (4). The AI-index declined from 38.1 postreduction to 17.1 at final follow up. At six months after initial reduction AI>35 degrees equaled a relative risk of 2.8 (95.5%CI 1.6-4.8) for secondary procedures. All hips with AI>40 had secondary procedures whereas one hip with an AI<30 had a secondary procedure. CEA, Shentons line and quality of the lateral corner did not correlate to secondary procedures at 6 months.

Conclusions: If the AI does not show significant improvement within six months after primary reduction, the need for secondary procedures are very likely and may be performed at an early stage to improve hip function and avoid residual dysplasia.

Identification of non-accidential injury in children in a Danish Emergency Room

74.

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Background: Internationally, a high percentage of children with non-accidental injuries (NAI) are treated in the emergency room (ER) not detected. NAI is found to be connected with severe physical- and psychological health consequences, and can even be fatal in some cases.
Purpose / Aim of Study: In this study we wanted to examine whether Danish physicians in an ER setting can identify and document NAI adequately.
Materials and Methods: This study was a retrospective review of all ER charts from Glostrup Hospital from May 2009. All children from 0-3 years of age with treated injuries were included. A new score system was developed to assess the history documentation (HD) sufficiency; with this system, we were able to evaluate to which extent the HD included the 6 relevant HD variables necessary to rule out potential NAI: The place of accident, time of accident, context of injury, presence of witnesses, mechanism of injury (MI) and the accompanying caregiver.
Findings / Results: A total of 155 ER charts fulfilled the inclusion criteria. The results showed that 85 % documented the place of accident, the time of accident in 97 %, the context of injury in 20%, the presence of witnesses in 7 % and the accompanying caregiver in 35 % of the ER charts. The MI was adequately documented in 25%, partially documented in 31% and undocumented in 44% of the ER charts. The overall HD score used to assess whether or not a possible NAI had taken place, was only estimated sufficient in 17% of the ER charts.
Conclusions: A majority of the ER charts HD in this study was insufficient. The physicians are therefore at risk of missing out on the opportunity to identify the children victimized by NAI. In light of the serious health risks and future psychosocial consequences, that they entail, focusing on how to screen NAI in an ER setting is highly recommended.

Precise and feasible measurements of lateral calcaneal lengthening osteotomies by radiostereometric analysis (RSA)

75.

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Background: RSA is a precise method in measurements of migration in hip and knee artroplasty and in assessment of fracture stability. Lengthening osteotomies of the calcaneus in children's orthopaedics are in general grafted with iliac crest bone. Artificial structural bone grafts have been introduced. The durability has not been documented by RSA. RSA has not previously been used in clinical studies of calcaneal osteotomies. Prior to a clinical study we performed an RSA study on lateral calcaneal lengthening osteotomy (LCLO) in cadaver feet.
Purpose / Aim of Study: To determine the feasibility and precision of marker-based RSA on LCLO with focus on the osteotomy and the calcaneal-cuboid (CC) joint.
Materials and Methods: The LCLO was performed in three fixed adult cadavers (six feet). Tantalum markers were inserted in the anterior and posterior fragment of calcaneus and the cuboideum. Lengthening was done with a plexiglas wedge. A total of 24 double radiographic examinations were obtained with the osteotomy in zero distraction, 1 cm, 1.25 cm and 1.5 cm distraction to mimic clinical situations. One foot was excluded from the study due to loose markers/osteotomy fracture. Precision was assessed as systematic bias and 95% repeatability limits.
Findings / Results: Systematic bias was generally below 0.09mm for translations and 1° for rotations. Precision of LCLO measurements was below 0.2mm for translations (x,y,z) and below 3° for rotations. Precision of migrations measurements in the CC joint was below 0.4mm for translations and below 2° for rotations about the x,y and z-axes. Mean condition number for anterior and posterior calcaneus and the cuboid was 153, 53 and 192.
Conclusions: RSA is a feasible and precise method to assess migration in LCLO and in the CC joint, though less precise for rotation.

Calcaneal lengthening osteotomy for pes planovalgus using artificial bone graft material. Avoiding donor site morbidity

76.

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Background: Calcaneal lengthening osteotomy can be used to correct painful pes planovalgus but it requires the use of graft material to be inserted as a bone wedge at the osteotomy site. Obtaining autologous graft material from the iliac crest in children is a painful procedure and puts the child at risk for growth arrest and iliac wing deformity. New structural bone graft materials consisting of a mixture of porous hydroxyapatite (HA) and tricalcium phosphate (TCP) are being developed which could prove useful in paediatric orthopaedic surgery.
Purpose / Aim of Study: We hypothesized that a structural artificial graft could be used for calcaneal lengthening osteotomy.
Materials and Methods: A prospective cohort study with ethical approval was conducted from October 2010 – September 2011. Calcaneal lengthening was performed in 8 children and adolescents (9 feet) with mean age 13.1 years (range 6.6-19.2) using wedge shaped HA/TCP graft material (ReproBone). A cast was applied for 6-7 weeks after surgery. Internal fixation of the osteotomy was not used. Follow up was performed using radiographs, computed tomography (CT) and paedobarography.
Findings / Results: Healing of the osteotomy was obtained in all cases on radiographs and CT images. At one year follow-up clinical examinations and paedobarography showed satisfying results of surgery. No graft failure or wound related infections were observed.
Conclusions: Harvesting of autologous graft from the iliac crest may be avoided for calcaneal lengthening procedures using HA/TCP graft material. We report satisfying short term results from a small prospective study with healing of the osteotomy achieved in all cases.

Effectiveness of reversible total epiphysiodesis using eight-plates. A retrospective clinical study

77.

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Background: Partial epiphysiodesis using unilateral eight Plates (EP) is indicated for correction of angular deformities. Permanent epiphysiodesis has traditionally been used for correction of leg length discrepancy (LLD) ranging from 2-5 cm. However, it has become part of clinical practise to perform temporary growth arrest (GA) by inserting bilateral EP for correction of LLD. Only sparse documentation exists to back up this clinical practise.
Purpose / Aim of Study: To evaluate the results of temporary GA using bilateral EP technique for correcting LLD.
Materials and Methods: 14 patients from 2 centers were identified. All had GA performed using bilateral EP in femur or femur and tibia. Follow-up data and radiographs were retrieved and analysed. Information regarding age at surgery, gender, comorbidity, complication rate, amotio atellae and LLD before and during treatment was registered.
Findings / Results: 14 patients received surgery from 2008 to 2011 with an average age of 13,1 (range 11-15, F=12,M=13,7) at surgery. Most patients had idiopathic LLD, whilst clubfoot was the only reoccurring comorbidity. 10 Patients were operated on femur alone, and 4 patients on tibia and femur. They had an average LLD of 2,65cm and 3,75cm, respectively. All had temporary growth arrest with an average GA of 1,84cm, with 0,89cm first year, 0,7cm second year and 0,25cm third year. Average GA for patients operated on femur alone was 1,98cm, while GA was 1,5cm on patients with EP in femur and tibia. 8 patients had implants removed after mean 29,3 months (range 22-37 months). Boy:girl ratio was 6:4 with an average GA of 1,94cm and 1,66cm respectively. The only complication was postoperative pain, in one case prolonged.
Conclusions: Bilateral EP seems to be an effective method to obtain temporary GA and correct moderate LLD in children with remaining growth potential.

Early experience with a follow-up programme, CPOP for children with Cerebral Palsy

78.

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Background: Children with severe cerebral palsy (CP) are at risk of secondary deformities as dislocated hips which often leads to asymmetry, loss of mobility, pain and difficulties into daily activities and personal care. It has been shown that the Swedish follow- up programme, CPUP can identify children at risk of hip dislocation, leading to early interventions and prevention of hip dislocation.
Purpose / Aim of Study: To determine the prevalence of children with hips at risk identified in a cohort of children between 0-6 years, with the aim of early intervention and prevention of hip dislocations.
Materials and Methods: 37 children aged 0-6 years, GMFCS level I-V. 18 girls and 19 boys have been included in the follow-up programme in the Central Region Denmark from September 2012 until June 2013. According to the protocol conventional X-ray of the hips were obtained. Migration Percentage (MP) measure was done by the orthopedic surgeon. Migration Percentage >33 was defined as a hip with dislocation or in risk for dislocation.
Findings / Results: We analyzed 37 children (74 hips) GMFCS level I-IV. In the study group four children were identified with MP>33,GMFCS level V-IV, two girls and two boys. Percentage of hips with MP>33 was 8.1%, 6 of 74 hips.
Conclusions: CPOP seems to be a useful tool identifying hip pathology at an early stage leading to early prevention and interventions by the multidisciplinary team. Dislocation of hips in cerebral palsy remains a serious problem and these data underlines the need of a national screening programme.

11 years follow-up of congenital hip joint dislocation treated by Ludloffs Approach

79.

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Background: Ludloff's approach for open reduction of congenital hip joint dislocation first described in 1908 is commended for its minimal tissue damage, but is criticized for the risk (9%-42,9%) of late avascular necrosis (AVN) of the femoral head.
Purpose / Aim of Study: To evaluate the clinical and radiographic outcome after treatment of congenital hip dislocation by Ludloffs approach at the Department of Children's Orthopedics, Aarhus University Hospital.
Materials and Methods: 19 patients underwent Ludloffs approach from 1997 to 2005 and were invited to follow- up. 14 children accepted and a clinical and radiographic examination of the hip and pelvis were performed. In total 17 hips were treated with Ludloffs approach. Radiographic outcome measures were acetabular angle, migration index (MI) and signs of late complications in form of both distinct and subtle signs of AVN. The clinical outcome measures were range of motion (ROM) of the hip joints, individual orthopedic complaints and the HAGOS hip questionnaire.
Findings / Results: Mean age at surgery was 12 months. Mean follow-up time was 11,2 years. Radiographic evaluation showed signs of AVN in 5 of 17 operated hips (29,4%). Six operated hips have required additional surgery. A significant correlation was found between both MI and AVN ($p<0,05$) and follow-up time ($p<0,01$). Difference in ROM for unilateral treated hips was only significant for flexion ($p<0,02$). Two of five questions of quality of life in the HAGOS hip questionnaire showed a significant worse outcome for patients with AVN ($p<0,01$, $p<0,01$).
Conclusions: Ludloffs approach is relevant in the treatment of congenital hip dislocation. This study indicates an acceptable rate of late AVN and a general good clinical and radiographic outcome.

Adaptation and Validation of a Danish Translation of CPCHILD© Questionnaire

80.

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Background: No validated questionnaire assessing health-related quality of life (HRQL) in children with severe cerebral palsy (CP) has yet existed. However, the Canadian CPCHILD questionnaire meets this deficiency, but has not yet been translated to Danish.
Purpose / Aim of Study: The purpose of the study was to achieve a qualitative validated Danish translation of CPCHILD, in order to be able to assess quality of life in Danish children with severe CP and to be able to examine treatment impact in HRQL and to be able to convey clinical outcome of treatments internationally.
Materials and Methods: Bilingual persons performed stepwise translations, both forward and backward without looking at the original questionnaire. The two versions were discussed in the research group, and summarized to a temporary Danish translation. Caregivers of 12 CP children were asked to fill out the questionnaire and were afterwards interviewed about any problems or misunderstandings. The feedback was discussed in our research group and incorporated in the final Danish version.
Findings / Results: The CPCHILD questionnaire underwent the stepwise translation process. The preliminary Danish version was found easy understandable by caregivers, and parental feedback led to only minor changes. The qualitative Danish translation can be acquired from the authors.
Conclusions: A qualitative validated Danish version of the CPCHILD questionnaire is now available. We are now able to asses HRQL in children with severe CP (GMFCS IV-V) in Danish. As soon as a quantitative validation has been performed we will apply for making this Danish version of CPCHILD the official CPCHILD© Project version; this could best be done on an national basis due to the large number of 'patients needed to treat'.

Operative treatment of elbow fractures in pediatric population: Does timing of surgical treatment influence the rate of reoperation and post operative complications?

81.

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Background: Acute surgical procedures are an integrated part of the daily activity at any orthopedic department. Some of these have to be performed in the late hours of the night.
Purpose / Aim of Study: To analyze the outcome of surgically treated pediatric elbow fractures. We expected that the rate of reoperation is higher for those treated at night.
Materials and Methods: Data collected at a single institution by searching in the FPAS system using the ICD and the treatment code. We had three types of distal humerus fractures: supracondylar (SC), lateral condyle (LC) and medial epicondyle fractures (ME). Surgical timing was defined as day; 8:00 AM-22:59 PM and night 23:00 PM- 7:59 AM. Surgeons were classified into; 1 pediatric orthopedic surgeon, 2 consultant, 3 specialist, 4 resident and 5 unknown.
Findings / Results: In total 221 patients divided into 158 SC, 35 ME and 28 LC. 43 patients were operated at night. 10 out of the 43 operations were performed by 1 during the night (23%) and 17 of the 43 by 2 (40%).The remaining 37% are operated by 3, 4 or 5. At daytime 31% of the surgeries were performed by 1 and 36% by 2. For 37 SC operated at night 3 were reoperated (8%), while for surgery during day time 8 were reoperated (6.8%). Three elbow dislocations with ME were operated at night, but for two patients the fracture was not identified intraoperatively and needed extra intervention. For LC three were operated between 23:00 PM and 7:59 AM and no reoperation. There was no secondary surgery for ME and LC operated at day time, where 9 dislocated elbows were operated.
Conclusions: This study suggests that patients operated at the late night time, have slightly higher reoperation rate. Generally, surgical procedures should be performed during the day time, unless acute intervention is indicated due to neurovascular comprise.

Physeal injuries of the distal humerus – lessons from the Danish Patient Insurance Association

82.

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Background: Physeal injuries (PI) of the distal humerus account for 30% of fractures in the distal humerus. Radiographic diagnosis can be difficult due to the different ossifications center and treatment recommendations are not uniform. The Danish Patient Insurance Association (DPIA) decides compensation claims by patients injured in connection to treatment by the Danish Health Service
Purpose / Aim of Study: To identify patterns in suboptimal treatment of PI in the elbow in children.
Materials and Methods: The DPIA database was searched for case files with PI from 1996 to 2010 for patients 0 to15 years of age. The files were reviewed with respect to patient characteristics, treatment and insurance consequences.
Findings / Results: A total of 47 cases were identified. The boy:girl ratio was 6:4 and with an average age of 9 years. Distribution of fractures was 20 medial epicondylar, 3 medial condyle, 4 lateral epicondylar and 18 lateral condyle. Most frequent complaint was missed fracture at the initial x-ray (23) with a diagnostic delay of a median of 29 days. Junior doctors were responsible for the missed fracture in 17 cases and 15 of the cases were medial epicondylar fractures. 5 patients complained of malpractice due to insufficient surgery; all performed by senior doctors. Only two cases had a range of motion below 100 degrees and there was no significant varus/valgus deformity at final case closure. Half of the injuries were evaluated as a light injury by the DPI but over 2/3 of the complaints were acknowledged.
Conclusions: Medial epicondylar fractures are often missed in the emergency department. In order to optimize treatment and prevent doctors delay more awareness - especially by junior staff - are necessary to avoid missing these fractures. Radiographs of the opposite elbow for comparison or review by an experienced radiologist should be mandatory.

Analysis of 484 retrieved Metal-on-Poly Total Hip Arthroplasty liners: Prevalence of Non-Concentric Loading, Concentric Loading and Impingement

83.

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Background: Adverse loading patterns are associated with poor outcomes and a high revision frequency. Unfortunately, little is known on how loading patterns affect polyethylene liners.
Purpose / Aim of Study: To investigate loading patterns for conventional polyethylene liners from our hip retrieval registry and correlate the findings with reason for revision and in vivo cup- position data.
Materials and Methods: Liners was subjected to analysis including (i) in-vivo orientation of the cup, (ii) concentric or non-concentric loading, and (iii) presence of damages including Impingement. Head size and in-vivo service time were also recorded. Data was correlated with patient history and reason for revision while x-rays were analyzed with Martell to determine cup position.
Findings / Results: 484 liners were retrieved. 45% had Concentric loading, 27% Non-concentric loading and 27% Impingement. 386 patients had surgeon reported reason for revision available with the most common being 1) Femoral loosening, 2) Acetabular loosening, 3) Femoral Osteolysis, 4) Acetabular Osteolysis, and 5) Dislocation. 263 patients had cup- position data of which 66% were outside the safe zone. No correlation between loading patterns and cup-position was identified. Independent predictors (IP) of concentric loading were small head size (22-28mm) (p=0.002, OR=2.8), acetabular osteolysis (p=0.001, OR=2.8)), reason for revision and time in vivo (p=0.006, OR=1.05). The IP for non- concentric loading were time in vivo (p=0.002, OR1.06) and impingement (p=0.001, OR=7.2). The IP of impingement were small head size (p=0.001, OR=2.5) and Dislocation (p=0.002, OR=3).
Conclusions: Non-concentric loading is associated with Impingement. No correlation between damage patterns and cup positions were identified. This suggests that polyethylene is a forgiving liner material when adverse loading occurs.

Does reduced movement restrictions and use of assistive devices affect rehabilitation outcome after total hip replacement? A non-randomized, controlled study in 365 patients with six week follow up

84.

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Background: Rehabilitation after total hip replacement (THR) has traditionally included movement restrictions to prevent hip dislocation. Improvements in surgical techniques and increased femoral head size might have changed the rationale for these restrictions.
Purpose / Aim of Study: To evaluate the influence of movement restrictions and assistive devices on rehabilitation after fast track THR.
Materials and Methods: 365 primary THR patients (mean age 68.7±10 years, 52% males) were consecutively included. The 3 initial months, patients underwent rehabilitation with movement restrictions and received a standard package of assistive devices (restricted group, RG). This group was compared to patients included into the study the following 3 months with a less restricted hip movement regime and use of assistive devices according to individual needs (unrestricted group, UG). Questionnaires on function (primary outcome, HOOS), anxiety (HADS), working status and patient satisfaction were administered before THR, 3 and 6 weeks after.
Findings / Results: HOOS function score at the 3 measurement times were (mean ± SD); UG: 46±17 - 76±9 - 83±14 compared to RG: 43±16 – 81±14 - 83±13, (difference between groups over time, p=0.004). For return to work 6 weeks post THR, UG compared to RG: 53% versus 32% (p=0.045). No significant differences between groups in anxiety, hip dislocations and patient satisfaction.
Conclusions: No clinically relevant difference between UG and RG on patient evaluated function was found (difference ≤5 points). Yet, there is a beneficial or equal effect of the unrestricted regime concerning secondary outcomes. It seems possible to reduce the use of assistive devices considerably and thereby induce cost savings. More research on safety issues is needed to elucidate the effect of unrestricted rehabilitation on hip dislocation.

Whole blood metal ion level in two populations of metal on metal hip arthroplasty and one standard total hip arthroplasty (THA)

85.

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Background: The cause of failure and poor outcome in patients with metal-on-metal (MoM) (THA) are debated. An association between elevated levels of blood metal ions and implant failure may exist.
Purpose / Aim of Study: The primary purpose of this study was to evaluate the whole blood metal ion level of Chromium(Cr) and Cobalt(Co) in resurfacing hip arthroplasty (RHA), large diameter head (LDH) MoM THA compared to metal on polyethylene (MoPE) THA after a minimum duration of two years post OP (PO). A secondary purpose was to assess whether a correlation exists between elevated whole blood metal ion levels and time after operation and if there was an association with gender, age, BMI, implant age, headsize and activity-level.
Materials and Methods: We studied a total of 170 patients consisting of 103 with RHA in 32 females and 71 males, 26 patients with LDH hip in 11 females and 15 males, and an age and gender matched MoPE THA control group consisting of 14 females and 27 males. Cr, Co and activity-level were measured a median of 4.6 (2 to 7) PO.
Findings / Results: Median whole blood Co levels for RHA was 3.83 (0.24 to 27.00) ppm and 5,26 (0.44 to 30.90) ppm for LDH, both significantly higher than the 0.43 (0.05 to 1.73) ppm for MoPE ($p<0.01$), similar pattern for Cr. Females had significantly higher Cr and Co levels, even when adjusting for headsize ($p=0.02$). Cr levels decreased significantly with increased BMI ($p=0.03$), Co also displayed a tendency, although not statisticly significant ($p=0.07$). Implant age was not a factor.
Conclusions: LDH displayed higher metal ion levels than RHA, and both were higher than MoPE. Females gender was an isolated risk factor for elevated metal ion concentration together with increased BMI. Further studies are needed to explain these findings but renal clearance/excretion and body tissue composition could be candidates.

Incidence of pseudotumor in large diameter head metal on metal hip arthroplasty, resurfacing hip arthroplasty and standard hip arthroplasty using magnetisc resonance imaging (MRI)

86.

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Background: Metal-on-metal (MoM) hip arthroplasty (THA) and Resurfacing hip arthroplasty (RHA) are associated with increased metal ion concentration and pseudotumor(PT) formation and increased risk of revision surgery.
Purpose / Aim of Study: Our primary aim was to evaluate the incidence of PT in Large diameter head(LDH) MoM THA, RHA and standard metal on polyethylene(MoPE) THA population after a minimum of two years follow-up, and secondary to assess whether a correlation exists between elevated whole blood metal ion level, gender, patient age, implant age, BMI and headsize on PT formation
Materials and Methods: We studied a total of 205 THA hips in 170 patients consisting of; 121 ASR RHAs in 41 females and 80 males, 34 MoM LDH in 13 females and 21 males, and a matched control group of 50 MoPE THA hips in 15 females and 35 males. The PTs were classified using modified Oxford type I-III. MRI was evaluated by the same senior musculoskeletal specialist
Findings / Results: PT were seen in a 50 (24%) hips. ASR resurfacing had 31 cases (25.6%) distributed on 15 type I (12.4%), 14 II (11.6%) and 2 III (1.6%). LDH had 9 PT (26,5%) distributed on 7 type I (20.7%), 1 II (2,9%) and 1 III (2,9%). MoPE THA had 10 PT (20%) distributed on 6 type I (12%), 4 II (8%) and no type III. There was no significant difference between the incidence of PT in the three implant types and no association with gender or metal ion levels. If PT is diagnosed, the risk of presenting with a more severe type increases over time ($p < 0.05$), but the risk of diagnosing new PT decreased over time ($p<0.05$)
Conclusions: The incidence of PT was not different between RHA, LDH or MoPE, but type III was only shown in MoM hip. No association to age, gender or metal ion concentrations were demonstrated. If a pseudotumor of any type is detected, there is an increased risk of more severe type PT with implant age.

Risk for revision of cementless stemmed metal-on-metal (MoM) total hip arthroplasty (THA)

87.

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Background: The use of MoM bearings on stemmed THAs during the last decade has been motivated by a hope for reduced revision risk.
Purpose / Aim of Study: We aimed to investigate the 10-year revision risk of MoM compared to metal-on- polyethylene (MoP) bearings in stemmed THAs in a population-based follow-up study.
Materials and Methods: From the NARA (Nordic Arthroplasty Registry Association) database (DK, S, N, SF), all cementless MoM and MoP THAs operated between the 1st of January 2002 and the 31st of December 2010 were identified. Only the first THA was included in patients with bilateral procedures. In total, 19,588 THAs were included with complete information on sex, age, diagnosis, year of surgery, femoral head size, and nation. Patients were followed until death, emigration, revision, or end of study period (31st of December 2011). The Cox multiple regression with adjustments was modelled with death as competing risk. The Wilcoxon rank-sum test was used to compare follow-up times.
Findings / Results: 11,574 patients (59.1%) had MoM and 8,014 (40.9%) had MoP THAs. The median follow-up was 3.6 years (interquartile range (IQR), 2.4-4.8) for MoM and 6.0 years (IQR, 4.1-7.7) for MoP bearings ($p<0.001$). Revision rates were 4.1% for MoM and 4.6% for MoP bearings, and the adjusted RR of any revision for MoM was 0.98 (95% confidence intervals (CI), 0.60-1.61) during complete follow-up. The RR of any revision was similar in the two bearing groups for women, men, patients younger or older than 60 years, patients diagnosed with osteoarthrosis of the hip, and femoral head size smaller (adjusted RR 0.68, 95% CI 0.41-1.13) or larger than 36 mm (adjusted RR 1.49, 95% CI 0.87-2.54).
Conclusions: This study did not demonstrate any difference in RR for any revision of MoM THA after a median follow-up of 3.6 years. Longer follow-up is needed to draw firm conclusions.

A novel program for manual measurement of acetabular angles with improved intra- and inter-rater reliability

88.

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Background: In the diagnosis of hip dysplasia (HD) manual measurements of acetabular angles are considered the gold standard. These measurements often play an important role in the diagnosis and pre- operative planning. However, previous work has shown large intra- and inter-rater variability for manual measurements.
Purpose / Aim of Study: To develop a systematic and intuitive program to accurately measure angles for the diagnosis of HD and to evaluate the intra- and inter-rater reliability.
Materials and Methods: Measurements were performed on 18 patients (36 hips) by 1) a senior radiologist, 2) a specialist in training, and 3) a biomedical engineer using a custom software application on a dataset of preoperative CTs of HD patients. A systematic approach was used to determine the center point of the femoral head and the landmark points needed for determining the CE, AI, PASA, AASA, AcAV angles. The angle measurements were automatically derived from the indicated points. We report the mean difference and 1.96*SD. The concordance correlation coefficient (CCC) is reported for angle measurements.
Findings / Results: For brevity we report only the CE and AI angle results. Differences were calculated with respect to the senior radiologist. CE: Rater2: Diff: -0.6±5.0°, CCC: 0.93; Rater3: Diff: 0.0±6.3°, CCC: 0.89. AI: Rater2: Diff: 0.1±5.9°, CCC: 0.83; Rater3: Diff: 0.5±3.8°, CCC: 0.93. Distance: Rater2: Diff: 1.62±0.89mm; Rater3: Diff: 1.36±0.51mm. Intra Rater3: CE: Diff: -0.1±4.8°, CCC: 0.93; AI: Diff: 0.2±3.4°, CCC: 0.94. Distance: Diff: 1.09±0.38mm.
Conclusions: We presented a novel software program for performing manual measurements including the analysis of point placement. We found an improved inter- and intra-rater reliability. The program is easy and fast to use and may be extended for use in the diagnosis of for example femoral acetabular impingement.

MoM ion analyses; a comparison of full blood versus serum and two different laboratories

89.

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Background: Metal on metal hip arthroplasty have been known to produce elevated levels of Chromium- and Cobolt ions in the blood. As a tool in monitoring these patients bloodsamples are tested for Chromium and Cobolt. The threshold value for clinical concern is expected to be more than 7 µg/L (EFORT consensus on MoM).
Purpose / Aim of Study: To compare fullblood and plasma measurements of Cr and Co from the same laboratory, and to compare two different laboratories making the analyses on serum.
Materials and Methods: Blood samples drawn from the same patient at the same time point were analyzed by the ALS Enviromental (Humlebæk, DK) laboratories for Chrome (Cr) and Cobalt (Co) in both serum and full blood, and at the laboratorium at Vejle Hospital for Cr and Co in serum. The levels in full blood were compared with the levels in serum (n=54) and the results in serum from the two different laboratories (n=51) were compared by Scatter plots and Bland Altman limits of agreement.
Findings / Results: Blood vs serum: The mean Delta value for Cr and Co Blood vs serum was -3,50 ppb (SD 6,81) and -1,43 (SD 6,06), respectively meaning that the value in serum is significantly higher than in full blood. The limits of agreement is -13,3 – 10,4. ALS laboratories compared to Vejle Hospital. The mean delta value for Cr was 0,09 ppb (SD 5,50), the limits of agreement was -10,7 – 10,9. The mean delta value for Co was -0,65 ppb (SD 4,97), the limits of agreement was -10,4 – 9,1.
Conclusions: The wide limits of agreement on both the comparison of blood vs serum and the two laboratories and that the serum values especially for Cr are higher than in full blood suggests that the serum and blood values are very uncertain tools in the surveillance of MoM hips.

Acetabular & Femoral BMD around a Large Diameter Head, Standard and Resurfacing THA. 2 Year Results

90.

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Background: Resurfacing Hip Arthroplasty (RHA) is known to transfer load to the proximal femur different from the total hip arthroplasty (THA) resulting in different patters of bone mineral density (BMD) loss. Less is known about BMD around large diameter head MoM THA's (LDH- THA).
Purpose / Aim of Study: We aimed to measure the BMD of the proximal femur and the acetabulum around LDH-THA and compare it to RHA and THA
Materials and Methods: 54 patients with primary OA were randomized in two locations to LDH-THA (n=16), or RHA (n=19)/THA (n=19). DXA scans were performed within 3 days of surgery, 8 weeks, and at 1 and 2 years. The images were analyzed for BMD in 4 acetabular Wilkinson zones (W1-4) and 7 Gruen zones in the proximal femur (G1- 7). Baseline to two years were analysed by t test (matched pairs).Between group data compared by ANCOVA
Findings / Results: Around the acetabulum the LDH-THA increased 10% in BMD in Wilkinson's zone 1 at one year compared to the other components ($p<0.01$). After 2 years the 7% difference was only borderline significant ($p=0.05$) but the LDH-THA maintained BMD where the other components lost it. No difference was found in W2-4. On the femoral side the LDH-THA maintained BMD at two years in all Gruen zones except zone 7 where it lost 20% ($p<0.001$). Both stemmed THA's had less BMD at zone 6 and 7 than RHA ($p<0.01$), and the loss was more pronounced for LDH-THA. In zone 1 LDH-THA and RHA maintained BMD where THA gained 9% ($p=0.04$).
Conclusions: In this study, LDH-THA displays a small advantage in BMD preservation over RHA and THA on the acetabular side, but the difference is small and narrows in after two years. On the femoral side the LDH-THA transfer the load similar to a THA apart from a lacking BMD increase in the trochanter tip. Both stemmed THA's display marked bone loss in the calcar area, where the BMD is preserved by RHA

Patient matched implant (PMI) in reconstruction of severe acetabular bone loss and pelvic discontinuity after total hip arthroplasty

91.

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Background: Revision of a failed total hip arthroplasty (THA) with massive acetabular bone loss and pelvic discontinuity is a challenge. Several methods are available but a relatively new treatment option for these complex cases is use of a patient matched implant (PMI).
Purpose / Aim of Study: To describe our experience and early clinical results of revision hip arthroplasty with use of PMI in a patientgroup who had massive acetabular bone loss and pelvic discontinuity
Materials and Methods: 4 cases of revision THA using PMI (Biomet) were reviewed (verbal pain score and plain radiographs) at an average follow-up period at 12 months (range, six to 22 months). The prosthesis was custom-manufactured on the basis of three-dimensional model of the hemipelvis created with computed tomography.
Findings / Results: Preoperatively all patients had severe pain, three had impaired walking and one were unable to walk. At follow-up three patients had no pain at all but all used one or two crutches and all had positive Trendelenburg. All declared to be satisfied with the operation. There were no major complications. At the time of follow-up all implants were in-situ and without detectable migration on plain radiographs.
Conclusions: After acetabular reconstruction with patient matched implants pain relief was achieved and patients were able to walk. Early clinical results are good and patient satisfaction is high. Patient matched implant to treat massive acetabular bone loss and pelvis discontinuity is an option that should be considered in such cases.

15-years in risk of cardiovascular events and bleeding in total hip and knee replacement patients receiving thromboprophylaxis in routine clinical practice: a nationwide Danish cohort study of 83,756 osteoarthritis patients

92.

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Background: A little is known about cardiovascular and bleeding time-trend risk in patients undergoing total hip and knee replacement (THR and TKR) in routine clinical practice.
Purpose / Aim of Study: We examined the risk and predictors of cardiovascular events and major bleeding among thromboprophylaxis-treated THR and TKR patients.
Materials and Methods: Nationwide, population-based follow-up cohort of 83,756 primary THR and TKR performed in Denmark 1997- 2011 due to primary osteoarthritis was identified using medical registries. The outcomes included were arterial (myocardial infarction and ischemic stroke) and venous thromboembolism, and major bleeding (intracranial hemorrhage, gastrointestinal bleeding and urinary/ lung bleeding) requiring hospitalization within 90 days of surgery.
Findings / Results: Of 51,002 and 32,754 THR and TKR patients, 1.923 (2.3%) and 483 (0.6%) experienced cardiovascular events and major bleeding, respectively within 90 days of surgery. The risks of myocardial infarction, ischemic stroke and venous thromboembolism were 0.5%, 0.5% and 1.3%, respectively. The risks of intracranial hemorrhage, gastrointestinal and urinary/lung bleeding were 0.04%, 0.3% and 0.1% respectively. The annual cardiovascular risk varied between 2.0% and 2.9% in 1997-2011, whereas the risk of bleeding varied between 0.4% and 0.8%, corresponding to a 2- to 6-fold excess risk of cardiovascular events. Predictors of increased cardiovascular risk and bleeding were male gender, increasing age, and high level of comorbidity, with no difference between THR and TKR.
Conclusions: In this routine clinical practice cohort of THR and TKR patients 3% experienced cardiovascular or bleeding events. The cardiovascular risk consistently exceeded the bleeding risk. No major changes were observed in the cardiovascular and bleeding risk during 15 years long study period.

Total Hip Artroplasty (THA) following Open Reduction and Internal Fixation (ORIF) of acetabular fractures. A case-kontrol study

93.

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Background: The most frequent complication following an acetabular facture is posttraumatic osteoarthrosis (OA). This may necessitate a THA. It is the general impression that the clinical outcome of THA after an acetabular fracture is worse compared to primary THA in nontraumatic OA, but knowledge about patients experience after surgery is limited.
Purpose / Aim of Study: The aim of this study was to analyze the long-term results of cementless THA inserted in patients who previously had ORIF of an acetabular fracture and compare these results to patients having a THA after primary OA.
Materials and Methods: In a case control study we included 96 patients who all underwent THA between 1998-2010. Thirty-two patients had previously ORIF of an acetabular fracture. The remaining 64 patients were matched by sex, age, time and site of THA, and served as controls. They were all registered in the Danish Hip Registry. Outcome was evaluated by using 3 questionnaires: EQ5D, Oxford Hip score (OHS) and UCLA.
Findings / Results: The median EQ5D index was 0.72 (Inter Quartile Range (IQR): 0.66-0.82) for cases and 1 (IQR: 0.82-1) for controls. EQ5D index was significant lower in cases ($p<0.0001$). The median OHS was 24.5 (IQR: 17-31) for cases and 14 (12-20) for controls. OHS was significant higher in cases ($p<0.0001$). The median UCLA score was 4.5 (IQR: 3-7) for cases, and 8(IQR: 6- 9) for controls. The UCLA score was significant lower in cases ($p<0.0001$).
Conclusions: We found that THA after ORIF of an acetabular fracture is performing significantly worse regarding quality of life, pain and activity level compared to age and sex matched patients undergoing THA following primary OA. Our results confirm the general impression, but whether it is due to ORIF of the fracture or the fact that THA is a new surgery in already affected bone and soft tissue is unknown.

The Prevalence and Prognostic Impact of Comorbidity in Soft Tissue Sarcoma: A Population-Based Cohort Study

94.

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Background: The incidence of soft tissue sarcoma increases with increasing age, and more elderly patients with comorbidity is expected in the future. Comorbidity is an important prognostic factor for survival in other cancers. The prevalence and significance of comorbidity has not yet been investigated in a larger population-based series of soft tissue sarcoma.
Purpose / Aim of Study: The aim of this study was to estimate the prevalence and impact of comorbidity on mortality in soft tissue sarcoma patients.
Materials and Methods: 1210 adult patients with soft tissue sarcoma in the extremities or trunk were identified through the Aarhus Sarcoma Registry, a validated population-based database. Comorbidity data was obtained through the National Patient Registry, and a Charlson Comorbidity score was calculated for each patient. The prevalence was assessed overall, as well as according to age and year of diagnosis. The prognostic impact of comorbidity on overall and disease- specific mortality was estimated uni- and multivariately using proportional hazard models.
Findings / Results: The overall comorbidity prevalence was 25%. The prevalence increased with increasing age, and patients with comorbidity had a larger proportion of adverse prognostic factors compared to patients without comorbidity. The 5-year disease-specific mortality was 26% (95% CI 24-29) for patients without comorbidity, compared to 33% (95% CI 24-42), 41% (95% CI 32-50), and 44% (95% CI 33-55) for patients with mild, moderate, and severe comorbidity, respectively. After adjusting for important prognostic factors, comorbidity was associated with increased overall and disease-specific mortality.
Conclusions: Patients with comorbidity had significantly increased overall and disease-specific mortality compared to patients without comorbidity, even when adjusting for known important prognostic factors.

Predictors for functional outcome and health related quality of life following limb sparing surgery for soft-tissue sarcomas

95.

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Background: Patient function can be conceptualized by different clinical aspects such as disability, impaired mobility and health status.
Purpose / Aim of Study: To identify tumour and patient related predictors (age, gender, depth, size, malignancy, comorbidity, location and radiotherapy) for functional outcome and quality of life after limb sparing surgery in sarcoma patients.
Materials and Methods: The study included 131 patients (mean age = 58, F/M = 57/74), that were treated with limb-sparring surgery without bone-resection for soft tissue sarcomas in 3 Danish sarcoma centers during the period 1/1-2009 to 31/12- 2011. Patients were asked to participate at least 1 year after surgery, and patients that had experienced local recurrence or metastatic disease were excluded. Functional disability was measured by the Toronto Extremity Salvage Score (TESS), and functional impairment by the Musculoskeletal Tumour Society Score (MSTS), and Quality of Life by EORTC QLQ-C30. A questionnaire was used to gather relevant data about physiotherapy. Statistics: Multivariate logistic regression analysis with calculation of odds ratio (OR).
Findings / Results: We found in the multivariate analysis that women, lower extremity tumours and radiotherapy had a significantly negative effect on TESS score (OR = 3.76, 9.49 and 4.50, respectively). However the predictors had no significant effect on the MSTS score and quality of life. There was a strong correlation between functional outcome and quality of life. Patients who had physiotherapy had a lower functional outcome compared to patients who did not receive physiotherapy, and there was no difference found in quality of life.
Conclusions: Female sex, lower extremity tumours, and radiotherapy were related to a low TESS score and there was a strong relation between functional outcome and quality of life.

Influence of the Extent of Surgery on Patient Survival after Total Joint Replacement because of Metastatic Bone Disease

96.

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Background: In patients with a pathological fracture or painful lesions because of metastatic bone disease (MDB) in the extremities various treatment modalities are available ranging from conservative treatment with radiation therapy over minimal invasive osteosynthesis to extensive bone resection and reconstruction with tumour prosthesis.
Purpose / Aim of Study: To evaluate if extent of surgery influence patient survival after total joint replacement because of MBD.
Materials and Methods: We included a consecutive series of patients (n=130, mean age 64(30-85) years, F/M=76/54) that received a joint replacement operation due to MBD (metastases/haematological disease =114/16) during the period January 2003 to December 2008. The cohort was followed until marts 29th 2011 or until death. The following data were registered: duration of operation, blood loss, bone resection performed (yes/no), age, gender, the American Society of Anaesthesiologists (ASA) score, and primary type of cancer (divided into 3 groups depending on median survival found in the present study). Statistics: Kaplan-Meier survival analysis with log-rank test and Cox proportional hazard regression analysis. $P < 0.05$ was considered statistical significant.
Findings / Results: The probability of patient survival was 51%, 39%, and, 29% after 6, 12 and 24 months respectively. Duration of surgery (mean 164 min; range 60 – 360 min), blood loss (mean 1273 ml; range 100 – 7000 ml), bone resection (yes/no=102/28) did not influence survival (p=0.83, p=0.39 and p=0.76 respectively) while ASA-score and cancer type was significant predictors for survival (p<0.01 for both variables).
Conclusions: Major surgery did not influence survival in patients treated with joint replacement surgery due to MBD. Survival was determined by co-morbidity and cancer type.

Local recurrence rate of Giant Cell Tumors of Bone

97.

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Background: Giant cell tumor (GCT) of bone is a benign but locally aggressive tumor and metastatic spread to the lungs is possible.
Purpose / Aim of Study: To determine the local recurrence rate of GCT of bone, the rate of lung metastases and the rate of malignant transformation.
Materials and Methods: Retrospective collection of data from patients with GCT of bone treated in our clinic from 1997 to 2012. Thirty- four patients (mean age 34 (14-68) years, F/M = 20/14) were included; 4 patients with GCT in the spine were excluded because treatment routines were significantly different to other anatomical locations. A high percentage (62%) of GCT's was localized in close relation to the knee joint. Data were collected from patient files and the Danish National Pathology Registry (DNPR). Statistics: Data are presented as mean (range). Kaplan Meier Survival analysis.
Findings / Results: Intralesional curettage and bone grafting was performed primarily in 32 patients (94%) and wide resection in 2 patients (6%). Mean follow-up was 81 (11-194) months. Thirteen patients (38%) had local recurrence of GCT 16 (4-58) months postoperatively, and the 5-year recurrence free survival was 57%. Local recurrence was found in 1 case of wide excision. Five patients who primarily were treated with curettage were later treated with wide excision. Four patients needed more than one curettage after local recurrence. Malignant transformation where found in 1 case and that patient later developed lung metastases. No other lung metastases were found.
Conclusions: The choice of treating GCT's with curettage seems reasonable in spite of a relatively high recurrence rate because lung metastases and malignant transformation is rare and complications related to wide excisions are avoided.

Adaptive bone remodeling of the femoral bone after tumor resection arthroplastry with an uncemented proximally hydroxyapatite coated GMRS stem

98.

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Background: Loss of bone stock as a response to bone trauma, postoperative immobilisation and stress shielding often leads to pronounced bone loss of the affected bones after joint replacement surgery.
Purpose / Aim of Study: The aim of the present study was to investigate the adaptive bone remodelling of the femoral bone after implantation of a tumour prosthesis using an uncemented press fit stem.
Materials and Methods: We performed 1 year follow up of 6 patients (mean age 54,6 (26-78) years, F/M= 3/3) who underwent bone tumour resection surgery of the femur. Reconstruction were done using GMRS (Stryker) tumour prostheses, with a 125 mm uncemented press-fit titanium alloy stem, with hydroxyapatite (HA) coating of the proximal part of the stem. Measurements of bone mineral density (BMD) were done postoperatively and after 3, 6, and, 12 months. BMD was measured in 3 regions of interest (ROI) of the femur bone containing the GMRS. Statistics: non-parametric analysis of variance (Friedmann test) for evaluation of changes in BMD over time. P-values below 0.05 were considered significant.
Findings / Results: BMD decreased in all 3 ROI with time. In ROI 1(p=0.01) BMD was already decreased by 10% after 3 months and ended with a total decrease of 14% after 1 year. In ROI 2 (p=0.006) BMD was decreased by 6% after 3 and 6 months; after 1 year of follow-up BMD was 9% below the postoperative value. In ROI 3 (p=0.009) BMD was decreased by 6% after 3 and 6 months; after 1 year of follow-up BMD was 8% below the postoperative value.
Conclusions: A bone loss of 8-9% during the first postoperative year was seen of the bone along the femoral stem, but in the bone close to the resection surface containing the HA coated part of the stem the decrease in BMD was 14%, thus indicating that stress shielding of this part of the bone may play a role for the adaptive bone remodelling.

Through knee amputation associated with high risk of reamputation

99.

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Department of Orthopedic Surgery, Bispebjerg Hospital

Background: Non-traumatic through knee amputation (TKA) is used when below knee amputation is not possible due to insufficient healing potential, or in order to avoid contractures. The patients are often frail and multimorbid. Recent studies show reamputation rates of 6-20% for TKA and 3-48% for above knee amputation (AKA).
Purpose / Aim of Study: The aim of this study is to review the reamputation rates for primary TKA or AKA and identify factors associated with risk of reamputation.
Materials and Methods: Patients who underwent a primary TKA or AKA at Bispebjerg Hospital, Copenhagen, in the period from February 2009 to February 2013 were included. 154 patients (82 male, 72 female) with 69 TKA and 85 AKA were identified. Mean age was 74.0 years (ST.D. ±11,3). $P<0.05$ was considered significant. Patient records, and blood results were reviewed retrospectively.
Findings / Results: Reamputation rate within 90 days (R90) of primary TKA were 34,8% with hazard ratio 3,80 (1,55-9,32 95% C.I.) compared to a R90 of 9,4% for primary AKA. Each increase in ASA classification level increased hazard ratio for R90 with 2,78 (1,34-5,79 95% C.I.) and a potassium level above 4,3 mmol/L increased hazard ratio for R90 with 3,30 (1,42-7,69 95% C.I.). We found no significant difference for sex, age, BMI, diabetes, prior vascular reconstruction or history of tobacco or alcohol use. For bloodsamples we found no significant difference for elevated levels of creatinine, leucocytes, CRP or low levels of hemoglobin or albumin.
Conclusions: In this study we found a high rate of reamputation after primary TKA and a low rate of reamputation for AKA, and therefore we will evaluate our treatment strategy for these patients. We found an increased risk of reamputation with each increase in ASA group, and with potassium levels within normal physiological range and above.

Clinical outcome after treatment of paediatric elbow fracture; a comparison of supracondylar, lateral condyl and medial epicondyl fractures; is physiotherapy mandatory as adjuvant treatment?

100.

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Orthopeadic, Odense University Hospital

Background: Fractures involving the distal humerus are very common in the paediatric population. The most frequently of those being: supracondylar (SC), lateral condyle (LC) and medial epicondyle fractures (ME).
Purpose / Aim of Study: To analyze the outcome after operative treatment and see the impact of adjuvant physiotherapy (Phys). We expected to find the worse range of motion (ROM) for ME because of the elbow dislocation.
Materials and Methods: The cohort was found at a single institution searching FPAS using ICD and treatment code in the years 2000- 2010.We compared ROM registered in the charts at the last post operative follow up. ROM was divided into 5 groups; 1: normal, 2: having defect in extension less than 10°, 3: having defect in extension and flexion less then 10°, 4: having extension or flexion more than 10° and 5: unknown. We chose to classify group 3 and 4 to be bad ROM.
Findings / Results: In total 221 patients; 158 SC, 35 MC and 28 LC. The mean age in years was 11[5-15] for ME, 7 [4-14] for SC and 7.8 [5-13] for LC. ROM was not registered in the medical charts for 17.5% of those who received Phys and for 23.9% who didn't. For ME there was no positive impact on ROM in patients who received phys, although 50% of the patients with elbow dislocation were sent to phys. For LC the ROM was worse for patients who received phys. For SC we found a better ROM for patients who did receive adjuvant phys. 34.5% of Gartland 3 were sent to phys while only 20% of Gartland 1 and 2. There was no difference in ROM between Gartland 1, 2 and 3.
Conclusions: Although ROM for a big part was not registered in the chart in our cohort, we could not conclude that physiotherapy has a positive impact on post-operative ROM. Further research is needed to illuminate the role of physiotherapy as a mandatory part of treatment in elbow fractures in the pediatric population.

Can the Ottawa Ankle Rules be applied in children with ankle injury? A prospective MRI study

101.

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Background: Clinical evaluation of the paedaitric ankle injuries can be challenging. The validation of Ottawa Ankle Rules (OAR) for the paediatric patients could help in the decision making, whether radiographs should be obtained. To the best of our knowledge, there are no prospective studies utilizing magnetic resonance imaging (MRI) to verify OAR in children.
Purpose / Aim of Study: The aim of this study was to validate OAR in children by the use of MRI.
Materials and Methods: 391 with acute ankle trauma, from September 2012 to May 2013 at one institution. 37 patients suspected of ankle fracture were included and underwent an initial clinical examination with OAR and radiography. Patients were then referred for an MRI within few days. All images were reviewed and data were recorded prospectively. All patients were seen for a clinical follow-up and informed about the MRI results. The clinical data and the initial radiographs were blinded to the senior radiologist, whom interpreted the MRI.
Findings / Results: 37 (100%) met the criteria to obtain radiographs by OAR. 3 patients (8%) were excluded due to dropout and 3 (8%) had a fracture on the initial radiography. This resulted in a total of 31 patients referred to MRI without a fracture on initial radiography, 18 males and 13 females, mean age 10±2.86. The time between the injury and the initial radiological examination was 0.4±0.88 days and the MRI was obtained on an average of 6.9±2.87 days.1 patient (3.2%) had a bony flake fracture of the lateral malleolus verified on the MRI, making a total of 4 patients (10.8%) with fractures.
Conclusions: In this study OAR recommended radiographical evaluation of all patients. However, only 3 had fractures verified on initial x-ray and 1 on subsequent MRI, According to this study, OAR is not recommended for clinical evaluation in children, due to a high false-positive rate.

The proportion of distal fibula Salter Harris type I epiphyseal fracture in the pediatric population with acute ankle injury. A prospective MRI study

102.

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Background: Ankle injuries are common among the pediatric population and may result in fractures, ligaments or osteochondral injury. There are few prospective studies utilizing magnetic resonance imaging (MRI) to diagnose a clinically suspected Salter-Harris type 1 of the distal fibula (SH1DF).
Purpose / Aim of Study: The aim of this study was to examine the proportion of clinically suspected SH1DF in children.
Materials and Methods: 391 patients with ankle injury, seen at the emergency room (ER) from September 2012 to May 2013 at single institution. All underwent a standardized clinical examination and radiographs was obtained if found necessary. Initial radiographs were reviewed by an orthopedic specialist and a radiologist specialist and data was recorded prospectively. Patients suspected of having SH1DF were referred for an MRI of the ankle joint within few days. All patients were seen for a clinical follow-up and informed about the MRI results. The clinical data and the initial radiographs were blinded to the senior radiologist, whom interpreted the MRI.
Findings / Results: 38 patients had a clinical suspicion of SH1DF. 7 patients were excluded from the study. 3 were excluded, as there was fracture on the initial radiography. One due to closed physis and 3 due to drop out. A total of 31 patients, 18 male and 13 female, mean age 10±2.86. The time between the injury and the initial radiological examination was 0.4±0.88 days. MRI was obtained on an average of 6.9±2.87 days. None of the included patients had evidence of SH1DF on MRI imaging.
Conclusions: According to this study, the clinical diagnosis of SH1DF was incorrect in all of the cases. This study and review of the literature verifies the high false-positive rate of clinically suspected SH1DF. These results may influence the management of clinically suspected SH1DF.

Pitfalls in the treatment of pediatric supracondylar fractures of the humerus – a partial root core analysis of 101 cases from the Danish Patient Insurance

103.

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Background: The supracondylar fracture of the humerus is the most common fracture in the pediatric elbow. Danish Patient Insurance Association (DPIA) receives complaints from patients who believe they have sustained injuries due to potential malpractice or unfortunate circumstances.
Purpose / Aim of Study: Case files from DPIA were assessed to identify causality and factors contributing to complaints and potential malpractices of supracondylar fractures in children.
Materials and Methods: A partial root core analysis was performed of a total of 101 cases. Case files for supracondylar fractures were retrieved from the DPIA database for the diagnose codes DS 42.4 and DS 42.4C for patients under the age of 16.
Findings / Results: The boy:girl ratio was 3:2 and with an average age of 6,7 years. According to the Gartland classification: Six were classified as type 1, 49 as type 2, 41 as type 3 and five cases of flexion type fractures. The main complaints were related to malpractice (47), poor functional outcome (45), cubitus varus (38) and neurological symptoms (18). 38 of the cases were operated on by a specialist in orthopaedics. 32 were treated conservatively with cast including 9 cases supplemented by closed reduction. 69 were operated by either closed (19) or open (50) reduction supplemented by k-wire fixation. The rate of complications increased with fracture severity by the Gartland classification and almost all flexion type fractures had reoperations. Half of the injuries were evaluated as minor injury by the DPIA, but a total number of 48 cases were acknowledged.
Conclusions: Malpractice in surgical technique seemed to be overrepresented in the severe fractures even when operated on by an orthopaedic specialist. In order to optimize treatment, operating doctors would need to be especially trained to deal with these kinds of fractures when severe.

Outcome of distal tibial physeal fractures; a comparison of Triplane, Tillaux and medial malleolus SH-III and IV fractures. A retrospective study

104.

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Background: Ankle fractures occur frequently in adolescent patients. Fractures that involve the physis can result in Tillaux (TI), Triplane (TR) or medial malleolus fracture (MM). Those can result in growth arrest, which can lead to deformity and shortening of the distal tibia. We expected that medial malleolus fractures have the highest risk of developing growth arrest, as it occurs in a younger age group, with more growth potential.
Purpose / Aim of Study: To examine the outcome and distribution of growth arrest after the physeal fractures of the distal tibia.
Materials and Methods: A retrospective study where the study population was identified through analysis of medical records and x-rays of all adolescent patient with a distal tibia fracture registered at a single institution in the period from 2003 – 2012.
Findings / Results: 51 patients, 53% female and 47% male. 71% of the fractures were located to the right ankle (n=36). There were 15 TR, 9 TI and 27 MM fractures. The mechanisms of injury were: sprain (56.9%), fall from height (15.7%), motor vehicle accident (11.8%) and undefined (15.6%). The mean age was: 13.5 TR (10-16), 13.2 TI (12-15) and 12.9 years MM (8- 16). There were no significant statistical differences between the 3 groups regarding incidence of growth arrest: MM vs. TR p=0,47 (NS), MM vs. TI p=0,56 (NS) and TR vs. TI = NA.
Conclusions: This study shows a trend towards higher risk of developing growth arrest when suffering from a MM compared to the other transitional fractures. However this clinical trend should be interpreted with the scope of this study and further research is necessary to illuminate this aspect of physeal fractures and their complications.

Level of supervision in fracture-related surgery in Denmark. Experience from centres participating in the DFDB (Danish Fracture Database) collaboration

105.

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Orthopaedics, Hvidovre Hospital

Background: The surgeon's level of experience and degree of supervision is an important factor in outcome following fracture-related surgery. No studies exist describing levels of supervision for fracture-related surgery in Denmark. The Danish Fracture Database (DFDB) was introduced as a quality-monitoring tool of fracture-related surgery and can be used to monitor the surgeon's experience level and degree of supervision at the participating centres.
Purpose / Aim of Study: To describe the levels of experience of the operating surgeons and the level of supervision for fracture-related surgeries performed at 8 participating centres.
Materials and Methods: Currently 9.765 surgical procedures are registered in DFDB. Data regarding experience level of the surgeon and the level of supervision was assessed for primary surgeries (n=7.958) and reoperations (n=576) separately. We describe the level of surgical expertise and amount of supervision for the most common fracture-related surgeries and the most frequently re- operated fracture types. We also investigate the changes in supervision outside regular working hours.
Findings / Results: Interns (IN) performed 18% and junior registrars (JR) 29% of all primary fracture- related procedures. 9,6% of primary procedures performed by IN and 32% by JR, were unsupervised. IN and JR combined operated 16% of all proximal femoral fractures (the most frequent fracture group reported to DFDB) unsupervised. Unsupervised surgeries performed by JR increased from 29,7% to 39,6% outside regular work hours ($p<0.001$).
Conclusions: While overall levels of supervision were generally high, we found that 1/3 of procedures performed by JR were unsupervised. Lower degree of supervision for surgeries performed outside regular work hours could be a matter of concern.

Routine blood tests indicate increased mortality risk in lower limb amputation patients

106.

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Orthopedic, Bispebjerg

Background: Non-traumatic lower limb amputation is associated with high mortality rates. Recent studies show mortality rates after 30 days of 50% for through knee amputation (TKA) and 31-36% for above knee amputation (AKA).
Purpose / Aim of Study: The aim of this study is to review the outcome of patients undergoing a primary TKA or AKA and identify factors predicting increased mortality rates.
Materials and Methods: All patients who underwent a primary TKA or AKA at Bispebjerg Hospital, Copenhagen in the period from February 2009 to February 2013 where identified using the hospital surgery database (Orbit). Patient records were reviewed retrospectively and additional data was obtained from the hospital biochemistry department and the national civil register. 154 patients (82 male, 72 female) with 69 TKA and 85 AKA were identified. Mean age for patients was 74.0 years. $P<0.05$ was considered significant.
Findings / Results: The mortality rates after 30 days (D30) were 14.5% for TKA and 23.5% for AKA, and after 90 days (D90) 36.2% for TKA and 40.0% for AKA. Comparison of mortality rates revealed that male versus female patients had a higher risk of D30 (OR 2.41, $p<0.04$) with no significant difference for D90 (OR 1.67, $p<0.1$). No further significant differences were identified. Regarding blood samples, serum creatinine (>100 ìmol/L), leucocytosis (>15.1 x 10-9/L) and CRP (>50 mg/L) were associated with significantly higher D90 (OR 3.27, $p<0.001$, OR 2.69, $p<0.009$ and OR 3.37, $p<0.006$, respectively).
Conclusions: In this study, mortality rates are in line with comparable studies. Male patients tend to have higher mortality rates postoperatively, though data is not conclusive. Leucocytosis, elevated levels of both serum creatinine and CRP correlate to increased risk of death postoperatively, and could help identify the group of patients in need of special attention.

High patient volume is associated with increased 30-day mortality after hip fracture

107.

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Background: Hip fractures are associated with increased mortality. Arthroplasty procedures have demonstrated better clinical outcomes at high volume units, but the results after hip fracture are inconclusive.
Purpose / Aim of Study: We aimed to evaluate the association between patient volume in hip fracture units and 30-day mortality.
Materials and Methods: Using prospectively collected data from the Danish Hip Fracture Registry, we identified 12,065 patients ≥ 65 years that were admitted with a hip fracture from 2010 to 2011. Patient volume was divided in three groups (≤170 hip fracture admissions per year, 171 to 350 and ≥351 admissions per year). The primary outcome was 30-day mortality. Secondary outcome included quality of care assessed using six process indicators. Data was analyzed using regression techniques while controlling for potential confounders.
Findings / Results: The 30-day mortality was 10.5%, 11.0% and 13.2% for low, medium and high volume units, respectively. Admittance to high volume units was associated with higher 30-day mortality (adjusted odds ratio (OR) = 1.26, 95%CI: 1.01-1.58). Furthermore, patients who were admitted to high volume hip fracture units had lower odds for being mobilized within 24 hours postoperatively (OR=0.71, 95%CI: 0.61-0.82), for basic mobility assessment (OR=0.60, 95%CI: 0.50-0.73), and for receiving a post discharge rehabilitation program (OR=0.48, 95%CI: 0.38-0.60). After adjusting for different quality of care, mortality was comparable (OR=1.14, 95%CI: 0.81-1.60).
Conclusions: Patients with hip fractures admitted to high volume units have higher mortality rates and receive lower quality of care. Variations in quality of care could apparently explain variations in 30-day mortality between units with low and high patient volume.

External versus internal fixation of intra-articular distal tibial fractures - A systematic critical review

108.

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Background: Intra-articular fractures of the distal tibia are among the most challenging of orthopaedic problems. The management of these fractures requires both an understanding of the delicacy of the soft tissue on the distal 1/3 of the tibia, comprehension of the current concepts of treatment and the expertise to apply this knowledge into the treatment of these fractures

Purpose / Aim of Study: The aim of this review was to evaluate literature comparing external fixation (EF) to open reduction and internal fixation (ORIF) of intra-articular distal tibial fractures with focus on complications and functional outcome

Materials and Methods: A search string was designed to search Pubmed, Embase and Cochrane Databases for the literature and revealed 13,096 articles (1993 dublets). 2 reviewers independently assessed the literature for relevance by title, abstracts and full text. Initially only level 2 evidence and above was accepted which gave 3 articles, and therefore level 3 evidence was included and gave 2 more articles. Extraction of data were done by 2 reviewers and sorted regarding to study aims. The quality of studies was assessed by both reviewers using CASP 2010 checklists

Findings / Results: The 5 articles covered 258 intra-articular distal tibia fractures, 118 managed by EF and 140 treated by ORIF. The patients treated with EF are more often subject to non-union, mal-union, and deep infection than patients with ORIF. Very few studies include good functional scores but there might be a better functional outcome after 6 months which even outs after 1 year

Conclusions: The literature at hand is still insufficient to make any definitive conclusions. There is not yet an agreement of which clinical scores to use in follow up, and the low level of evidence in study design makes confounding bias a great risk

Over- og undertriage ved modtagelse af multitraumatiserede patienter - En sammenligning af to triagesystemer

109.

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Ortopædkirurgisk afdeling, OUH

Background: Correct trauma team activation (TTA) is important. Undertriage may affect mortality, but overtriage is resource consuming and may affect awareness of the Trama Team

Purpose / Aim of Study: This study was done to evaluate the difference between two triage systems used by Odense University Hospital in the period 1/6-31/12; 2010 and 2011. Especially the ability to correctly identify the multitraume patient defined as ISS > 15

Materials and Methods: A score system based on basic observations were used in the first period 1/6 – 31/12 2010. In the second period a more clinically oriented system based on evaluation by trained health proffesionals were used. A retrospective comparative cohordstudie using UAG's trauma registry, and medical record review. For each period two groups was identified. 1) Patients received in the emergency room by TTA. Exclusion: Patients transferred from other hospitals. 2) All other admissions with the trauma codes T or S was reviewed. Deaths within 30 days after emergency room contact, was evaluated separately without any possibility of exclusion. Exclusion criteria: Isolated hip fracture or hospital admissions shorter then 3 days.

Findings / Results: In 2010 and 2011, 614 and 451 patients was received by TTA, 565 and 503 was admitted without. The groups were statistically homogeneous. Overtriage was reduced from 47% to 39%, undertriage from 7% to 6%. The reduction in overtriage was statistically significant. A substantial amount of undertriaged patients had severe head trauma

Conclusions: The introduction of a new triagesystem, with emphasis on the clinical assessment by trained health professionals, has resulted in a reduction of overtriage, without increasing the undertriage. The results are in accordance, with international recommendations and previous Scandinavian studies.

Patient volume in hip fracture units is associated with increased length of hospital stay and increased surgical delay

110.

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Orthopaedic Surgery, Region Hospital Horsens; Ortopaedic Surgery, Region Hospital Horsens; Clinical Epidemiology, Aarhus University Hospital

Background: Hip fractures are associated with the largest use of bed days in hospitals in the Western World. It is unclear whether there are any scale advantages from treating a larger number of patients with hip fractures.
Purpose / Aim of Study: We examined on patient level whether patient volume in hip fracture units is associated with length of hospital stay and surgical delay.
Materials and Methods: In a nationwide prospective population-based cohort study, we identified 12,065 Danish patients aged >65 years with an incident episode of hip fracture admitted between 2010 to 2011. The patient volume was divided in three groups (≤170 hip fracture admissions per year, 171 to 350 and ≥351 admissions per year). The primary outcome was length of hospital stay. Secondary outcome included surgical delay. Data was analyzed using regression techniques while controlling for potential confounders.
Findings / Results: Length of hospital stay was 7.9 days, 8.1 days and 10.7 days for low, medium and high volume units, respectively. Admittance to high volume units was associated with a longer length of hospital stay (adjusted OR 1.29, 95%CI: 1.07-1.55). Surgical delay was 20.4 hours, 21.8 hours and 23.0 hours for low, medium and high volume units, respectively. Admittance to high volume hospital was associated with a longer surgical delay (adjusted OR 1.27, 95%CI: 1.02-1.57).
Conclusions: Patients with hip fractures admitted to high volume units have increased surgical delay and increased length of hospital stay compared to low volume units.

Demographic and short-term outcome changes within 10 years of a multimodal fast-track hip fracture program

111.

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Background: Hip fracture rates seem to have fallen within the last decade but whether patient demographics and short-term outcome also changed during this period is unknown.
Purpose / Aim of Study: To examine changes within a 10 year period in patient demographics, fracture type distribution, and outcome among patients admitted to a specialized hip fracture unit at a university hospital.
Materials and Methods: A consecutive series of 288 patients, median (IQR) age of 83 (77-88) years, admitted within 6 months of 2012 was compared with 288 patients, median age of 81 (73-87) years, admitted at the same hospital from September 2002, and with respectively 82% and 81% admitted from their own home. The pre-fracture functional level was evaluated with the New Mobility Score (NMS, 0-9 points).
Findings / Results: The percentage of men admitted with a hip fracture increased to 35% (101/288) in 2012, from 26 % (76/288) in the 2002 cohort (P=0.02), while no significant difference was seen over time for age, type of fracture, and cognitive status. Patients however had a higher pre-fracture functional level (median NMS, IQR) from 4 (3-9) in 2002 versus 6 (3-9) in 2012 (P=0.01). Time in hospital was unchanged, with a 2012 median LOS of 11 (7-16) versus 11 (6-23) in 2002, and corresponding with 79% and 77% discharged directly to their previous residence. Patients not discharged directly to their own home were more often referred to rehabilitation in 2012 as compared to nursing home in 2002 (P<0.001).
Conclusions: The rate of men sustaining a hip fracture increased significantly with 9% from 2002 to 2012 at our institution, while the pre-fracture function in general was improved. Whether this increase is representative for other parts of Europe, should be further examined. Also, more details of the male cohort should be examined for prophylactic treatment of risk patients.

Venous thrombosis following fractures below the knee, a nationwide cohort study

112.

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Background: Only few studies have investigated the risk of deep venous thrombosis (DVT) or pulmonary embolism (PE) after osteosynthesis of fractures below the knee. Antithrombotic treatment following discharge is currently not recommended in international literature.
Purpose / Aim of Study: The aim of this study was to investigate the incidence of clinical significant DVT/PE in patients undergoing osteosynthesis of fractures below the knee, and to identify specific risk factors associated with the event.
Materials and Methods: Using individual linkage of nationwide registries, we included all patients undergoing osteosynthesis below the knee, 1999-2011. Event rates of DVT/PE were calculated and significant risk factors were identified using cox regression analyses. Patients were followed 180 days from discharge.
Findings / Results: We included 37,853 patients, from these 314 (0.8%) had DVT/PE that demanded hospitalization within 180 days. The event rate was markedly increased the first weeks after discharge, and decreased with time, stabilizing 12-14 weeks after discharge. Oral anticonceptives (Hazard Ratio [HR] 3.58), former DVT/PE (HR 6.XX), and peripheral artery disease (HR 3.1X) were the risk factors associated with the highest incidence of postoperative DVT/PE. Also obesity was associated with an increased risk of DVT/PE.
Conclusions: The overall risk of DVT/PE after osteosynthesis of fractures below the knee was lower than the risk of DVT/PE after hip or knee replacement. However, the risk of DVT/PE in patients with one or more of the risk factors identified above is similar or higher than the risk of DVT/PE after hip and knee replacement, and our study thus suggest that these patients could benefit from the prolonged anticoagulation therapy after discharge.

The management of anticoagulant therapy in hip fracture patients in Denmark

113.

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Background: There is no consensus in the literature regarding the management of hip fracture patients who are receiving oral anticoagulant therapy on admission. The concept of cessation of treatment to prevent increased blood loss during operation is currently being debated in the literature. Recent studies suggest that this practice results in unnecessary delay of surgery, and increased risk of thromboembolic events.
Purpose / Aim of Study: We investigated current practice in the management of hip fracture patients in oral anticoagulant therapy in Denmark and compared the current practice with the latest findings in the literature.
Materials and Methods: We made a web based survey of the current practice concerning patients in oral anticoagulant therapy in 24 Danish orthopedic departments treating hip fractures. Contact was made by e-mail to the head of the traumatology team. We made a systematic search of the literature on the field in PubMed.
Findings / Results: We found that there was some discrepancy in the management of these patients in Danish orthopedic departments. Some departments do not have a clinical guideline on the subject, but rely on the guidance of other departments in the management of these patients. Some departments delay surgery in order to manage the risk of blood loss. Other departments have a more aggressive approach with no delay in surgery. We found that the literature on this field is very limited and characterized by low level of evidence.
Conclusions: The management of hip fracture patients who are receiving oral anticoagulants on admission shows markedly variance between centers in Denmark. This could in part be explained by the small amount and low level of evidence of studies on this subject. Studies investigating the controversies of the existing, "surgery- postponing" management are warranted.

Reliability of a Scoring System for Measurement of Implant Position after Internal Fixation of Undisplaced Femoral Neck Fractures

114.

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Background: Implant position may be an important predictor of failure after internal fixation (IF) of undisplaced femoral neck fractures (uFNF), but the use of scoring systems for measurement of implant position have been somewhat unreliable in previous studies.
Purpose / Aim of Study: The aim of this study was to evaluate the reliability of a scoring system for measurement of implant positioning after IF of uFNF.
Materials and Methods: 102 patients admitted with an uFNF treated with IF at one hospital between 01.05.2005 and 02.04.2007 were retrospectively included. Implant position on the first postoperative anterior-posterior and axial radiographs were both assessed visually and objectively measured according to a scoring system including screw tip distance, screw-shaft angle, screw-calcar distance, and screw positioning in the femoral head. Three raters (one medical student and two residents) each made the assessments twice with minimum 14 days interval, blinded for each other's results. An independent person performed unweighted kappa statistics.
Findings / Results: Visually assessed implant position gave intra-rater kappa results at 0.40-0.75 (rater 1), 0.75-0.98 (rater 2) and 0.69-0.81 (rater 3), with inter-rater kappa results at 0.18-0.80 (combined range). Objectively measured implant position gave intra-rater kappa results at 0.56-0.88 (rater 1), 0.74-0.87 (rater 2) and 0.81-0.94 (rater 3), with inter-rater kappa results at 0.48-0.85 (combined range).
Conclusions: Implant position simply assessed visually confirmed to be unreliable but this appeared improvable by objectively measurement. Thus, measurements should be studied for relevance in future formal scoring systems for predicting failure after surgery.

Reoperation rates on proximal femoral fractures

115.

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Background: Reoperation rates on patients with proximal femoral fractures (PFF) are reported to be between 5-20%. This depends on the pattern of fracture. However, other factors including surgical experience and choice of implants have been shown to influence the reoperation rate as well.
Purpose / Aim of Study: To study the association of reoperation rate among PFF at Bispebjerg Hospital with fracture type, surgical experience and type of implant.
Materials and Methods: A retrospective evaluation of 459 patients with operated PFF in a one-year consecutive period (01.09.2011 - 31.08.2012) with 6 months postoperative follow up. Fractures were stratified as Garden I-II, III-IV femoral neck fractures or extracapsular fractures. Surgeons were grouped as residents, senior residents or specialist. Following implants were registered; parallel screws, four-hole sliding hip screw, intramedullary nail and hemiprosthesis.
Findings / Results: Overall 8,7% underwent reoperation within 6 months. 15,1% of Garden I-II, 17,3% of Garden III- IV and 3,0% of the extracapsular fractures were reoperated. Multivariate Cox regression analysis incorporating fracture type, type of surgery and surgical experience, showed no significant influence of variance in surgical experience (p=0.8) or type of fracture (p=1), but significant difference in frequency of reoperation related to type of surgery (p=0.02). Parallel screws had the highest reoperation rate at 18,9%. For parallel screws in Garden III-IV fractures the reoperation rate was 26,9%, for hemiprosthesis it was 15,1%.
Conclusions: The reoperation rate for femoral neck fractures is higher than for extracapsular fractures. The Garden III – IV treated with parallel screws had the highest reoperation rate (26,9%) compared to 15.1% for those treated with hemiprosthesis and 15.1% for the Garden I – II treated with parallel screws.

Satisfaction with Upper Extremity Surgery in Individuals with Tetraplegia

116.

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Background: All tetraplegia patients are offered an evaluation and reconstructive surgery of the upper extremity if it is possible.
Purpose / Aim of Study: Evaluate the satisfaction with upper extremity reconstructive surgery in spinal cord injured individuals with tetraplegia.
Materials and Methods: Retrospective study with questionnaire follow-up. 49 tetraplegic individuals had 119 surgical procedures performed to the upper extremities. Seven had died and 42 were invited to participate in the survey. 40 (95%; median age 48 years at time of survey) answered a questionnaire with a 5- level Likert scale ranging from strongly agree to strongly disagree regarding satisfaction within 8 areas: 1) General satisfaction; 2) Life impact; 3) Activity of daily living (ADL); 4) Independence; 5) Appearance; 6) Reliability; 7) Information; and 8) Postoperative therapy.
Findings / Results: The median time from first surgery till survey was 13 years (range 2-36). 65% were C5-C6 spinal cord lesions; 64% had American Spinal Injury Association Impairment Scale grade A. The positive responses (sum of strongly agree and agree): 76% for general satisfaction, 84% for Life impact, 73% for ADL, 53% for independence, 66% for reliability, 78% for information prior to surgery, and 65% for postoperative-therapy. However, only 28% reported that they were satisfied with the appearance of their hand. There was a trend towards an ability to perform more activities and in particular more independence was obtained when pinch/specific hand surgery was performed compared to triceps activation. Specifically easier in drinking and eating was mentioned by 17, in particular by those with C6-C8 lesions.
Conclusions: The overall satisfaction with upper extremity surgery is high. It has a positive impact on life in general, the ability to perform ADL as well as an increase in the level of independence.

Xiapex® (collagenase clostridium histolyticum) – treatment of patients with Dupuytren's contracture – 1 year follow-up

117.

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Background: Dupuytren's contracture (DC) is a disorder that affect the palmar fascia were a pretendinous cord with time causes the finger to flex resulting in impaired hand function. .
Purpose / Aim of Study: The aim of this study was to evaluate the efficacy of Xiapex® in the treatment of DC at least 12 month after injection. The study was initiated following a Minimal Health Technology Assessment
Materials and Methods: The study was a prospective study on consecutive series of patients with DC and flexion deformities of the metacarpophalangeal and/or proximal interphalangeal joint of >200 . Primary end point was reduction in contracture and improving hand function. All patients gave informed consent.
Findings / Results: 194 patients were enrolled, 163 men and 31 women, mean age 67 years [22-85]. 91% of the treated fingers are the 4. and 5. finger. At manipulation cord disruption succeed in 87% of the patients at the first attempt. Despite 31 % had skindisruption no infections were seen. Mean DASH pre-injection was 17 [0- 52] and 12 months follow-up 9 [0-61]. In 1 case there had been a need for further treatment of the Xiapex® treated finger at 12 month (=unacceptable recurrence) At 12 monts patient satisfaction was high.
Conclusions: Our results are promising and we find Xiapex® a good treatment option for DC-patients with a palpable cord. The treatment is effective and with acceptable recurrence at 12 months.

High revision rates with the metal on metal Motec trapeziometacarpal total arthroplasty

118.

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Background: Results after trapeziometacarpal (TMC) total joint arthroplasty are divergent and recently there has been many concerns regarding the metal on metal (MoM) articulations.
Purpose / Aim of Study: The aim of this study was to evaluate the short term results after Motec Basal Thumb Joint Prosthesis with MoM articulation and compare the results with patients who were revised.
Materials and Methods: We retrospectively evaluated a consecutive series of 42 Motec MoM Prosthesis (40 patients, 33 women) performed between 2009 and 2012. Revision rates were calculated and patients were divided in patients with the prosthesis in situ and in patients who had been revised with implant removal and trapeziectomy. The two groups were compared concerning Disability of the Arm Shoulder and Hand (DASH) score, pain on a numerical ranking scale (NRS), serum chrome and cobalt concentrations.
Findings / Results: After 4 years 17 (40%) of the 42 prostheses were revised. Revisions were performed due to aseptic loosening of the cup (9), pain (4), dislocation (3) and deep infection (1). Mean follow-up was 2.2 years (range 1.2-3.8) and 2.1 years (range 1.3-3.8) for the prosthesis and the revision group, respectively. The DASH score was comparable between groups (p= 0.77). Pain at rest and in activity was comparable between groups. The frequency of patients with serum chrome and cobalt levels above 10 nmol/L was comparable between the two groups (p=0.28). DASH scores were significantly higher in patients with elevated serum chrome and cobalt.
Conclusions: The revision rate after TMC prosthesis in this study is disappointing. However, DASH scores after revision with implant removal and trapeziectomy are acceptable. In this study elevated chrome and cobalt levels was associated with at higher dash score but not associated with revision.

Compensation claims from the use of an arterial tourniquet during limb surgery in Denmark in the years 1998 -2010

119.

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Background: The use of an arterial tourniquet may be associated with reversible and irreversible damage during limb surgery. Such damage may result in a financial compensation in Denmark. Currently limited scientific evidence is available regarding the outcome from the use of the arterial tourniquet in limb surgery. Yet in Denmark, damage from the arterial tourniquet is among the compensation claim cases with the highest level of recognition.
Purpose / Aim of Study: Thus, the cases in the Danish Patient Insurance Association for compensation claims from the damage due to the use of an arterial tourniquet in were investigated.
Materials and Methods: Data were extracted from cases in the Danish Patient Insurance Association for compensation claims in the years 1998 – 2010, where patients with an acknowledged tourniquet injury were registered. Injury resulting in 5% damage- level or more triggered a compensation payment, otherwise not.
Findings / Results: In the time-period a total of 69 patients had there case recognized, resulting in a total payment of 10.89 million. Danish kroner. The cases were distributed among 35 men, and 34 women (age 0-77 years). Causes of injury (listed in order of frequency): (1) Long tourniquet time n = 20 (2) Defective equipment n = 15 (3) Direct tissue crush n = 9 (4) "Unknown" n = 9 (5) "Unusual" complications n = 6 (6) Bleeding n = 5 (7) Tourniquet in vascular disease n = 4 (8) Skin damage n = 4
Conclusions: Surprisingly, the proportion of injuries that could not be predicted totals a maximum of 35%. The remaining could potentially be avoided. Thus it is encouraged that the surgeon ensures that the equipment is properly maintained, that the shortest possible duration of ischemia is ensured, and that the lowest possible tourniquet pressure is applied.

Tendon Gene Therapy by Electroporation holds Potential to Modify Flexor Tendon Healing

120.

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Background: Flexor tendon injury and repair are complicated by formation of fibrotic adhesion. Despite decades of research in this field our understanding of the biological mechanisms of tendon healing and adhesion formation remains incomplete. Previously we have developed a model of murine flexor tendon repair. Using this model we have already demonstrated that Gdf5 gene delivery via viral vectors loaded on freeze- dried allografts significantly reduced tendon adhesions.

Purpose / Aim of Study: In this study we wanted to develop a non- viral method for tendon gene therapy, and via gene delivery of Vegf or Gh to modify the tendon healing response.

Materials and Methods: The study was performed on our murine model. We used electroporation for non-viral gene delivery. To evaluate gene delivery, a marker gene (Luc) and an in vivo imagine system was used. In order to test the effect of the active genes functional tests of tendon adhesions and tensile strength were performed.

Findings / Results: We used electroporation for non-viral gene delivery of a marker gene. In a kinetics study we compared this novel method of tendon gene therapy with the previously used viral method. Remarkably we found that the marker gene was expressed as early as two hours after gene delivery by electroporation. The onset of gene expression in the viral vector group did not start until day 3. The last part of this study, delivery of the functional genes Gh or Vegf and assessment of the effect on the biomechanical properties is still ongoing.

Conclusions: Electroporation can be used as a non-viral method of gene delivery. The preliminary results from the biomechanical testing of the mice electroporated with Vegf or Gh vs. control have been encouraging. Tendon healing has previously been modified by local gene delivery by others and us.

Amputation of a spastic, paralysed arm after a stroke, prosthetic supply and functional outcome

121.

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Background: Amputation of a spastic, paralysed arm after a stroke and prosthetic supply afterwards is unusual and to our knowledge not described previously.
Purpose / Aim of Study: Amputation of a spastic paralysed arm and prosthetic substitution may open opportunities for better quality of life and better physical function in patients after right hemisphere stroke.
Materials and Methods: Eight years after a severe right hemisphere stroke a man age 63 was referred to orthopaedic surgery clinic for evaluation of possible amputation of his paralysed and spastic left arm. He wanted to replace his left useless arm with a prosthetic arm to be able to accomplish 'two hand activities'. To make sure he would be able to use a prosthetic arm his ability was assessed by neurologist, neuropsychologist and a temporary artificial arm was produced by prosthetist and tested under supervision of occupational therapist. Subsequent his left arm was amputated 10 cm proximal to the elbow, prosthetic arm produced and he was trained in using it.
Findings / Results: The amputation had a positive impact on patient's body balance, ADL activities, mood, and sleep. A year after amputation he used his prosthetic arm daily in 'two hand activities',
Conclusions: Prosthetic substitution of a spastic paralysed arm after a stroke can improve patients function and well- being.

Treatment of proximal interphalangeal joint fractures by the pins and rubbers traction system - a follow up

122.

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Background: A fracture of the proximal interphalangeal (PIP) joint at the base of the middle phalanx is rare, but is a challenge to treat. Posttraumatic osteoarthritis is a known complication causing impaired hand function and disability.
Purpose / Aim of Study: The aim of the present retrospective study was to evaluate characteristics and outcome of complex PIP joint fractures treated by the pins and rubbers traction system (PRTS).
Materials and Methods: Medical records of 42 patients, with fractures treated with a PRTS in 1999 - 2010, were reviewed, and followed up by questionnaires (QuickDASH, CISS, self- composed questionnaire). The fractures were divided into three types of fractures: volar lip, dorsal lip and pilon fractures.
Findings / Results: The volar lip fracture was most frequent (26/42; dorsal lip 3/42; pilon 13/42). Most fractures were sport related (19/42; 45%) and males predominated (M:F ratio 1.8). All fractures united. Infection occurred in 17/41 (41%) cases. Radiological signs of posttraumatic osteoarthritis were found in 25/41 (61%) patients. In 18/42 patients, where an objective evaluation was performed, 66% of contralateral total active range of motion (TAM), 93% grip strength and 100% pinch strength were achieved. The volar lip fracture had the best outcome according to the self-reported QuickDASH and CISS score and regained 77% of contralateral TAM.
Conclusions: Fractures of the PIP joint in the middle phalanx can be treated with the PRTS, but reduced mobility, grip strength, infection and osteoarthritis are seen. The device is well tolerated by the patients, easy to apply and with ready accessible materials for the surgeon.

Small Joint Arthroscopy in Hands - technique and clinical uses in RA patients

123.

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Background: Smaller equipment has made arthroscopy of small joints (MCP and PIP joints) possible. Only few articles have been published on this subject. Different techniques and portals have been described. In two articles the technique was developed and used on cadavers. The clinical uses for needle arthroscopy have not been fully determined and it remains to be shown that the objective findings correlate with the histopathological changes in the joints.
Purpose / Aim of Study: To describe and to evaluate the technique and portals used in small joint arthroscopy and to assess the possibility of objectively determining the degree of synovitis and obtaining biopsies of a sufficient size and quality from small joints with a needle arthroscope.
Materials and Methods: 6 MCP joints, 3 PIP joints and 2 IP joints from 10 RA patients were biopsied and synvectomised by needle arthroscopy. All needle arthroscopies were performed by the same hand surgeon. The overall histopathological synovitis score (Krenn) was compared to the synovitis score as seen with the needle arthroscope. The sample size was measured as well and tested for ability of detecting lining for histopathological purposes in the biopsy.
Findings / Results: All samples were of a sufficient size (average 3.07 mm2) however the success rate of including the lining was only 0.58. Synovitis as seen by the surgeon was predictive of synovitis determined by a histopathological synovitis score.
Conclusions: Our results indicate that it is possible to determine synovitis in small joints with a needle arthroscope and to get biopsies of a good size with a fair chance of including the lining in the samples taken.

Dynamic non-operative treatment of acute Achilles tendon rupture: The influence of early weight-bearing on clinical outcome. A blinded, randomized, controlled trial

124.

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Background: Weight-bearing (WB) during rehabilitation of acute Achilles tendon rupture (ATR) has positive impact on the health related quality of life, and it might allow for quicker return to work. WB after surgical repair of ATR has shown no detrimental effects, but there are no clinical studies examining the role of WB in non-operative, dynamic treatment of ATR.
Purpose / Aim of Study: To compare the functional outcome of patients randomized to early WB or non-WB in non-operative, dynamic treatment of ATR.
Materials and Methods: The study was conducted as a blinded, randomized controlled trial (RCT). 60 patients were randomized. In both groups patients were treated non-operatively with dynamic rehabilitation. The intervention group was allowed full WB from day 1 of treatment. The control group was non-WB for 6 weeks. Outcome at 6 and 12 months was evaluated using the Achilles tendon Total Rupture Score (ATRS), the Heel-rise-work-test and the rerupture rate (RR). Data were evaluated using unpaired T-tests.
Findings / Results: There were no statistically significant differences between the WB and the non- WB groups. Mean ATRS at six months was 59 for the WB group and 67 for the non-WB group (p=0.16). At 12 months the ATRS was 73 WB and 75 non-WB (p=0.72). The Heel- rise-work-test showed a total work performed of the injured limb compared to the uninjured limb of 40% for the WB group and 37% for the non-WB group at six month (p=0.58). At 12 months it was 53% WB and 57% non-WB (p=0.52). There were 3 RR in the WB group and 2 RR in the non-WB.
Conclusions: There were no significant differences between the groups in ATRS or Heel-rise- work-test at one-year follow-up. Both groups had significant functional deficits in the injured limb compared with the uninjured limb. Immediate weight-bearing is a recommendable option in the non-operative treatment of ATR.

High volume injection, autologous conditioned plasma and placebo treatment in patients with chronic Achilles tendinopathy– A single blinded prospective study

125.

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Background: Chronic Achilles tendinopathy (AT) is a commen and impairing disorder. Only sparse scientific evidence exists for the present used treatments and no golden standard treatment exists.
Purpose / Aim of Study: The aim of the study was in AT patients to examine and compare the effect of high volume injection (HVI) or autologous conditioned plasma (ACP) in combination with eccentric training to placebo (Plc) treatment (sham treatment and eccentric exercises).
Materials and Methods: Healthy males (21-59 years; n=55) with AT were randomly assigned to HVI (10 mls 0.5% Marcain and 20 mg Depomedrol followed by 40 mls saline), ACP (4 mls) or Plc (sham) treatment. Participants were treated 4 times with 2 wk interval (HVI only once a baseline). All underwent a 12-wk eccentric training program. Outcome measures were assessed at 12 and 24 wk follow-up by VISA-A and VAS score, ultrasound thickness and muscle function (heel-rise test).
Findings / Results: Increase in VISA-A was seen in all follow- ups for every group ($p<0.05$). The increase was higher in HVI vs ACP and Plc at 12-wks follow-up ($p<0.01$), with no difference between ACP vs Plc. At 24 wks follow-up a higher increase was found in the HVI and ACP vs Plc ($p<0.05$). VAS score decreased in all follow-ups for every group ($p<0.05$). The decrease was higher in HVI and ACP vs Plc at 12-wks follow-up ($p<0.05$) , with no differences between HVI and ACP. At 24 wks follow-up a higher decrease was found in HVI and ACP vs Plc ($p<0.05$). Tendon thickness showed a significant decrease in HVI and ACP in all follow- ups. The decrease in thickness at 12 wks follow-up was greater in HVI vs ACP ($p<0.01$), and ACP vs Plc ($p<0.05$). At 24 wks follow-up a higher decrease was found in HVI and ACP vs Plc with no differences between HVI and ACP. Muscle function improved in the entire cohort ($p<0.01$) with no group interaction observed.
Conclusions: Treatment with HVI or ACP in combination with a 12-wk eccentric training regime in AT seems more effective reducing pain, improving activity level and reducing tendon thickness than eccentric training, per se. HVI was found more effective than ACP in this short-term study.

Modified Lapidus arthrodesis – Plantar plating and compression screw Retrospective evaluation of fusion rate and IM-1 angle correction

126.

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Background: The Lapidus procedure for treating metatarsus primus varus or instability of the TMT-1 joint is well established. Nonunion rates of 4-25% are reported. Crossed screws or medial or dorsal plating in addition to a compression screw are standard techniques. A plantar plate adds the advantage of tension band effect over the fusion site which has been shown in a biomechanical study.

Purpose / Aim of Study: To report fusion- and complication rates for the Lapidus procedure with plantar plating, and secondly the correction of the IM-1 angle in metarsus primus varus.

Materials and Methods: All patients operated at our department using the Darco LPS plate were evaluated (n=41). Indications were: Metatarsus primus varus(33pts), revision hallux valgus surgery, instability of TMT-1 in midfoot dysfunction/forefoot driven hindfoot valgus and/or arthritis of the TMT-1 joint. All patients were evaluated clinically and radiographically 3-4 and 6-8 weeks postoperatively. The post-op regime was full/partial weightbearing in a post-op shoe. IM1-angle measured pre- and postoperatively, independently by first 3 authors. Means compared by a paired t- test, and agreement by interclass correlation coefficient(ICC).

Findings / Results: All patients fused both clinically and radiographically. IM-1 angle reduced from 16, 5 to 7, 8 degrees (pre/postoperative) ($p < 0.0001$). Pre ICC (95%CI) = 0.83 (0.74-0.92) and post ICC (95%CI) = 0.85 (0.77- 0.93). 6 patients had minor complications, including 2 screw removals due to malpositioning. 1 patient had (traumatic) rupture of tibialis anterior tendon.

Conclusions: The use of the Darco LPS plate yields good short term results with high fusion rate and low rate of complications. When indicated the IM- 1 angle was corrected significantly and the angle measurements were valid. Long term follow-up as well as prospective studies are needed.

Surgical treatment of lesser-toe- MTP joint instability: Plantar plate repair using a plantar approach

127.

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Background: The plantar plate (PP) is the principle stabilizing structure of the lesser toe- MTPJ. There is to this point no golden standard treatment for the instable lesser MTPJ. Few clinical studies have been published, some recommending a dorsal approach through a Weil osteotomy. This however changes the center of rotation, and cadaver studies find that anatomical repair reestablishes stability and alignment. The plantar approach allows direct anatomical repair, but has been avoided by many due to fear of painful scarring.
Purpose / Aim of Study: To evaluate the use of a plantar approach in surgical repair of the plantar plate.
Materials and Methods: All patients at our institution (n=19), treated with PP repair only or combined with additional procedures, were examined at a median 24 weeks (8 to 50) postoperatively using the AOFAS forefoot-scale, VAS-FA and a standardized clinical evaluation. 8 were revision cases. The PP rupture was debrided and sutured or reinserted using anchor fixation to the base of the proximal phalanx.
Findings / Results: All plantar incisions healed with minimal scarring. Post operative VAS-FA scored a mean 77.9 (sd 15.8) points and AOFAS forefoot scored a mean 77.5 (sd 15) points. Compared to the opposite side dorsiflexion was reduced by 17° ($p<0.01$). 3 patients were failures (malalignment/elevation) at follow-up. One was a rheumatoid patient and two did not present a typical plantar plate rupture at surgery, but rotation of the joint capsule and luxation of the flexor tendon complex. 2 reported tenderness at the plantar incision, 4 had pain or tenderness at the dorsal incision.
Conclusions: Surgical repair using a plantar approach yields good results regarding realignment and foot function. The failure risk regarding rheumatic arthritis needs further investigation. Plantar scar complications do not seem to be significant.

Development and validation of a novel ultrasonographic method for evaluation of Achilles tendon elongation after rupture

128.

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Background: Elongation of the Achilles tendon after acute rupture is associated with inferior functional outcome. A clinically applicable, accurate and easy to perform method for evaluating Achilles tendon elongation is needed.
Purpose / Aim of Study: To develop and validate an ultrasonographic (US) method that accurately measures the length of the Achilles tendon-aponeurosis complex.
Materials and Methods: Both legs of 19 non-injured subjects were examined by MRI and US. The length of the Achilles tendon- aponeurosis complex (calcaneus to the medial head of m. gastrocnemius) was measured by three independent US examiners. Repeated US measurements were performed and compared to MRI measurements. Intra-rater and inter-rater reliability was determined and the agreement between MRI and US was determined. Data were evaluated using the Bland-Altman method and the Inter Correlation Coefficient (ICC), the Standard Error of the Measurement (SEM) and the Minimal Detectable Change (MDC).
Findings / Results: Intra-rater reliability showed no significant systematic differences between test days (p=0.45); ICC 0.96, SEM 3.7mm and MDC 10.3mm. Inter-rater reliability showed a systematic difference between US observers of 2.1mm – 4.5mm (p=0.001- 0.036); ICC 0.97, SEM 3.3mm and MDC 9.3mm. MRI measurements were on average 3.8mm longer than US (p=0.001); ICC 0.98, SEM 2.7mm and MDC 7.6mm. We found no systematic difference in length of the left and the right Achilles tendon (p=0.95); ICC 0.94, SEM 4.1mm and MDC 11.5mm.
Conclusions: The novel US method showed good reliability. For comparison between groups of non-injured subjects differences of more than 4mm can be detected. For repeated assessment of individual subjects differences of more than 10mm can be detected. The novel US method is a promising clinical tool to be further assessed in the setting of acute Achilles tendon rupture.

Achilles Tendon ruptures – treatment and complications: A systematic review

129.

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Background: Achilles tendon rupture is a frequent sports injury with increasing incidence. Until now there is no consensus regarding the optimal treatment for acute Achilles tendon ruptures.
Purpose / Aim of Study: The purpose of this study was to illuminate and summarize randomized controlled trials comparing surgical and non-surgical treatment of Achilles tendon ruptures.
Materials and Methods: We systematically searched MEDLINE database for randomized prospective controlled trials on humans, comparing surgical and non-surgical treatment of Achilles tendon rupture, for the last 10 years. Six articles were found acceptable according to international quality assessment guidelines. Primary outcomes were re-ruptures, complications of treatment, and functional outcomes.
Findings / Results: All studies used early mobilization in both groups. There was no significant difference in re-rupture rate, but a trend favoring surgery patients. No significant differences in other types of complications, was found, although one study found a increased risk for soft-tissue related complications in the surgery group, that did not affect functional outcome. Patient satisfaction and time to return to work were significant different in favor of surgery in one study and there were better functional outcomes for surgery patients, at early time-points.
Conclusions: We found no significant differences in re- rupture rate although a trend favoring surgery. Surgical patients had significant better early functional outcomes and also returned to work earlier, indicating that their rehabilitation is faster combined with early mobilization. Further randomized controlled trials will be needed in regards to understand the interplay between acute surgical or non- surgical treatment and the rehabilitation regimen for the overall outcome of Achilles tendon treatment.

Complications after acute Achilles tendon rupture. A registry study of 324 patients from the Danish Patient Insurance Association

130.

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Background: The best treatment of acute Achilles tendon rupture (ATR) has been discussed for decades. High quality meta-analysis comparing surgical and non-surgical treatment show a lower re-rupture rate but a higher overall complication rate among surgically treated patients. There are no studies evaluating the impact of different complications.
Purpose / Aim of Study: To investigate: 1) the number and types of complications reported to the Danish Patient Insurance Association (DPIA) after treatment for ATR, and 2) if complications are correlated to the treatment given.
Materials and Methods: This registry study examined the DPIA database. 324 patients with ATR reported in the period 1992 to 2010 were identified. All patient records were reviewed and data were assessed to confirm correct registration of diagnosis and complications.
Findings / Results: Awarded compensation for the 12 year period totaled 18,147,202Dkk. Out of 180 operatively treated patients, 79 received a total compensation of 14,051,377Dkk, averaging 177,865Dkk per patient. Of 114 non-operatively treated patients, 39 received a compensation of 3,715,224Dkk, averaging 95,262Dkk per patient. In the group of operatively treated patients there were 48 infections, 23 nerve damages, 23 re- ruptures, 9 deep venous thrombosis and 6 tendon elongations. Among the non- operatively treated patients there were 24 re-ruptures and 21 tendon elongations.
Conclusions: Approximately 10 cases of ATR were accepted for compensation in the DPIA per year; 1/3 after non-operative treatment and 2/3 after operative treatment. The average compensation after operative treatment was twice that after non-operative treatment indicating more severe complications after operative treatment.

Prospective comparative study comparing the results of proximal crescentic osteotomies and open wedge osteotomies to patients with severe hallux valgus

131.

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Background: Different techniques of proximal osteotomies have been introduced in correcting severe hallux valgus. The open wedge osteotomi is a newly introduced method for proximal osteotomi .
Purpose / Aim of Study: The aim of this prospective randomised study was to compare the radiological and clinical results 4 and 12 months after the operation to patients with severe hallux valgus, comparing the open wedge osteotomi to the crescentric osteotomi.
Materials and Methods: 45 patients with severe hallux valgus HV-angle >35, and IM angle > 15 were included in this study. The treatment was proximal open wedge osteotomi and fixation with plate (Hemax) group 1, or operation with proximal crescentic osteotomi and fixation with 3 mm canulated screw (Synthes) group 2. Clinical and radiological follow-up was performed 4 and 12 months after the operation.
Findings / Results: The Aofas score was improved form 59,3 to 81,5 group 1, in group 2 the improvement increased from 61,7 to 84,8 after 12 months. In group 1 the hallux valgus ankle decreased from 39,1 to 23,1 after 4 months and 26,6 after 12 months. In group 2 the angle preoperative was 39,1, 22,5 after 4 months and 27,2 after 12 months. The intermetatarsal angle in group 1 was 19,0 before operation, 11,6 after 4 months and 12,5 after 12 months. In group 2 the mean intermetatarsal angle was 18,9 preoperatively, 12 after 4 months and 12,6 after 12 months. The length of the 1. metatarsal compared to 2. metatarsal bone was 0,884 preoperatively and 0,875 postoperatively in group 1. In group 2 0,872 preoperatively and 0,88 after 12 months.
Conclusions: : In both groups the hallux valgus angle had a tendency to recur in time after the operation, no statistical difference were found in the study. There was a tendency to gain length of the first metatarsal using the open wedge osteotomi compared to the crescentic osteotomi. If the patient has a tendency to instability or if the TMT joint is big one should consider Lapidus procedure as the primary operation procedure.

Prognostic Factors in 1065 Adult Non-Metastatic Soft Tissue Sarcoma: a Population-Based Cohort Study

132.

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Background: Previous registry-based studies of soft tissue sarcoma (STS) have identified a number of possible prognostic factors; however the majority of these include highly selected populations, with unclear validity of data, and insufficient statistical methods.
Purpose / Aim of Study: The aim of this study was to identify prognostic factors in a validated, population- based 30-year series of STS treated at a single institution, using a more advanced statistical approach with cubic spline regression and competing risk.
Materials and Methods: Between 1979 and 2008, 1065 adult patients were treated at the Sarcoma Centre of Aarhus University Hospital for a non- metastatic STS in the extremities or trunk. The endpoints were local recurrence and disease-specific mortality. Prognostic factors were analyzed uni- and multivariately using a competing risk proportional hazard model, with inclusion of continuous variables as cubic splines.
Findings / Results: It was proper to analyze age, duration of symptoms, and tumor size as cubic splines. The 5-year local recurrence rate was 15%. Independent favorable prognostic factors for local recurrence were small size, intracompartmental location, grade 1, wide/radical excision, duration of symptoms <13 months or >30 months (vs. 3 months), and radiotherapy. The 5-year disease- specific mortality rate was 23%. Important favorable prognostic factors for disease- specific mortality were small size, subcutaneous location, grade 1, wide/radical excision, and radiotherapy.
Conclusions: It is important to use continuous non-linear variables and competing risk analyses in prognostic studies. In this population-based, validated series of adult, non-metastatic STS; duration of symptoms, tumor size, depth, compartmentalization, grade, surgical margin, and radiotherapy were important independent prognostic factors.

Radiostereometric analysis (RSA) of two MoM cups, 2 year results from a randomized clinical trail (RCT)

133.

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Background: Continuous migration measured by RSA is a predictor for failure. The ASR resurfacing implant was withdrawn due to excessive failure rates but showed initial femoral component stability.
Purpose / Aim of Study: We aimed to investigate the initial implant stability for the cup as an explanation for the high revision rate, and to compare it to another metal on metal cup.
Materials and Methods: 36 patients with primary OA from a RCT received either an ASR (n=19) or an M2a-Magnum Cup (n=17) without markers. RSA images were obtained within 3 days of surgery, at 8 w, 6 m, 1 and 2 years. A model based RSA system calculated migration. ANOVA analysed movement over time as well as difference between implants
Findings / Results: Initial movement was noted, especially for the M2a-Magnum cup, where the 2 year mean (sd) X translation was -0.307 (0.53)mm ($p = 0.01$), Y translation was 0.282 (0.36)mm ($p < 0.001$) and Z translation was -0.343 (0.63)mm p = (0.03). After 2 years the ASR cup displayed a mean X translation of -0.115 (0.60) mm ($p = 0.82$), Y translation of 0.075 (0.14) mm ($p = 0.01$) and Z translation of 0.438 (0.88)mm ($p = 0.04$) The implants had a similar pattern for X and Y with slightly more movement for M2a-Magnum in the X translations ($p< 0.01$) On the Z axis the implants displayed movement in opposite directions ($p=<0.001$). At two years 4 ASR and 5 M2aMagnum migrated above 1 mm in one axis.
Conclusions: The early migration of both cups were low - for the ASR implant particularly at the Y axis, where the mean 0.075 mm is well below the limit of 0.2mm suggested as an acceptable threshold. The M2a- Magnum cup has migration rates just above that, but longer clinical follow up is needed to establish if this cup has greater risk of revision. Continuous migration is not likely to explain failure of neither the cup nor the femoral side of the ASR hip.

Preoperative effects of progressive individualized explosive-type resistance training in patients with osteoarthritis scheduled for total hip arthroplasty (THA) -a prospective randomized controlled trial (RCT)

134.

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Background: Hip Osteoarthritis (OA) is associated with pain, functional deterioration and loss of muscle function. Progressive explosive-type resistance training (RT) is effective in improving muscle strength and functional performance in healthy elderly. In hip OA patients the effects prior to THA remain unknown.
Purpose / Aim of Study: To investigate the effect of RT in hip OA patients scheduled for THA on i) self-reported outcomes and ii) muscle function, physical function and body composition.
Materials and Methods: RCT. Eighty patients (age 70.4 ± 7.6 years, BMI 27.8±4.6, 70% females (n=52)) diagnosed with hip OA and scheduled for primary THA were randomized into two groups: 1) The intervention group (IG) received supervised RT twice a week for 10 weeks; 4 leg/hip exercises of 3 series each (~80% of 1 repetition maximum). 2) The control group (CG) received 'care as usual'. Outcomes: Primary; Hip Osteoarthritis Outcome Score (HOOS), secondary; leg extension power, functional tests, body composition (DXA). Adjusted between group changes from baseline to follow-up (2-5 days prior to surgery) were analyzed as intention-to-treat using multilevel regression.
Findings / Results: For HOOS ADL the IG scored 9.7 points 95%CI [4.3;15.2] higher compared to CG at follow-up (p=0.001). For the remaining 4 HOOS subscales IG performed significantly better than CG (p<0.03). IG had higher leg muscle power (p<0.0001); better function (gait speed, stair-climb, sit- stand) (p<0.0001) and increased lean body mass (p=0.013) compared to CG. RT was well accepted in IG
Conclusions: For the first time it is shown that Hip OA patients scheduled for THA can comply with RT and significantly improve self-reported function and pain and muscle function, functional capacity and lean body mass. The present intervention prior to surgery holds promise for an optimized post- surgery rehabilitation

Is 8 weeks supervised early progressive resistance training after unicompartmental knee arthroplasty more effective than home based exercise? 135.

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Background: Background: Muscle atrophy and decreased muscle strength is documented in early stages of knee osteoarthritis and increases with progression. Within the first weeks after Unicompartmental Knee Arthroplasty (UKA) an additional decrease in muscle strength is found.
Purpose / Aim of Study: Purpose: To investigate the effect of early progressive resistance training (PRT) after UKA
Materials and Methods: Materials and Methods: 53 patients (26 male), median age 66 years, scheduled for UKA were randomized to either 8 weeks supervised PRT (n=29) or 8 weeks standard home exercise (HE) program (n=24). The PRT was initiated within the first week after UKA and performed 2/week for 8 weeks in training machines (relative load from 15-8 Repetition Maximum). Before and 2 months after UKA leg muscle power, spatio-temporal parameters, functional capacity and Knee injury and Osteoarthritis Outcome Score (KOOS) were measured.
Findings / Results: Results: 8 patients dropped out (6 PRT). Patients in the PRT group participated in mean 11 out of 16 training sessions. Max leg power improved 0.24 [0.05;0.43] W/kg in the PRT group and was unchanged -0.01 [-0.23;0.26] W/kg in the HE group. Self-selected walking speed increased for PRT 0.6 [0.42;0.67] km/h and for HE 0.5 [0.17;0,79]km/h. 6 min walking speed increased for PRT 0.35 [0.09;0.61] km/h and for HE 0.27 [-0.20;0.75] km/h. Asymmetry of walking pattern was equal to preoperative values for both groups. Pelvic rotations in step test increased significantly for both groups. KOOS increased in all sub- scores for both groups (p=0.53-0.92). For all the mentioned tests there was no differences between the groups (p= 0.13-0.97) .
Conclusions: Conclusion: We found no additional effect of early PRT compared to HE in this patient group when tested 8 weeks after surgery. However, adherence to PRT was fairly low and 20% dropped out.

3 Year Multicenter RSA evaluation of vitamin E diffused highly cross-linked polyethylene liners and acetabular cup stability

136.

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Background: Vitamin E diffusion into highly cross-linked polyethylene (VEPE) is a method for enhancing long-term oxidative stability of hip arthroplasty liners. Early clinical outcome is important to document that there are no detrimental effects of new developments.
Purpose / Aim of Study: The purpose of this study was to evaluate in vivo wear properties of VEPE and the stability of a porous-titanium coated acetabular cup using Radiostereometric Analysis (RSA).
Materials and Methods: 144 patients were recruited into a prospective 5 years RSA study at 2 centers. All patients received porous-titanium coated cups and either VEPE or non-vitamin E medium cross-linked liners (XLPE). Cobalt- chrome or ceramic femoral heads were used, 32mm or 36mm. At Center1 the acetabulum was under reamed by 1 mm and at Center2 it was reamed size-to-size.
Findings / Results: There was no statistically significant difference (p=0.203) in femoral head penetration into the VEPE liners at 3 years comparing the 32mm metal heads (-0.002±0.02mm) with the 32mm ceramic heads (-0.04±0.06mm). There was no difference (p=0.087) in head penetration into VEPE liners at Center1 compared with XLPE liners at Center2 (0.02±0.05mm); however there was significantly less wear in VEPE than XLPE liners at 3 years at Center2 (p=0.017). One year median proximal cup migration at Center1 (0.14±0.03mm) was significantly lower than at Center2 (0.38±0.06mm) (p=0.001). Median cup migration at Center1 remained stable at 3 years (0.15±0.05mm); however Center 2 showed significant continual migration at 3 years (0.45±0.09mm) (p≤0.002).
Conclusions: This study provides the first multicenter in vivo wear measurement of VEPE liners using RSA. The 3year follow-up shows VEPE results indicating low liner penetration regardless of head material or size and low amount of early cup-movement.

Collagen conduit vs. microsurgical neurorrhaphy Two year follow up of a prospective blinded clinical and electrophysiological multicenter RCT

137.

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Background: Currently there are no randomized studies or studies reporting on motor recovery after nerve repair with collagen conduits in humans
Purpose / Aim of Study: Hypothesis: Collagen Nerve Conduits, for repair of traumatic nerve lesions in humans, is associated with reinnervation and recovery of sensory and motor functions that are at least equivalent to conventional repair (direct suture or nerve grafting).
Materials and Methods: In a prospective randomized trial, acute section of the ulnar or median nerves were repaired with a collagen nerve conduit or with conventional microsurgical techniques. Electrophysiological tests and hand function using a standardized clinical evaluation instrument were compared after 12 and 24 months using a one-way and a two-way ANOVA with repair type and nerve type as factors.
Findings / Results: 44 total nerve lacerations were included. There were no infections, extrusions or other local adverse reaction. 32 patients with 33 nerve lesions attended the 24- month follow-up. There were no differences in electrophysiological tests.When compared at 12 and 24 months there was a general further recovery of both motor conduction parameters ($P<0.01$) and sensory conduction parameters ($P<0.05$). At one-way ANOVA there was no difference between sensory, discomfort or total hand function scores. The two-way ANOVA test showed significant differences in clinical motor recovery according to nerve (median doing better than ulnar).The type of repair in itself had no influence on sensory or motor function after 24 months.
Conclusions: The Collagen Nerve Guide Conduit, for repair of traumatic nerve lesions in humans is associated with reinnervation of the denervated organs and recovery of sensory and motor functions that are equivalent to conventional repair, but it was not superior.The procedure is safe in the distal forearm.

Cup design is an important factor in survival of trapeziometacarpal total joint trapezium components

138.

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Background: Cup failure is a recognized problem in total trapeziometacarpal (TM) joint prosthesis, probably due to several individual factors. The cup design may have an important effect on the primary pressfit fixation and secondary bony fixation of non-cemented cups influencing on cup migration and overall prosthesis survival.
Purpose / Aim of Study: The purpose of this study is to compare two different designs in non-cemented cups and the possible effect on prosthesis survival, revision rates and overall patient's satisfaction.
Materials and Methods: In a prospective study, two consecutive groups of patients were included. The two groups were operated with two completely different cup types and designs (cup with collar versus cup without collar). The DASH score, hands grip strength, and radiological control was measured in predefined time points (preoperative, 3, 12, and 24 months postoperative). Twenty-two patients were included in each group. First group (8 males/14 females) were operated with MOTEC prosthesis (cup with collar). The mean age was 61 (45-73). The second group (5 males/17 females) were operated with Elektra prosthesis (cup without collar). The mean age was 59 (46-74).
Findings / Results: After 24 months the revision rate in the MOTEC group was 41% (9/22), versus 0% (0/22) in the Elektra group (p-value= 0.02). Adding radiological loosening after 24 months, 13 cups in the MOTEC group were revised or radiologically loose versus 1 cup in the Elektra group ($p<0.01$). There were no significant differences in clinical results between the two groups in the patients without radiological loosening.
Conclusions: Cup design has a significant role in the overall prosthesis survival and overall revision rate after 24 months. The MOTEC cup design seems to be a failure compared to the Elektra cup.

No increased risk of elevated metal ions and pseudotumour formation when using modular neck-stems bilaterally

139.

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Background: Lately, potential corrosion/fretting and metal ion release from the neck-stem taper junction of modular total hip arthroplasty (THA) has been in focus.
Purpose / Aim of Study: The aim of this study was to compare blood levels of metal-ion and abnormal soft tissue reactions in patients having a modular neck- stem in one or both hips.
Materials and Methods: All patients having implanted a cementless THA with modular neck-stem (ABG2 stem and Trident cup) were examined. The patients underwent surgery from May 2009 to November 2011. In total, 39 unilateral and 7 bilateral operated patients were included corresponding to 53 THAs. All had metal- on-HXL polyethylene bearings with a head diameter of 36 mm. At follow-up, plasma chrome and cobalt ion levels were measured, and a MRI of the hip was performed. The Wilcoxon rank-sum test was used to compare metal ions levels between uni- and bilaterally operated patients. Chi-test was used to compare proportions.
Findings / Results: The mean age at surgery was 65.6 years.70% were males. The overall mean follow-up was 2.3 years. In the unilateral group, the median chrome plasma value was 14.7 nmol/l, and the median cobalt level was 51.2 nmol/l. In the bilateral group, the median values were 16.5 nmol/l for chrome and 54.6 nmol/l for cobalt. There was no difference in chrome (p=0.26) or cobalt levels (p=0.60) between the two groups. Five patients (13.5%) in the unilateral group and one (14.3%) in the bilateral group had elevated plasma cobalt values (>119 nmol/l) (p=0.89). There were no elevated chrome values (>134.5 nmol/l) in either group. Four (10.3%) cystic type 2 pseudotumours were found on MRI in the unilateral group, none in the bilateral group (p=0.32).
Conclusions: No increased risk of elevated metal ions or pseudotumour formation could be noticed when operated with modular neck-stems in THA in both hips.

Body composition preoperatively has no impact on clinical outcome after hip arthroplasty - A cohort study of 102 patients 1year after surgery

140.

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Background: Previous studies indicate that knee arthroplasty patients preoperative BMI is a predictor of the clinical effect postoperatively. A high BMI increases the risk of quality of life (QoL) and physical function. However, the association between obesity and outcome after THA is controversial.
Purpose / Aim of Study: To investigate whether there is an association between the preoperative body composition of patients undergoing THA and their QoL and physical function 1 year after surgery.
Materials and Methods: 102 patients scheduled for THA participated in a 1-year follow-up study. Body composition (fat and muscle mass) was measured with Dual Energy X-ray Absorptiometry (DXA) preoperatively and 1-year after surgery. The outcome measures were patient reported questioners: SF-36 and Hip disability and Osteoarthritis Outcome Score (HOOS).
Findings / Results: Mean percentage of fat (%fat) for females were 40(23-53)% and for males 31(15-46)%. Mean percentage of muscle mass for females were 58 (46-74)%, males 66(52-82)%. We found no statistically significant association between body composition and any of the SF-36 and HOOS subscales. For %fat and Physical component score (PCS) odds ratio (OR)=0,98 (p=0,4), %fat and Mental component score (MCS) OR=0,99 (p=0,6), muscle mass and PCS OR=1,03 (p=0,4), muscle mass and MCS OR=1,02 (p=0,6).
Conclusions: Our findings indicate that overweight and obesity has no impact on the QoL and the self-assessed physical function for THA patients 1year after surgery.

3 year Follow-up of a Long-term Registry-based Multicenter study on Vitamin E Diffused Polyethylene in Total Hip Replacement

141.

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Background: Preclinical studies of vitamin E diffused highly cross-linked polyethylene (VEPE) have shown improved material and wear properties due to the antioxidative properties of the vitamin E.
Purpose / Aim of Study: To document both early and long-term clinical outcome of VEPE in order to ensure that there are no detrimental effects of the new developments and to evaluate the materials performances from clinical use.
Materials and Methods: 977 patients from 17 centers in USA and Europe are enrolled into a prospective 10year outcome study. Patients received either Porous Titanium Coated or Porous Plasma Sprayed acetabular shells with either VEPE liners or medium cross-linked (XLPE) liners. At each follow-up, 3 radiographs were obtained, 5 PROMs were completed (Harris hip score, case mix indicator, UCLA, SF-36, EQ-5D). Radiographs were measured for cup and stem position, as well as femoral head penetration into the liner. Postoperative complications and revisions were also collected.
Findings / Results: Mean age at surgery was 62±9 years. At 3year follow-up there were 15 dislocations in 11 patients and 13 revisions (4 periprosthetic fracture, 1 sepsis, 6 instability, and 2 implant mismatch at surgery). Five patients died due to causes unrelated to the operation. Wear analysis of AP pelvis films with Martell method from post-op to 3year showed a penetration rate at 0.01 mm/year for XLPE and a penetration rate of 0.003 mm/year for VEPE with no significant difference between them ($p=0.43$). Improvement was seen in all PROMs pre-op to 3years postop ($p<0.0001$).
Conclusions: Early follow-up of VEPE liners provide encouraging results with few intra- and postoperative complications. PROMs indicate improvement after THA in functionality and quality of life across the centers. We have not observed any early adverse effects from diffusing the liners with vitamin E.

Effect of early progressive resistance training compared to home based exercise after fast track total hip replacement. -A randomised controlled trial

142.

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Background: After Total Hip Replacement (THR) deficits in muscle strength and physical function persist. There is lack of evidence concerning which rehabilitation strategy is most effective and the amount of rehabilitation needed after fast track THR.
Purpose / Aim of Study: To investigate the effect of supervised progressive resistance training in the early rehabilitation phase after fast track THR in improving muscle strength and functional performance.
Materials and Methods: 73 THR patients with preoperative self- assessed disability (HOOS ADL score≤67) were randomly assigned to a control group (CG, home based exercise 7 days/week) or intervention group (IG, home based exercise 5 days/week and resistance training of hip and thigh muscles 2 days/week). The IG trained with loads of 10 repetition max from week 1 to 10 after THR . Before surgery and after the intervention, performance was evaluated by; leg extension power (primary outcome), isometric strength (hip abduction + flexion), sit-to-stand test (STS), stair test and 20 meter walking speed.
Findings / Results: 62 patients completed the trial (31 in each group). Leg extension power improved significantly in both groups, with no between group difference: IG (difference baseline to follow up): 0.28 [0.1;0.3] Watt/kg, CG: 0.26 [0.0;0.5] Watt/kg, p=0.91. 20 m walk performance improved more in IG: 2.98 [1.8;4.2] sec than CG: 1.58 [0.8;2.4] sec, p=0.05. No significant differences were found in the other outcomes, yet borderline significance (p=0.06-0.09) was seen in favour of IG in STS and isometric muscle strength.
Conclusions: 7 days/week of home based exercise was equally effective as 5 days/week of home based exercise plus 2 days/week of supervised progressive resistance training in improving leg extension power after THA. For some of the secondary outcomes, trends were in favour of resistance training.

3 months home-training by a standardized program improves walking distance and knee extension strength in old patients 1-7 years after surgery with dual-mobility THA following femoral neck fracture

143.

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Background: Dual-mobility total hip arthroplasty (THA) has become the treatment choice for displaced femoral neck fracture (FNF) at our institution. However, ambulatory follow-up has revealed poor gait function and leg strength increasing the fall-risk in many of these patients.
Purpose / Aim of Study: To test the effect of a standardized home-based resistance training program.
Materials and Methods: 31 patients (27 women) at mean 82 (60-96) years were included at mean 3 (1-7) years past dual-mobility THA after FNF. Patients trained daily for 3 months, with 1 weekly physiotherapist supervision, and kept a training-diary. Criteria for study participation were: dementia score > 7, STS10 > 30sek, TUG > 12sek, and NMS < 8. Patients were examined at baseline and at 3 months follow-up with spatio-temporal parameters during 3 functional tests: timed-up and go(TUG), 10m walk, sit- to-stand(STS), and block-step test (BST). Also, 6 minute walk test(6WT) and sit-to-stand in 30 seconds(STS30) was performed. Oxford Hip Score (OHS) was collected. Leg muscle mass was measured by DXA, and muscle strength was tested by hand-held dynamometer(HHD). Activity was monitored by a 3-axial accelerometer.
Findings / Results: Between baseline and 3 months follow- up 6WT improved by 19m (p=0.01). TUG, STS30, and OHS was unchanged (p>0.20). Knee extension strength improved in the operated leg (p=0.03) but not in the contralateral leg (p=0.74). Muscle mass did not improve (p>0.06). 92% were satisfied with the training program and wished to continue. Analysis of spatiotemporal parameters and activity are ongoing.
Conclusions: Initial data assessment revealed improved walking distance and knee extension strength after a standardized 3 months home-based resistance training program in old and fragile patients 1-7 years THA after femoral neck fracture.

Preoperative planning in cementless total hip arthroplasty - Accuracy of digital templating

144.

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Background: Choosing the correct implant size and determining the correct femoral cut is important for the optimal result after THA.
Purpose / Aim of Study: In the present study we investigated the accuracy of pre-operative digital templating in uncemented THA compared to the actual implanted component size (cup and stem) and furthermore we evaluated the discrepancy in leg-length pre- and post-operatively.
Materials and Methods: 150 patients undergoing uncemented THA during the period from 1/1-2011 until 31/12- 2012 were retrospectively reviewed. Four experienced surgeons performed the operations. Component size and difference in leg-length data were registered pre- operative, per-operative and 3 months post- operative. Leg-length was measured radiographically. Data was stratified in relation to gender, age and surgeon.
Findings / Results: Overall the pre-operative templated cup- size was predicted correctly in 59% of the cases. If +/- 1 cup-size was included the precision increased to 95%. The pre- operative templated stem-size was correctly predicted in 61% of the cases. If +/- 1 stem-size was included the precision increased to 97%. The mean pre-operative leg-length difference was -2,1mm(+/- 6,4mm) compared to a mean leg-length difference post-operative of 1,7mm(+/- 6,7mm). 18(12%) out of 150 included patients had a difference in leg-length >10mm pre- operative. 18 out of 150 patients still had a difference in leg-length >10mm post- operative. Only 2 patients had a discrepancy of more than 20 mm.
Conclusions: It can be concluded from the present study that digital preoperative templating is safe and reliable. There was an overall trend towards increased leg-length of the operated leg. Equal leg-length within 10mm was achieved in 88% of the patients.

Timing of preoperative prophylactic antibiotics for knee arthroplasties. A quality study after the introduction of the WHO checklist with a standard "time-out" before skin incision

145.

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Background: A slight increase in revisions for infected joint arthroplasties has been observed in the Nordic countries since 2000 and the reasons for this are not clear. The most commonly used antibiotics have a short half-life, and it has been documented that administration more than 60 min preoperatively is associated with higher risk of surgical infection. It has been considered optimal to start the infusion 45 – 15 min before inflation of the cuff for the blood less field.

Purpose / Aim of Study: To evaluate our current routine, where antibiotic infusion is scheduled to start when the patient has arrived at the operation theater, and before further anesthetic procedures are initiated.

Materials and Methods: 118 consecutive patients operated during 2011 at our Hospital with primary knee prosthesis had their anesthetic journal evaluated retrospective. Time markings of the start of the antibiotic infusion, of the inflation of the cuff for the blood less field (in-BLF) and the closure of the wound were recorded for each patient.

Findings / Results: All patients did receive preoperative prophylactic antibiotic. Mean time of infusion before in-BLF was 37 min (range 5min – 230min). 82 (70%) of the patients received antibiotics at the optimal time interval. 6 (5%) of the patients received antibiotic more than 60 min before in-BLF, and 26 (22%) patients more than 45 min before in- BLF. 10 (8%) patients received antibiotic later than 15 min before in-BLF. Mean time from in-BLF till wound closure was 80 min (range 50min – 145min), and 44 (37%) patients did receive antibiotics more than 120 min before wound closure.

Conclusions: Our findings are in accordance with reports from a national Swedish survey from 2011, and leave room for improvements. Detailed instructions as to when the antibiotics should be given in relation to the start of the operation might improve timing.

No correlations between radiological angles and self-assessed Quality of Life in patients with Hip Dysplasia at 2-13 years of follow up after periacetabular osteotomy

146.

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Background: Only few studies have described the patients' health-related Quality of Life (QoL) after periacetabular osteotomy (PAO). Thus, there is a lack of data on the self-assessed outcome of patients operated with PAO, and none of the existing studies correlate the results from SF-36 with the radiological parameters.
Purpose / Aim of Study: The aim of this study was to investigate the health-related QoL for patients with hip dysplasia operated with PAO and investigate whether QoL is associated with the acetabular angles or hyper mobility.
Materials and Methods: Out of 388 patients, 228 patients (mean age of 40.5 years, mean follow-up of 7.1 years) returned the SF-36 and Beighton questionnaires. The patients' QoL was compared to reference data from a Danish population. Center-Edge (CE) and Acetabular Index (AI) angles were measured before and after PAO and the association with the patients' QoL was tested with logistic regression.
Findings / Results: For both males and females the SF-36 score was significantly lower than for the reference data for a Danish population, especially for those dimensions concerning physical health. No association was found between the patients' CE- or AI-angles before or after PAO and their subsequent QoL. Significant associations were found between both Physical Component Score (PCS) and Physical Function (PF) and follow-up time after the operation. The adjusted OR for a PCS≥50 was 0.87 (95% CI: 0.76-0.99) and for a PF≥85 0.81 (95% CI: 0.71-0.91). No association between hyper mobility and PCS, PF or Bodily Pain (BP) was found.
Conclusions: The results suggest that physical function after PAO decreases with longer follow-up time. Neither the acetabular angles nor hyper mobility is associated with the physical components of QoL.

Removal of mobilisation restrictions following primary THR does not increase risk of early dislocation

147.

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Background: Currently, many rehabilitation protocols following total hip replacement (THR) surgery include mobilisation restrictions to reduce early postoperative dislocation, especially if a posterolateral approach has been used. In this study we hypothesize that removal of such functional restrictions, as a part of rehabilitation, will not increase the risk for early postoperative dislocation.
Purpose / Aim of Study: We investigated if removal of functional restrictions following primary THR resulted in a higher dislocation rate.
Materials and Methods: The study was performed as a non- inferiority retrospective cohort study. Functional restrictions were removed from the rehab protocol at our institution in august 2010. A total of 685 primary THRs were performed following that date. Risk of early dislocation (within 30 and 90 days) was calculated, together with risk of revision surgery due to dislocation. Data were compared to the dislocation risk of 985 patients operated with primary THR prior to removal of functional restrictions. Alle patients were operated using posterolateral approach
Findings / Results: The two groups were comparable regarding age and sex (p-values: 0.42 and 0.35). Risk of dislocation within 30 and 90 days before and after restriction removal from postoperative mobilisation was: 2.1% vs 2.3% within 30 days and 3.4% vs 3.1% within 90 days. Risk of revision surgery due to dislocation, for patients with early dislocation, before and after restriction removal was 1.7% and 1.0% respectively. The inferiority hypothesis with a 50% increase could be discarded.
Conclusions: Removal of mobilisation restrictions following primary THR with posterolateral approach does not seem to increase risk of early dislocation.

Block-step asymmetry 5 years after large-head MOM THA is related to lower muscle mass and leg power on the implant side

148.

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Background: Large-head metal-metal (MoM) articulations mimic the human hip anatomy and presumably lower dislocation rates and increase range- of-motion.
Purpose / Aim of Study: To measure the muscle mass and power in the legs and investigate their influence on spatio-temporal gait parameters and self- reported function.
Materials and Methods: In July-August 2012, 28 patients (7 women) at a mean age of 45 (23-63) years participated in a 5-7 year follow- up. All patients had received the same type of unilateral large-head MoM THA and all articulations were well- functioning at follow-up. Mean muscle mass was estimated by total-body DXA scans and muscle power was measured in a Leg Extensor Power Rig. An Inertial Measurement Unit (IMU) monitored the spatio-temporal gait parameters and asymmetry in a 20 m gait test and a block-step test. Self-reported function was assessed by the Hip Disability and Osteoarthritis Outcome Score (HOOS).
Findings / Results: We found a significant difference between mean muscle mass of the implant-side leg and the non-implant-side leg in hip, thigh and calf areas ($p<0.008$) and a significant difference in mean muscle power ($p=0.025$) between legs. Correlations between mean muscle mass and mean muscle power were significant for both the implant-side leg ($r=0.451$, $p=0.018$) and the non-implant side leg ($r=0.506$, $p=0.007$). The difference between legs in mean muscle power were correlated with asymmetry around a medial- lateral axis measured from the block-step test, both in ascending ($r=0.398$, $p=0.047$) and descending ($r=0.528$, $p=0.006$) steps
Conclusions: Patients had a lower muscle mass and lower muscle power in the implant-side leg. The greater difference between legs in muscle power, the greater was the medial-lateral axis asymmetry found by block-step test when ascending and descending.

No clinical important increase in perioperative bleeding during total hip replacement in users of serotonergic antidepressants

149.

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Background: Eventhough it is well know that selective serotonin reuptake inhibitors (SSRIs) inhibit platelet aggregation, it is still controversial whether use of SSRIs can cause clinically important bleedings during surgery.
Purpose / Aim of Study: Our objective was to determine a possible association between use of serotonergic antidepressants (SA) and perioperative bleeding during total hip replacements (THR).
Materials and Methods: We conducted a retrospective study between 1 January 2007 and 30 June 2012 among patients that underwent a primary unilateral uncemented THR. Information was collected on the actual blood loss and the need for blood transfusions among this group. We compared the blood loss between users of SAs, users of non-serotonergic antidepressants and non-users.
Findings / Results: We indentified 1318 patients who underwent a THR at either Odense University Hospital or Kolding Hospital during the study period. The adjusted difference in blood loss among respectively, users of SAs and non-serotonergic antidepressants were 92.6 (38.1 - 147.2) ml and -49.9 (-125.0 - 25.2) ml compared with non-use.
Conclusions: Use of SAs was associated with an increased blood loss compared to non- users. The amount of increased blood loss has - in our opinion - no clinical consequences. The results support the well established hypothesis that SAs impair the haemostasis.

Initial Hip Model

150.

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Orthopeadic, Hvidovre Hospital; Wind Energy, DTU

Background: Others have previously constructed and validated finite element (FE) models of the hip joint. However, all of those models were constructed either post mortem or with a contrast agent injected in the hip capsule.
Purpose / Aim of Study: The aim of this study was to construct a FE model of a child's hip joint from an ordinary clinical CT scan. With this approach it will hopefully become possible to carefully analyze the surgical procedure preoperatively.
Materials and Methods: Due to a subluxated hip, a CT scan of the pelvic region on a patient was recorded. The normal side was picked as the basis for the FE model. From the CT it was not possible to segment the cartilage; instead cartilage was modeled as a hyper-elastic interaction between acetabulum and the femoral head with a constant thickness of 3.1 mm. The model was analyzed and compared with the findings from previous combined FE and experimental studies.
Findings / Results: Firstly the distribution of von Mises stress in the pelvis was considered. While others have reported stresses of up to 6 MPa, we found regions of higher stresses reaching 10 MPa. Regions of highest stresses are in accordance with one of the previous studies, while another study revealed a different distribution of the stresses. Secondly, the model reported cartilage contact pressure in the acetabulum of around 0-10 MPa. This is in accordance with previous findings. Regions of peak forces are slightly different, but within what are considered acceptable, since large variations among subjects have been reported previously.
Conclusions: We have developed a FE model of the hip joint from a preoperatively CT scan. Compared to previous models, this simpler model reveals contact forces in the acetabulum that is deemed adequate. Further works are however still needed to improve the response in the bony region.

Collateral Ligament Reconstruction of the Chronic Thumb Injury with Biotenodesis Screw Fixation

151.

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Background: Numbers of techniques have been introduced for the management of chronic insufficiency of the collateral ligaments of the thumb. Fixation of the tendon graft in order to establish good stability of the reconstruction, avoiding stiffness of the MCP-joint and loss of the pinch strength remains a challenge. The potential advantages of using interference screws for fixation of the tendon graft is its ability to stabilize the reconstruction during the healing, allowing a short immobilization time.
Purpose / Aim of Study: The purpose of this review was to analyse short-term results of a consecutive series of 18 collateral ligament reconstructions of the thumb using the 4 x 10 mm Bio-Tenodesis screw for fixation the tendon graft of Palmaris Longus.
Materials and Methods: Seven men and 11 women with posttraumatic instability, pain and dysfunction of the thumb were treated.The mean follow-up period was 26 months (range 12-43 months). We measured active flexion of the MCP- and IP-joints, abduction of the thumb as well as the grip and pinch strength of the injured and contralateral (control) hand, sick-leave, pain score (VAS) and Quick DASH score. For statistical analysis, t-test for paired data has been used.
Findings / Results: The mean active range of motion in the MCP-joint of the operated thumbs was 90% of the contralateral side. The main active range of motion in the IP- joint was 96% of the contralateral side. There was no reduction of the abduction. Neither was there any difference in grip strength between operated and non-operated sides. Pinch strength (pure or tip pinch) of the operated thumb was the same as of the contralateral side.
Conclusions: Our procedure had short immobilization and rehabilitation time, minimal loss of motion of the MCP- and IP- joints, no loss of hand and pinch strength, permitting early return to work.

Partial Scaphoid Implant (APSI). A Seven Years Follow-up

152.

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Background: The treatment of scaphoid fracture non- union with a small proximal fragment with or without avascular necrosis or radioscaphoid arthrosis is difficult and may lead to more aggressive treatment. PRC, midcarpal arthrodesis with scaphoid excision, and wrist arthrodesis are the usual options.
Purpose / Aim of Study: To show that the Adaptive Partial Scaphoid Implant (APSI) is a reliable alternative to other treatments of proximal scaphoid fracture non-unio
Materials and Methods: This is a prospective study of 25 artroplasties with painful Scaphoid pseudartrosis after failed treatment and proximal avascular necrosis confirmed by X-ray and MR scan. There were 25 patients with an average age of 42 years (range 24-64) and the average length of follow-up was 7.7 years (range 4-13 y). None of the patients had progressive carpal collapse (SNAC). Clinical assessment included range of motion, pain at rest (VAS) and the worst pain last week (VAS), Mayo wrist score and satisfaction. Radiographs were evaluated for implant position, alignment, subsidence and carpal high ratio.
Findings / Results: None of the patients had luxation or subluxation of the implant and there were no change in carpal height ratio. No DISI or VISI deformity was seen before and after the operation. One patient had a re-operation to change the size of the prosthesis. Necrosis of the proximal scaphoid bone was confirmed by pathology. The average pain at rest (VAS) was decreased from 34 to 0. The average Mayo wrist score was increased 50 %.
Conclusions: The scaphoid spacer implant seems to be a reliable technique provides good pain relief and good ROM. The methods serve as a supplement to other methods after failed treatment of proximal scaphoid fractures without excluding these procedures as the final treatment.

Volar dislocation of the second and third carpometacarpal joint following a soccer tackle -a case story of a missed diagnosis in a 15 year old boy

153.

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Background: Volar dislocations of the second and third carpometacarpal joints are extremely rare and like other carpometacarpal dislocations almost always a result of high-energy traumas such as motor vehicle accidents.
Purpose / Aim of Study: As we present a missed case of volar dislocation of the second and third carpometacarpal joints, which was uncharacteristically caused by a low- energy trauma, we wish to describe this extremely unusual injury and its signs of recognition.
Materials and Methods: Based upon a case story, we explored the current literature on carpometacarpal dislocations with special emphasis on volar dislocations of the second and third metacarpal base.
Findings / Results: A boy aged 15 was injured falling on his left hand following a soccer tackle. As seen in other cases of carpometacarpal dislocation, the injury was initially overlooked, probably due to an ipsilateral forearm fracture. The hand injury remained undiagnosed for three months, until a CT scan revealed a total volar dislocation of the second metacarpal base along with a subluxation of the third metacarpal base. Retrospectively this was visible already in the primary lateral x-rays. Open reduction was necessary and the reduction was maintained with Kirchner wires for nine weeks. On two years follow-up the patient had lost 20% of his grip strength. He no longer experienced pain or paresthesia, however based on the damage seen on the articular surfaces during operation, arthrosis is likely to develop later on.
Conclusions: This case story highlights that volar dislocations of the second and third carpometacarpal joints are a possible consequence of low-energy trauma. The story also emphasizes the importance of thorough examination when patients present with paresthesia and marked hand swelling that cannot be explained by other injuries.

Erythropoietin elicits a dose-dependent osteogenic effect on human mesenchymal stem cells

154.

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Background: Erythropoietin (EPO) is a pleiotropic growth factor. Of interest for orthopaedics, EPO increases bone formation and angiogenesis. However, accommodating safety concerns, physiological dosing of EPO is a perquisite before clinical translation can be considered.
Purpose / Aim of Study: The aim of this study was to establish a dose-response relationship and to determine the lowest effective osteogenic dose of continuous EPO stimulation on human mesenchymal stromal cells (MSCs).
Materials and Methods: MSCs from two donors were cultured at 13500 cells/cm2. A wide range of EPO concentrations (0–100 IU/ml) was continuously applied. The primary outcome measurement was Arsenazo mineralization assay after 14 and 21 days. Secondary outcome measurements were an alkaline phosphatase (ALP) and cell viability assay after 2 and 7 days. The positive control was osteogenic medium and proliferation medium served as negative control. Results were normalized to cell number. Statistics consisted of one-way ANOVA and post hoc testing for linear trend and EPO concentration against positive control with Fisher's LSD.
Findings / Results: The observed proportional dose-response relationship can be adequately described with the slope of a fitted line. The effect size corresponds to this slope, which declined from 0.35 to 0.09 between day 14 and 21 ($p<0.001$). The lowest effective dose of 20 IU/ml increased mineralization to 146 ±17% after 14 days relative to positive control ($p=0.002$). EPO also increased cell viability and ALP ($p<0.01$).
Conclusions: EPO increased osteogenic differentiation of MSCs in a dose-dependent manner. In vivo, the lowest effective dose of 20 IU/ml should be used to prevent adverse effects. Ex vivo, the highest dose of 100 IU/ml could overcome the major limitation of cell-based tissue engineering, namely vascularization and bony ingrowth into 3D scaffolds.

The influence of hemostatic agents on bone healing after sternotomy in a porcine model

155.

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Background: Sternotomy is the preferred access to the mediastinum. During sternotomy trabecular bone is exposed, which often results in bleeding. Mechanical hemostatics are used to diminish this bleeding; however, their influence on the sternal healing process is relatively unexplored.
Purpose / Aim of Study: The aim of the present study was to investigate the influence of two hemostatics, bone wax (BW) and a water-soluble polymer wax, Ostene (WSW), on the mechanical properties and histological characteristics of healing sternal bone.
Materials and Methods: Twenty-four pigs underwent sternotomy and were randomized into three groups: WSW, BW, or no hemostatic treatment (control). The animals were sacrificed 6 weeks after surgery and bone samples were obtained. In all, 42 bone samples underwent mechanical testing and 44 histological sections were evaluated microscopically.
Findings / Results: Fracture strength in the BW group was 32% lower than in the control group ($p<0.05$), and maximum stiffness was 56% lower in the BW group than in control group ($p<0.05$). The mechanical properties did not differ between the WSW and BW groups. The fraction of granulomatous tissue was 379% higher in the BW group than in the WSW group ($p<0.001$) and 582% higher than controls ($p<0.001$). There was 117% more calcified tissue in controls than in BW pigs ($p<0.05$).
Conclusions: In a porcine model, BW was found to significantly inhibit sternal healing and was associated with chronic inflammation and reduced mechanical integrity. Animals treated with WSW demonstrated bone healing characteristics similar to those of the control group, and WSW is thus a compelling alternative to BW when a mechanical hemostatic is needed.

Topographical microstructures increase proliferation of human primary chondrocytes in vitro

156.

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Background: Chondrocyte-based cartilage repair techniques require control of autologous articular chondrocyte expansion and differentiation in vitro. Culture surface topography might be a tool to control chondrocytes behavior.
Purpose / Aim of Study: In this study we aimed at identifying topographical structures that stimulated the proliferation of human primary chondrocytes (HPCs) in vitro.
Materials and Methods: HPCs were isolated from patients undergoing anterior cruciate ligament reconstruction from the inter-condylar groove in the distal femur. HPCs were isolated and 10.000 cells/cm2 seeded upon the BioSurface Structure Assay (BSSA) for 4 days. Subsequently, the cells were stained with DRAQ5 for detection of proliferation using infrared imaging. The BSSA consisted of distinct topographical patterns organized in 10 different series (A- J) each series with 16 unique combinations of pillars with variable of dimension X = pillar size and Y = inter-pillar gap size and a non-structured control. Interactions between the independent variables were investigated using two-way ANOVA. The level of significance was $p < 0.01$.
Findings / Results: The systematic screening of topographies identified that inter-pillar gap size Y, and to a smaller extent pillar size X, had a clear systematic effect on proliferation of HPCs. The structure dimensions (X=2, 4 µm) and (Y=1 µm) resulted in the most significant increasing in proliferation comparable to the unstructured control, while the dimension (Y=6 µm) had the lowest proliferation effect.
Conclusions: Screening of different topographies identified structures with specific pillar size and inter-pillar gap size, which increased the proliferation capacity of HPCs compared to planar structures. Use of topography could be an alternative culturing method for laboratory ex vivo expansion of HPCs for clinical application.

Dental Pulp Stem Cells Seeded on Modified Polycaprolactone Scaffolds Promotes Osteogenic Differentiation in Vitro

157.

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Background: Dental pulp cells (DPSCs) have been hypothesized as an alternative source of stem cells for bone tissue engineering.
Purpose / Aim of Study: The aim was to determine their efficacy on three different polycaprolactone (PCL) scaffolds.
Materials and Methods: PCL was plotted into a three-dimensional grid structure (PCL scaffold). A modified scaffold was created by infusing the pure PCL scaffold with hyaluronic acid + TCP followed by yophilization to create a microporous hydrophilic coating (HT-PCL scaffold). Another scaffold was developed by infusing a homogenous mixture of PCL, water and dioxane and afterwards perform a thermal induced phase separation (TIPS) followed by lyophilization. This NSP-PCL scaffold was structurally graded with micro- and nanopores. A total of 132 scaffolds (Ø=10mm, h=5mm) were used. DPSCs were cultured using proliferation medium for 7 days and thereafter osteogenic medium. After day 1, 7, 14 and 21, 10 scaffolds were collected for further analysis. Following analyses were performed to validate cell viability: Scaffold cellularity by quantifying the amount of dsDNA, ALP activity, Ca++, live/dead staining (confocal microscopy), histology, SEM, RNA extraction and RT- PCR (GAPDH, Ubiquitin, ALP, Collagen type I, BMP-2, Runx2 and bone sialoprotein /osteocalcin).
Findings / Results: The HT-PCL and NSP-PCL scaffold promoted osteogenic differentiation compared with pure PCL scaffold evident by high calcium deposition. Cell proliferation and migration into the scaffold was best facilitated on the HT-PCL scaffold compared to both the pure PCL scaffold and the NSP-PCL scaffold, making this a promising scaffold for further in vivo studies.
Conclusions: DPSCs seeded on three morphologically different scaffolds intended for bone repair, resulted in osteogenic differentiation. DPSCs could be an alternative stem cell line for bone repair.

Results after plate removal in midshaft clavicle fracture surgery: Focus on coexsisting soft-tissue shoulder injuries

158.

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Background: Primary surgical treatment has become the preferred treatment for displaced, midshaft clavicle fractures. Several studies have shown that plate osteosynthesis is a safe procedure associated with good outcome. However, in close to 30 % of all patients treated with a precontoured plate the implant is removed due to soft-tissue irritation. This high rate of implant removal is neglected in the overall discussions that compare surgical treatment to non-surgical treatment of acute midshaft, clavicle fractures.
Purpose / Aim of Study: To evaluate results, in terms of complications and reoperations, of implant removal of clavicle plates.
Materials and Methods: 54 patients (41 males) operated between 2007 and 2012 at our institution with removal of clavicle plates were included. We retrospectively assessed complication and reoperation rates by inquiry to patient files and radiographs.
Findings / Results: In 47 of 54 patients, precontoured locking plates were removed and in the remaining 7 patients reconstruction plates were removed. In 49 cases the plate was removed within the first 2 years following primary fracture surgery, with 25 removed during the first postoperative year. The plate was removed due to soft-tissue irritation in 43 cases, 2 had neurological deficits and 4 suffered profound pain or discomfort. Another 4 plates were removed for unknown reasons and 1 due to patient demand. A total of 6 patients had deficits (decreased mobility in 4 cases) or complications (re-fracture in 2 cases) following implant removal. All patients with decreased mobility were, following plate removal, diagnosed with a structural soft-tissue injury of the shoulder.
Conclusions: Plate removal following a midshaft clavicle fracture seems safe but patients with profound pain or decreased mobility should be examined for a structural soft- tissue injury of the shoulder.

Early experiences with the DHS blade in treating femoral neck fractures

159.

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Background: The most common complications related to internal fixation of femoral neck fractures (FNF) is non-union and avascular necrosis. Failure rates of 6.5 - 13% for undisplaced and 49% for displaced fractures has been reported with reoperation rates of 7,7 – 13 % and 20 – 36 % respectively. Randomised trials of different implants for internal fixation of FNF are inconclusive. Biomechanical studies have indicated that DHS blade is superior in resisting displacement forces compared to conventional DHS. To our knowledge no report has ever been made on the DHS blade for internal fixation of FNF.
Purpose / Aim of Study: To evaluate the outcome of patients submitted with a FNF, internally fixated with a DHS blade, at the Orthopaedic department, Regionshospitalet Viborg from 2008 to 2012.
Materials and Methods: 68 patients, mean age 76,2 yrs (32 - 98) submitted with a FNF treated with internal fixation with a DHS blade at regionshospitalet Viborg 2008-2012. No specific criteria were applied for choosing DHS blade, as opposed to conventional DHS, but considerations were: age, osteoporosis, grade of dislocation, general- and mental health status of the patient. Decision to choose DHS blade was made in plenum or at the discretion of the attending surgeon. Mean follow up time was 24,3 months (6 - 62).
Findings / Results: 50 undislocated and18 dislocated fractures were treated with DHS blade. The total number of failures registered in the follow up period was 8. 5 undislocated (10%) and 3 dislocated (16,7%). All were reoperated with convertion to THA. Mean time to reoperation was 6,5 months (3 – 16). 17 patients died in the follow up period.
Conclusions: Our early experiences with the DHS blade indicate that it is an equal implant option for internal fixation of FNF. Further investigation is needed to evaluate the DHS blade and its place in treatment of FNF.

Retrospective review of radiographic referral, interpretation and treatment plan in a Danish emergency department in comparison to an international benchmark

160.

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Background: Though Denmark had dramatic changes in the emergency department (ED) system organization, still lacks designated ED doctors and specialists.
Purpose / Aim of Study: To evaluate discrepancies in plain X-ray interpretation, treatment plan and referral rate for radiography in a Danish hospital emergency department (ED) between junior house officers, residents and orthopedic surgeons, and their clinical spectrum and outcome.
Materials and Methods: Primary Emergency journals for ED patients and their radiograph reports were reviewed (by a radiologist and a senior orthopedic surgeon) during 3 months. All discrepancies and their management were noted on a computerized data base.
Findings / Results: A total of 6724 patient were examined in the ED, 3056 of them had injuries with potential need for radiographic examination. Of these, 1363 patient were photographed, with a referral rate 44.6%. Out of 1363 cases, there were 85 (6.2%) diagnostic or management errors, 39 (2.8%) fractures were missed, 22 (1.6%) cases were diagnosed but inadequately treated, and 35 (2.5%) errors were insignificant without impact on the patient's treatment.
Conclusions: A radiographic referral rate of 44.6% is appropriate to referral rate benchmark in UK (44%). However 3.7% of ED patients had significant diagnostic or treatment errors which prompted a change in management after joint radiographic-orthopedic conference next working day. This is relatively high in comparison to other similar studies in UK (0.3%-1%) and US (0.4%-2.8%). A possible explanation for this could be a longer history of ED medicine sub-specialty in the countries used for benchmark in our study and the results calls for further evaluation and focus on ED education and supervision but also emphasizes the importance of routine joint radiographic-orthopedic evaluation in close relation to hospital ED treatment.

Feasibility of progressive strength training immediately after hip fracture surgery

161.

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Background: Muscle strength relates to functional performance in patients with a hip fracture. During the first week in the acute orthopedic ward, patients with a hip fracture loose more than 50% of their knee-extension muscle strength in the fractured limb when compared to the non-fractured limb.
Purpose / Aim of Study: The aim of this study was to examine the feasibility of progressive strength training when initiated in the acute ward based on pre-specified criteria for feasibility.
Materials and Methods: Thirty-six patients (9 men and 27 women) with a hip fracture having a mean (SD) age of 79.4 (8.3) years. They followed a daily (on weekdays) program of progressive knee-extension strength training for the fractured limb, using ankle weight cuffs as loading. At each session, they performed 3 sets of 10 repetition maximum (RM) loadings (adjusted on a set-by-set basis). Maximal isometric knee-extension strength of both limbs was measured with a fixated dynamometer.
Findings / Results: The training load (kilograms lifted) increased progressively by an average of 2.7 (1.5) kg from 1.6 (0.8) to 4.3 (1.7) kg ($p<0.001$) over 4.3 (2.2) training sessions. Strength training was initiated 2.4 (0.7) days after surgery and ended at mean day 8.6 (4.2). The average knee-extension strength deficit in the fractured limb decreased from 50% (34%) to 32% (25%) of the non-fractured limb at discharge. More than 80% of patients reported no or just light hip pain during the strength training sessions.
Conclusions: Progressive knee-extension strength training of the fractured limb in hip fracture patients commenced in the acute orthopedic ward seems feasible and may reduce knee- extension strength asymmetry. Hip fracture- related pain did not compromise strength training or testing. The clinical value of early progressive strength training will be studied in a randomized design.

Severe fractures after Segway related accidents in an amusement park

162.

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Background: In 2001 the Segway was introduced as a new and revolutionary vehicle. Since then, the Segway has found use as a professional mean of transportation, for example by the police and security guards, but it has also been used for entertainment purposes. A Segway is an electrically powered one-axle vehicle, which can reach a top speed of 20 km per hour

Purpose / Aim of Study: The aim of this study is to describe a new injury mechanism related to the use of Segway in Denmark, and the severity of the injuries

Materials and Methods: Case study of 8 patients, who were injured during the use of Segway, and were admitted to Aarhus University Hospital during a one year period for fracture surgery

Findings / Results: During Jan-Dec 2012, five men and three women were admitted for acute surgery. Two with displaced hip fractures, one tibial condyle, one ankle fracture, one humeral fracture, one comminute radial neck fracture and two distally radial fractures

Conclusions: Few international studies has systematically examined this injury type, but in general, these studies has shown very severe injuries. A Segway cannot be directly compared to other means of transportation, leading to difficulties with classifying it in the Road Traffic Act. In Denmark, the Segway was initially classified as a scooter, but as part of a pilot scheme it is now classified as a bike. However the driver must be at least 16 years old. All injuries occurred in an amusement park, with focus on safety. When serious injuries still occur, it should give rise to further reflection on accident prevention. The number of trauma with a Segway are unknown I Denmark, but recently a specific code for this accident type, have been available. With a carefully registration it will be possible to determine the incidence. Based on this study, we recommend increased focus in Denmark on accident with the Segway

Tibia intramedullary nailing - comparison of physical activity and pain with or without secondary surgery

163.

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Background: Little research is done on the long term course of patients treated with tibia nail and effect of secondary surgery. Removal of tibia nails to alleviate pain has been found limited. The effect on activity level and social performance is uncertain.

Purpose / Aim of Study: Study the long-term postoperative course of patients treated with a tibia nail comparing patients without secondary surgery with patients going through secondary surgery hence total amotio or screw amotio. Hereby analyzing level of physical activity and pain in work and spare-time.

Materials and Methods: The study includes all patients with crus fractures treated with a primary insertion of a tibia nail in the period of 2009 to 2011 by using the hospitals register of diagnose codes. Excluded patients were dead, suffering from dementia, moved abroad or could not be contacted. We enrolled 52 patients of which 9 were excluded. This gave us 43 patients for data collection, by sending out multiple choice questioners and telephone consultations.

Findings / Results: Before the fracture in general most patients were able to run and had a job. After the fracture and tibia nailing most patients lost the ability to run, but could still stand and walk. After years most patients still have pain or discomfort, especially with increasing weight bearing regardless of having secondary surgery or not. Most patients that went through secondary surgery tended to increase their level of physical activity, but tended to have an unchanged level of pain. They felt it was worth it, beneficial and would recommend amotio to other patients.

Conclusions: The crus fracture and tibia nailing reduces ability to run, decreases level of physical activity, increases level of pain over years and might result in loss of job. Amotio might help patients increasing activity level but with the same level of pain.

Tibia intramedullary nailing - secondary surgery - rate, indications and contexts

164.

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Background: Little research is done on the long term course of patients treated with tibia nail and indications for secondary surgery. Removal of tibia nails to alleviate pain has been found limited.
Purpose / Aim of Study: Study the long-term postoperative course of patients treated with a tibia nail concerning any context between different variables and the rate of secondary surgery.
Materials and Methods: The study includes all patients with crus fractures treated with a primary insertion of a tibia nail in the period of 2009 to 2011 by using the hospitals own register of diagnose codes. Excluded patients had their primary operation elsewhere and operation before or after the study period. We examined the rate of secondary surgery - both screw removal and complete nail removal. We looked at variables like: age, side, open fracture, coexisting fibula fracture, level of fracture on the tibia, comminute fractures, surgeons level, doctors delay and surgical approach. In the postoperative course we looked at indications for amotio atellae. We enrolled 55 patients of which 3 were excluded. This gave us 52 patients for data collection.
Findings / Results: We found statistically evidence of a context between age and sex of the patients on the rate of total nail removal but not on screw removal alone. All nail removals (no 12) where done on patients younger than 60 years, out of these patients 11 were men and 1 woman. The rate of secondary surgery was 44,2%. The rest of the variables did not have an impact on the rate of secondary surgery. The main indication for secondary surgery was mechanical discomfort from the osteosynthesis.
Conclusions: As a rule the tibia nails were removed on men younger than 60 years. The result might help us in the future to give our patients better advice on risk of secondary surgery.

Complication rates in unstable trochanteric fractures when type of osteosynthesis is dictated by the preference of the surgeon

165.

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Background: In contemporary literature strict algorithms is recommended as a tool to decrease complication rates in hip fractures. In unstable trochanteric fractures (Evans type 4 and 5) an intermedullary nail (IMN) is recommended. At our department unstable trochanteric fractures is osteosynthesised with either a Sliding Hip Screw (SHS) or IMN dictated by the preference of the surgeon.
Purpose / Aim of Study: To compare the complication rates for SHS and IMN when used for osteosynthesis in unstable trochanteric fractures and to compare our complication rates with contemporary literature.
Materials and Methods: Through local database search we identified 101 patients operated for a trochanteric fracture in 2012. Follow-up were conducted through systematic review of regional journals, radiographs and the nationwide e-journal. Forty-three patients had an unstable trochanteric fracture. Mean age 79.5 years. Female n=23. Thirteen patients died during follow-up. In this retrospective setting we compared complication rates between SHS and IMN in unstable trochanteric fractures. All patients were followed from surgery until 20.06.2013, and included for analysis.
Findings / Results: Of the 43 unstable trochanteric fractures 34 were osteosynthesised with SHS and 9 with an IMN. The two groups showed the same distribution regarding age, sex and level of the surgeon. Complications leading to reoperation were seen in 4/34 SHS and in 1/9 IMN.
Conclusions: In this small retrospective study we find no difference in complication rates between SHS and IMN in unstable trochanteric fractures and the complications rates is at the level of what is reported in contemporary literature, when strict algorithms is used. This may raise the hypothesis that SHS should be used more often, considering the facts, that it is cheaper and can be performed with a lower level of expertise.

Do Radiographic technical success, improved cosmesis, and Trunk shift of the Spine corroborate with patient-reported outcomes in Lenke 1C Adolescent Idiopathic scoliosis?

166.

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Background: Findings, that scoliosis surgery decreases the deformity magnitude and risk of curve progression are widely reported. However clear data on how these choices translate into clinical cosmesis, and patients' long-term satisfaction with management, self-image and overall health is lacking.
Purpose / Aim of Study: To determine the correlation between the postoperative radiographic and -cosmetic improvements in Lenke 1C AIS with the self-rated outcomes of health and disability at follow-up as determined by scoliosis research society questionnaire, Oswestry disability index score and EQ-5D
Materials and Methods: 24 Lenke 1C scoliosis patients (16.5 years), treated with posterior pedicle screw only construct were included. The coronal profile indices (radiographic-cosmetic) of spine deformity and trunk were measured preoperatively, postoperatively and at follow-up.Posterior Trunk Symmetry Index (POTSI) was also measured. Pearson's correlation analysis determined the association between the radiographic- cosmetic indices and patient outcomes
Findings / Results: Mean follow-up was 4.4 years. Thoracic apical vertebra-T1 horizontal distance (AV-TI) correction had significant correlation with function-, self-image-, and mental health scores (>0.55). Similarly, thoracic apical vertebra horizontal translation from central sacral vertical line (AV-CSVL) correction at follow-up had significant correlation with self-image and managements domains (>0.50). Follow-up POTSI correlated well with SRS and EQ-5D scores (>-0.54). Postoperative trunk-shift did not influence the outcomes; significant spinal realignment was evident in follow-up resulting in physiologic balance and acceptable outcomes.
Conclusions: Measures of trunk balance (AV-CSVL, AV-T1 correction, POTSI) corroborate with SRS scores. However thoracic Cobb correction does not correlate with any outcome

Surgery for Kyphoscoliosis in Parkinson's Disease

167.

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Background: A frequent complication to Parkinsons disease is camptocormia, i.e. severe, involuntary, reversible thoracolumbar kyphosis during standing and walking. With time, the spine tends to develop structural degenerative kyphoscoliosis with spondylosis, spinal stenosis, pain and severe loss of function. The international literature on scoliosis surgery in this condition is extremely scarce, mostly case reports of failures.
Purpose / Aim of Study: This is a review of our first six cases, in fact the lagest material published so far.
Materials and Methods: In 2000 - 2010 we performed corrective scoliosis surgery in six Parkinson patients with camptocormia and kyphoscoliosis, age 58-70 years, four men, two women. Surgery included Smith Petersens osteotomies and PSO where needed, long posterior fixation with pedicle screws/rods, and auto- plus allografting.
Findings / Results: Operation time was 4 to 10 hours, the initial postop care was in ICU in 5 of 6 cases, and hospitalization ranged from 8 - 32 days. Correction was good initially in all cases. One developed a hematoma, which was evacuated, two had hallucinations postoperatively, and three developed pneumonia. All six experienced implant breakage and/or screw loosening, and three were reoperated upon several times. The total numer of reoperations was 13 in the series. In spite of this, five patients reported good satisfaction. Four are still active, two are in nursing home for other reasons..
Conclusions: This case series represents a llearning curve. Scoliosis surgery in Parkinsons disease is feasible but challenging. Surgery should extend distally to the ileum. Correction should aim at complete restoration of balance. Complications and reoperations should be expected. It has been a taxing but rewarding endeavour for the surgeons and for most patients. We now plan more patients for the procedure.

The physical and mental outcome of 100 patients having a Percutaneous Vertebroplasty because of pathological vertebral fractures

168.

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ortopædkirurgisk afdeling, Kolding; Sector for Spine Surgery and Research, Region of southern Denmark , Vejle Sygehus

Background: Percutaneous vertebroplasty (PVP) is a therapeutic procedure performed to reduce pain in pathological vertebral fractures. PVP has been performed since the eighties and a lot of clinical studies have confirmed the benefit of the operation. Lately two double blind randomised studies have questioned the pain relieving effect compared to conservative treatment. To test this statement a new double blind study is performed at the Sector for Spine Surgery and Research, Region of Southern Denmark. PVP is still performed on patients not attending this study because of exclusion criteria. The effect on mental and physical health is documented in DaneSpine, the Danish database for spine operated patients.
Purpose / Aim of Study: The aim of this study is to describe the quality of life and the physical and mental outcome of the first 100 patients having a PVP at the Sector for Spine Surgery and Research, Region of southern Denmark due to painful pathological fractures.
Materials and Methods: All patients are operated by specialists in spine surgery. The data is collected in DaneSpine. STATA is used for statistical work. Well-known and validated questionnaires are used for assessment of mental and physical health and for quality of life, SF-36, ODI, and EuroQol. VAS is used for pain estimation.
Findings / Results: The mental and physical health has improved significantly one year after surgery based on the mental and physical score of SF-36. The VAS score for back pain is lowered significant and the quality of life estimated by EuroQol, has improved significantly one year after surgery.
Conclusions: PVP relieves the pain for patients with pathological vertebral fractures and the patients improve in mental and physical health. Further conclusions on PVP may be made after the ending of the double-blind randomised study.

Evaluation of stratified surgical intervention based on the Aarhus Spinal Tumor Algorithm

169.

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Background: Treatments choices for spinal metastatic patients is still a challenge for spine surgeons. There is no gold standard for surgical treatments. Aarhus Spinal Metastases Algorithm has been designed based on Tokuhashi scoring system and Tomita classification. Aarhus Spinal Tumor Database started to collect spinal metastatic patients' data since 1992.
Purpose / Aim of Study: To evaluation the clinical outcome of surgical treatments based on Aarhus Spinal Metastases Algorithm.
Materials and Methods: This study consists of 569 surgically treated spinal metastasis patients from Dec 1992 to Jun 2012 in Spine Department Aarhus University Hospital NBG. We retrieved all the patients' data from prospective Aarhus Spinal Tumor Database, Various questionnaires were used to collect patients' data before and after surgery. Survival analysis was performed in all surgical groups.
Findings / Results: The median survival of the entire study population is 7.9 months. Female patients have a median survival period of 15.3 months. This is significantly longer (Log-rank test, p= 0.0001) compared with male patients' median survival time of 6.1 months. The surgery related post-operative 30 days mortality rate was 7.2%.The mean operation time was 3.2 ± 1.7 hours. The mean Blood loss during the surgery was 1682.3 ml. 142 patients (40.1%) got improved neurological function, 174 patients (50.1%) remained the same neurological status, and 31 patients (8.9%) had decreased neurological function.
Conclusions: Female spinal metastatic patients have a significant longer survival time (p=0.0001) compared with male patients. Patients underwent surgical treatments based on Aarhus Spinal Metastases Algorithm could achieve longer survival period compared with preoperative life expectancy. The surgical intervention could improve or maintain the postoperative neurological function.

The epidemiology of surgically treated spinal fractures in Eastern Denmark

170.

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Background: The epidemiology of spinal fractures is of relevance to monitor the impact of this injury and if possible initiate preventive measures. Few studies are representative of a complete population, and can therefore be affected by referral bias. In October 2010 the first SpineUnit in Denmark with neurosurgical and orthopaedic spine surgeons was established. Consequently, all patients operated for a spinal fracture in Eastern Denmark were operated in one facility.
Purpose / Aim of Study: The purpose of the present study was to compare the epidemiology of surgically treated spinal injuries in a consecutive, representative population of Eastern Denmark with data reported in the literature.
Materials and Methods: The purpose of the present study was to compare the epidemiology of surgically treated spinal injuries in a consecutive, representative population of Eastern Denmark with data reported in the literature.
Findings / Results: A total of 275 patients were included. The average age was 52 years and 68% of the patients were men. The incidence of surgically treated spinal injuries was 4.9/100.000/year and the incidence of SCI was 0.9/100.000/year. The incidence of SCI was significantly higher in cervical injuries compared to the other regions of the spine ($P < 0.05$). There was no significant difference in number of SCI's between primary treated patients and patients who were secondarily transferred.
Conclusions: To our knowledge this is the first study on the epidemiology of surgically treated spinal injuries in a Danish trauma population. The incidence of SCI is lower than most other reports, requiring further studies.

Satisfactory Curve Correction Using Ultra Low Profile Segmental Pedicle Screw Implant in AIS

171.

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Background: Satisfactory correction and maintenance of scoliotic curves by segmental pedicle screw instrumentation have been reported, but there has been no report of curve correction published using an ultra low profile implant system

Purpose / Aim of Study: The immediate curve correction in a prospective cohort study was analyzed comparing preoperative Cobb and postoperative Cobb angles in patients operated with an ultra low profile implant system.

Materials and Methods: A total of 51 consecutive patients (median age: 15 years) underwent a posterior spinal fusion with segmental pedicle screw instrumentation. The implant used was an ultra low profile system with 5.5 CoCr rods and uni- planar screws facilitating the curve correction with supplemental direct vertebral rotation when necessary.

Findings / Results: Median number of instrumented levels was 10. Mean operating time was 242.7 minutes. The mean preoperative Cobb angle of 59 degrees was reduced to a Cobb angle of 20 degrees immediate postoperative.

Conclusions: The results correspond to previous findings in series of patients operated with traditional pedicle screw implants and support the use of ultra low profile pedicle screw systems. This is indeed beneficial in patients wit low body mass index. References Kim YJ et al. Spine;29(18):2004-2048 Yilmaz G et al. J Pediatr Orthop 2012;32:490-499

Artificial Meniscal scaffold Implantation and Meniscal Allograft Transplantation

172.

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Background: Loss of meniscal function alters the pressure distribution within the knee joint leading to increased cartilage wear Restoration of meniscal function with artificial meniscal scaffold implantation (AMSI) or meniscal allograft transplantation (MAT) might prevent this. Indication for AMSI was pain with intact meniscal horns and rim.
Purpose / Aim of Study: To present two years of experience using AMSI and MAT, including our treatment algoritm.
Materials and Methods: Eigthteen knees (8 Đ‰/10 ĐŠ) in seventeen patiens fullfilled the indication for either AMSI or MAT. 4 had a history of discoid meniscus. In eleven knees AMSI was primarily implanted, 6 medial and 5 lateral. 7 had earlier ACL reconstruction. Until now 5 have failure of AMSI and were changed to MAT, including 4 of the ACL reconstructed patients. In seven knees MAT was primarily implanted, 2 medial and 5 lateral, but none with ACL reconstruction. In further five knees MAT was secondary implanted, 4 medial and 1 lateral. In all 12 MAT, plus one revision.
Findings / Results: Nearly all patients showed initially reduction in pain at 3 month. In the AMSI group a large number of patients were revised. Earlier ACL reconstruction seems to be a negative prognostic factor. Contraindications, timing and a learning curve might also influence results. Nearly all patients showed improvement in pain and function at postoperative controls. The one MAT revision was due to under sizing of the transplanted graft.
Conclusions: Biological joint preservation with AMSI or MAT is now a possibility in Denmark. The patients often have a long complicated surgical history, and in many patients additional procedures are needed. History with ACL reconstruction have a high failure rate in AMSI, and MAT should be considered as the primary operation.

Does bony hip morphology affect the outcome of treatment for patients with adductor-related groin pain? – long term results of a randomized controlled trial

173.

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Background: Adductor-related groin pain and bony morphology such as femoroacetabular impingement (FAI) or hip dysplasia can co- exist clinically. A previous RCT, in which athletes with adductor-related groin pain underwent either passive (PT) or active (AT) treatment, showed good results in the AT group.
Purpose / Aim of Study: The primary purpose of the present study was to evaluate if radiological signs of FAI or hip dysplasia, seem to affect the clinical outcome, initially and at 8-12 year follow- up.
Materials and Methods: Forty-seven patients (80%) were available for follow-up. The clinical result was assessed by a standardised clinical outcome, combining patient-reported activity, symptoms and physical examination. Anterior-posterior pelvic radiographs were obtained and the center- edge angle of Wiberg, alpha angle, presence of a cross-over sign and Tönnis grade of osteoarthritis were assessed by a blinded observer, using a reliable protocol.
Findings / Results: No significant between-group differences regarding the distribution of radiological morphologies were found. There was a decrease over time in clinical outcome in the AT group with alpha angles >55° compared to those with alpha angles <55° (p=0.047). In the AT group there was no significant difference in the distribution of Tönnis grades between hips that had an unchanged or improved outcome compared with hips that had a worse outcome over time (p=0.145).
Conclusions: No evidence was found that bony hip morphology related to FAI or dysplasia prevents successful outcome of the exercise treatment programme with results lasting 8-12 years. The entity of adductor- related groin pain in physically active adults can be treated with AT even in the presence of morphological changes to the hip joint.

Custom-made orthotics decrease medial foot loading during drop jump and single-leg squat in individuals with patellofemoral pain

174.

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Background: We have previously shown that individuals with PFP have a more medially directed foot-loading pattern (20- 30%) compared to healthy individuals during high load activities. This may increase lateral forces acting on the patella.Foot orthotics may be a simple approach to help normalise foot loading. However, no one has yet investigated the effect of foot orthotics on foot loading patterns during jumping and squatting in individuals with PFP.
Purpose / Aim of Study: To investigate the effect of foot orthotics on medial-to-lateral plantar forces during drop jump and single-leg squat in individuals with PFP.
Materials and Methods: 23 young adults with PFP were tested before and after a custom-made orthotic was inserted into both a standard shoe (Le coq Sportif).The order of testing was random. Foot loading (plantar pressure distribution) was collected from the most painful side during drop jump and single-leg squat using pressure sensitive Pedar insoles. Primary outcome was the medial-to- lateral peak force under the forefoot during drop jump. Mean forces under the forefoot were analysed using the same approach. Test-retest reliability for this procedure was substantial, with no systematic bias from test to retest.
Findings / Results: Orthotics caused a relative reduction in peak force of 7% ($p=0.01$), during drop jump, while mean forces were reduced by 10%, $p<0.01$. Peak force was reduced by 12%, ($p=0.08$) during single- leg squat, and mean forces were reduced by 20%, $p=0.03$.
Conclusions: Foot orthotics decrease medially directed foot loading among individuals with PFP, which may decrease lateral forces acting on the patella. However, the orthotics did not normalise medial foot-loading patterns completely suggesting that strategies such as medial foot wedges or movement corrective exercises may be relevant to consider.

DHAR – the Danish Hip Arthroscopy Register

175.

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Background: Hip arthroscopy as a treatment modality was included in the Danish Board of Health speciality plan in 2010 as a regional function.
Purpose / Aim of Study: The background was to make sure that surgeons performed a sufficient number of procedures to be proficient in this demanding type of surgery. 10 departments and clinics were allowed to perform hip arthroscopy. The Danish Society for Sportstraumatology and Arthroscopy (SAKS) supported the establishment of a national clinical registry for hip arthroscopy to be able monitor development and outcome of hip arthroscopy surgery. The purpose of present study is to present the Danish Hip Arthroscopy Register and data from the registry.
Materials and Methods: The registry opened February 1st 2012. Surgeons enter data on radiology and operative procedures. These are CE-angle, Alfa angle, labral and cartilage surgery, CAM and Pincer surgery, OR- and traction time, antibiotics and DVT prophylaxis. Extraarticular procedures and complications are noted. Patients enter Patients Related outcome Measures (PROM) preoperatively and at 1, 2 and 5 years follow-up. The following PROM are used: pain score at rest and after 15 min. Walk, iHOT12, HAGOS, EQ5D and HSAS score.
Findings / Results: Data from 554 procedures are included. 8 out of 10 departments have reported their operations. Mean number of surgeries was 77. Mean OR-time was 95 minutes and mean traction time 56 minutes. Mean CE-angle was 33 (15-65) and mean Alfa-angle 69 (30-108). 487 patients had a labral tear and 471 had labral surgery performed. The labrum was reinserted in 384 patients. The depth of bumpectomy for CAM was recorded (mean 4,4 mm's) and extent of the rimtrimming was 3,7 mm.
Conclusions: This descriptive report about the Danish Hip Arthroscopy Register shows that a National Register can give valuable details about hip arthroscopy surgery.

Tendon and skeletal muscle matrix gene expression and functional responses to immobilization and rehabilitation in young males: Effect of growth hormone administration

176.

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Background: Counteracting the loss of muscle and tendon function during periods of immobilization and recovery of this during rehabilitation represents a challenge in clinical medicine
Purpose / Aim of Study: The aim of the study was to examine the effect of growth hormone (GH) on connective tissue of tendon and skeletal muscle during immobilization and retraining in humans
Materials and Methods: Young men (20-30 years; n=20) were randomly assigned to daily recombinant GH (rhGH) (33-50µg/kg/d) or placebo (Plc), and had one leg immobilized for two weeks followed by six weeks of strength training. Cross sectional area (CSA), maximal isometric muscle strength (MVC) and biomechanical properties of m.quadriceps and patellar tendon were determined. Muscle and tendon biopsies were analysed for mRNA of collagen (COL 1A1/3A1), insulin-like growth factors (IGF-1Ea/Ec) and lysyloxidase (LOX).
Findings / Results: In skeletal muscle the CSA and MVC declined with immobilization, and recovered with rehabilitation similar in both groups. Likewise, both groups increased in IGF-1Ea/Ec and COL 1A1/3A1 expression in muscle during retraining after immobilization compared to baseline, and the rise was more pronounced when subjects received rhGH ($p<0.05$). The tendon CSA did not change during immobilization, but increased in both groups during six weeks of rehabilitation (GH: +17%, Plc: +11, $p<0.05$). A decline in tendon stiffness after immobilization was observed only in Plc ($p<0.05$), and an increase during six weeks rehabilitation was observed only in GH ($p<0.05$). IGF- 1Ea and COL 1A1/3A1 mRNA increased with immobilization in the GH group only ($p<0.05$), and LOX mRNA was after immobilization higher in the GH group vs. Plc ($p<0.05$).
Conclusions: In conclusion, GH stimulates collagen expression in both skeletal muscle and tendon and abolishes the normal inactivity related decline in tendon stiffness and in tendon LOX, and results in an increased tendon CSA and stiffness during rehabilitation. GH has a matrix stabilizing effect during periods with inactivity and rehabilitation in humans.

Outcomes of acute fixation of chondral lesions following patellofemoral dislocation

177.

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Background: Patellofemoral dislocation is often complicated by chondral lesions in the area of the lateral condyl or on the patella. Commonly, these lesions are unrecognized or left untreated, but in rare cases the avulsed chondral fragment has a size that makes fixation possible. However, it is still undisclosed whether this procedure benefits the patients.
Purpose / Aim of Study: This study aimed to evaluate the outcome of patients with chondral avulsion of the patella or the lateral condyl, treated with acute fixation after initial arthroscopy.
Materials and Methods: During a period of 5 years 10 patients with a mean age of 18 (range: 11-35) were treated with fixation. Time from trauma to operation was an average of 8 days (range: 1-24). Fibrin glue (Baxter, Deerfield, IL, USA) and resorbable nails (Smart Nail, ConMed, Utica, NY, USA) were used for fixation. Cross sectional evaluation of clinical status was performed using KOOS score and Lysholm Tegner score. In addition, fragment healing (cartilage height above 25% of normal) was assessed by MRI.
Findings / Results: Outcome evaluation was performed on 8 patients at an average of 54 month (range: 8-77) after surgery. Two patients declined to participate. In 6 patients (75%) clinical status was satisfactory and this was associated with fragment healing assessed by MRI.
Conclusions: Data suggest that acute fixation of chondral lesions after patellofemoral dislocation may be beneficial preventing complications and improving patient outcome.

Trochleaplasty in the treatment of severe patellofemoral instability

178.

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Background: Severe patellofemoral instability defined as a chronic dislocation or recurrent dislocations of patella combined with severe trochlear dysplasia result in deterioration of knee function. It seems logical to restore biomechanics of the patellofemoral joint (PFJ) to prevent this, but there are only few reports to support this.
Purpose / Aim of Study: In these patients our strategy since August 2009 is to identify all biomechanical pathologies of importance for PFJ function and restore each of them. We report our experience in patents who had a trochleaplasty (TP).
Materials and Methods: All patients defined as above had trochlea dysplasia and patella height measured on x-rays and TTTG distance, patellar tilting and PF cartilage condition visualized by MRI. 37 knees in 31 patients were scheduled for TP. In 8 cases it was decided peroperatively not to perform TP, in one because of cartilage degeneration and in 7 because dysplasia was less severe than expected. 29 had TP, 3 bilaterally. 24 also had a reconstruction of MPFL, 13 a medialisation and/or a distalisation of the tibial tuberosity and 2 a varus femoral osteotomy. Follow-up in 18 knees after 1 year and 11 after 2 years with Kujala score and MRI.
Findings / Results: Median age 23 y (range 15-39). 2/5 knees without MPFL reconstruction (MPFLR) had redislocations. After MPFLR was perfored the dislocations resolved. Three has arthroscopic lysis after 3-6 months because of arthrofibrosis. Mean Kujala score increased from 38 preoperatively, to 78 after 1 year and 87 after 2 years. MRI at 1 and 2 years showed normal signal of the trochlear cartilage in all cases. In 2 knees with permanent patellar dislocation this resolved completely.
Conclusions: The results were encouraging after 1 and 2 years with minimal complications and no sign of degeneration of the trochlear cartilage.

Incidence of arthroscopy-identified cartilage injuries of the knee and proportion leading to repair procedures– A nationwide Danish cohort study 1996-2011

179.

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Background: Data on the incidence of knee cartilage injury and time trend are sparse.
Purpose / Aim of Study: To validate the methods of identification of knee cartilage injury patients through arthroscopy procedure codes, and to estimate the incidence of arthroscopy- identified cartilage injuries and proportion of cartilage injuries leading to repair procedure.
Materials and Methods: We identified patients aged 15-60 years with incident knee arthroscopy from 1996-2011, without knee osteoarthritis using Danish National Registry of Patients (DNRP). Among these, we identified patients with knee cartilage injury based on procedure codes. Using the description of arthroscopy findings in medical records as gold standard, we computed the positive and negative predictive value (PPV and NPV) of procedure codes for knee cartilage injury in the DNRP. We calculated the incidence of arthroscopy-identified knee cartilage injury per 100,000 person-years (py) and proportion of these leading to repair.
Findings / Results: We identified 21,392 patients with knee cartilage injury. The PPV and NPV of knee cartilage injury codes were 88% and 99%, respectively, compared with description of arthroscopy findings. The overall incidence of knee cartilage injury was 40/100,000 py during 1996-2011. In total, 17% of cartilage injuries lead to repair procedures. We saw an increase in cartilage injury incidence over the 15 years time period especially for patients over 40 years. The age- standardized (to the 1996 population) annual incidence increased from 22/100,000 py in 1996 to 61/100,000 py in 2011.
Conclusions: The arthroscopy procedure codes in the DNRP are valuable source to identify knee cartilage injury patients. Incidence of knee cartilage injuries increased substantially during 1996-2011. Only one out of six patients with knee cartilage injury procedure code had repair procedure.

The influence of Patellar and Trochlear lesions on the results of anteromedial tibia tubercle osteotomy

180.

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Background: Patellofemoral pain can be a diagnostic and therapeutic challenge to any physician because the findings observed with or without the use of arthroscopy is not always the source of pain. Knowledge of the anatomy and biomechanics of the joint is essential to make a correct diagnosis and optimal treatment.
Purpose / Aim of Study: The aim of the study was to find the correlation between articular lesion in patella and trochlea with the outcome after anteromedial tibia tubercle osteotomy.
Materials and Methods: All patients who have been treated with Fulkerson osteotomy at our clinic in 2009- 2011 were included. 67 patients (71 knees) met the criteria for this retrospective study with a mean follow- op of 23 months. The average age at time of surgery was 33 years. Clinical assessment, radiographic studies and arthroscopy was used to evaluate malalignment and patellofemoral arthrosis. Detailed operative description and classification according to ICSR of the cartilage in patella and trochlea were available. The follow-up included Lysholm score, Kujala score and VAS score. The patients were asked about their pain and working capacity had decreased, unchanged or worsened after surgery and whether they would chose the same operation again.
Findings / Results: Overall 24(50%) of the patients said they would have the procedure done again. 44 % of the patients said that their knee pains were less than before the operation. 26% had no change in pains efter surgery, and 30% had a worse pain outcome than before surgery. Statistical analysis of the Kujala knee score and Lysholm score showed no significant differences between the different groups of patellar cartilage lesions.
Conclusions: We have not been able to show any statistical significant correlation between articular lesion in patella and trochlea with the outcome of anteromedial tibia tubercle osteotomy.

Comparison of Two Humeral Head Resurfacing Implants. 2 year Results of a Randomized Controlled Clinical Trial

181.

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Background: Humeral head resurfacing implants (HHRI) are used to preserve bone stock and restore normal anatomy in the osteoarthritic shoulder joint.
Purpose / Aim of Study: To examine the clinical results, implant migration and bone density changes in proximity of the Copeland (Biomet Inc.) and the Global C.A.P. (DePuy Int) HHRI.
Materials and Methods: 31 patients (12 females) mean age of 63 (39-82) years with shoulder osteoarthritis were randomly allocated to a Copeland (n=13) or Global C.A.P. implant (n=18). Post-op, 6, 12, 24 weeks 1 and 2 years migration of the implants was measured with radiostereometry (RSA). Bone mineral density (BMD) was measured with DXA. Pre-op, 3,6,12 and 24 months Constant Shoulder Score (CSS) and Western Ontario Osteoarthritis of the Shoulder Index (WOOS) were recorded.
Findings / Results: 2 patients were lost to follow-up and 5 implants were revised (3 Copeland, 2 Global C.A.P.) At 2 years total translation (TT) was 0.60mm (SD 0.41) for the Copeland and 1.01mm (SD 0.66) for the Global C.A.P. (p=0.18). Between 1 and 2 years TT for the Global C.A.P. increased (p=0.02) whereas the Copeland HHRI had no significant migration (p=0.15). At 6 months BMD had decreased from 0.59 to 0.42 g/cm2 (p=0.01) around the Copeland implant and from 0.44 to 0.37 g/cm2 (p=0.21) around the Global C.A.P. No differences between groups. Copeland: CSS increased from 57, 61, 71, 72, 77 and WOOS improved from 939, 645, 296, 295, 113. Global C.A.P: CSS increased from 35, 51, 65, 73, 73 and WOSS improved from 1088, 568, 383, 381, 300. Both groups improved significantly over time (p<0.01) with no differences between the groups.
Conclusions: No difference in TT between the groups. Bone was lost in proximity of both implants. Patient-assessed scores improved comparably in both Groups.

Clinical implications of positive cultures in revision shoulder arthroplasty

182.

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Background: During the recent years proprionibacterium acne is reported to be an common pathogen in shoulder surgery. We reviewed our revisions to judge if any change in diagnostic approach was needed
Purpose / Aim of Study: The aim of the study was to retrospectively evaluate the prevalence of positive cultures obtained at revision shoulder arthroplasty.
Materials and Methods: From January 2009 to December 2012 we revised 104 shoulder arthroplasties because of pain, stiffness and functional limitations. In 69 patients biopsies were cultured either because of suspected deep infection or as a routine precaution. All results from cultures and preoperative blood samples were recorded.
Findings / Results: Cultures were positive in 31 out of the 69 sample sets. The most frequent pathogen was Proprionibacterium Acnes, which was identified in 19 of the 31sets. In the remaining cultures a variety of pathogens were found, primarily of low virulence The main symptoms for patients with positive cultures especially of the Proprionibacterium subgroup were pain and stiffness and very rarely the classical signs of infection. Blood samples displayed normal CPR, ESR and leucocyte counts in many cases During revision surgery membrane formation around the prosthetic components, severe stiffness, cloudy fluid and osteolysis were associated with an increased likelihood of infection.
Conclusions: Proprionibacterium Acnes is a very common pathogen in revision shoulder arthroplasty and should be suspected in painful and stiff shoulders. Suspicion of deep infection is of clinical importance in decision making regarding prosthesis retention or removal and close collaboration with a microbiology department is important in detecting and treating these infections. . Selection of appropriate antibiotics treatment should take into consideration that propionibacteriae are among the most common pathogens.

Translation and validation of Western Ontario Osteoarthritis of the Shoulder Index (WOOS) – The Danish Version

183.

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Background: The Western Ontario Osteoarthritis of the Shoulder index (WOOS) is a patient- reported disease-specific questionnaire for measurement of the quality-of-life in patients with osteoarthritis.
Purpose / Aim of Study: The purpose of this study was to describe the process used to translate WOOS into Danish and to test the translation in a Danish population in terms of validity, reliability and responsiveness.
Materials and Methods: The translation of WOOS was done according to international standardized guidelines. The psychometric properties were tested in 20 consecutive patients. The eligibility criteria were a diagnosis of osteoarthritis without rotator cuff arthropathy treated with primary shoulder replacement. Patients were excluded only in case of other pathology of the upper extremity or in case of cognitive or linguistic impairment compromising the ability to complete the questionnaires.
Findings / Results: The Pearson's correlation coefficient between WOOS and Constant-Murley Score (CMS) preoperatively was 0.62, $P = 0.004$ and the correlation in change of score between WOOS and CMS was 0.73, $P<0.001$. The correlation coefficient between WOOS and CMS, SF-36 and Oxford Shoulder Score postoperatively was 0.82, $P<0.001$; 0.48 $P = 0.03$; and 0.82, $P<0.001$ respectively. There were no floor and ceiling effect. Cronbach Alpha was 0.98. Intra Class Correlation between test and retest was 0.96. The Standardized Response Mean was 1.41 and Effect Size 2.32.
Conclusions: We have shown that the Danish version of WOOS, translated according to international standardized guidelines, has substantial statistical and clinical psychometric properties at the same level as described for the original version.

Construct validity and responsiveness of functional measures used in subjects following an outpatient prosthetic rehabilitation program after a major lower limb amputation

184.

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Background: Subjects surviving a major lower limb amputation (LLA) are quite often provided with prosthesis for optimised function in daily life, but there is a lack of knowledge about the effect of rehabilitation programs, as to which tests to be used to show progress.
Purpose / Aim of Study: To examine construct validity and internal responsiveness of performance-based measures of functional mobility and endurance after LLA.
Materials and Methods: Eighteen subjects with a recent below knee amputation (BKA), and 15 with an above knee amputation (AKA), 6 women and 27 men with a mean age of 63.6 (SD, 12.4). All subjects followed a rehabilitation program (twice weekly), focused at improving balance, strength and prosthetic function, and performed the Timed Up and Go (TUG), the 10 meter fast speed walking test (10MWT) and 2 minute walking test (2MWT) at baseline and at end of the program. Pearson´s r assessed construct validity, while internal responsiveness was assessed by calculating the effect size I (ESI) as the mean change in performance scores / by the baseline SD, and effect size II (ESII) as the mean change in scores / by the SD of changes.
Findings / Results: The three outcome measures were highly correlated ($r>0.66$, $P<0.001$) after the program, while effect size was high to medium; 10MWT (ESI 1.03, ESII 1.06), 2MWT (ESI 1.0, ESII 1.15) and TUG (ESI 0.63, ESII 0.94). Performances improved from 39-99% and subjects with a BKA performed all tests significantly faster ($P=0.01$) than those with an AKA. Eleven subjects walked 1.0 m/s or faster at end of training.
Conclusions: Construct validity and internal responsiveness of the three measures were high, and is recommended be used by other centres. Still, only one third walked faster than 1m/s, supporting the need for studies examining the effect of e.g. progressive strength training for improvements.

Pneumococcal sepsis-induced Symmetrical Peripheral Gangrene

185.

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Background: Symmetrical Peripheral Gangrene - SPG (also known as Purpura Fulminans) caused by Streptococcus pneumonia (SP) is an uncommon, though very severe and potential lethal complication to septicemia.
Purpose / Aim of Study: To describe our experience with patients with SPG.
Materials and Methods: Between 2003 and 2013 eleven patients SPG due to SP where treated at Aarhus University Hospital. Patient's files were retrospectively studied regarding clinical status, predispositions, multi-organ involvement, days of admission, surgical treatment and prostheses status.
Findings / Results: Eleven patients, median age 55 years (range 38-71 years) admitted with septicemia developed SPG. Four patients had earlier undergone splenectomy and one patient had no spleen, due to SLE. Six were smokers and only one patient had no obvious predisposing conditions. SP sensitive to penicillin was found in blood samples in all patients. All had purpura and eight had skin necrosis of lips and nose. All patients received high doses of penicillin and intensive care, three patients died during hospitalization, one prior to surgical intervention. Ten patients required extensive surgical intervention resulting in four humeral-, four antebrachium-, 28 digits and hand- , four femoral-, three through knee-, eleven crural and one toe amputations. Nine patients underwent dialysis and seven received vasopressors. Median time from onset of symptoms to amputation was 21,7 days (range 5- 100 days). After a protracted rehabilitation period six patients were mobilized on bilateral leg prostheses. One patient became wheelchair bound.
Conclusions: Symmetrical Peripheral gangrene is a serious complication to Streptococcus pneumonia septicaemia with at high mortality- and complication rate with risk of extensive amputations, resulting in long admissions and loss of daily functions.

Ultrasound guided core needle biopsy of peripheral nerve sheath tumors. A retrospective study

186.

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Background: Surgical biopsies have until recently been the preferred method for diagnosis of tumors arising form peripheral nerve tissue. Ultrasound guided core needle biopsy (UGCNB) has within the last few years been introduced in diagnosis of these tumours. Fewer complications, less unpleasantness for the patients, faster recovery, and quicker diagnostic work-up have been reported.
Purpose / Aim of Study: The aims of the study were to identify causes of UGCNB complications, to evaluate diagnostic strength of UGCNB in terms of grading between benign and malignant specimens, and finally, to describe time consumption using this diagnostic method.
Materials and Methods: We retrospectively reviewed 69 patients who underwent UGCNB between January 2004 and December 2012. Complications due to the procedure were assessed. Sensitivity, specificity; positive predictive value (PPV) and negative predictive value (NPV) were calculated based on the current dataset. Furthermore, time from referral to final diagnosis was calculated.
Findings / Results: A single patient described mild pain after the procedure, which resolved after 2 days. No permanent injuries were reported. In 82% of the cases, UGCNB was able to distinguish between malignant and benign material. Sensitivity was 0.8, specificity was 1.0, PPV was 1.0, and NPV was 0.97. Mean time from referral to UGCNB was 7 days (range 0-43 days). Mean time from UGCNB until the final diagnosis was 7 days (range 1-21 days).
Conclusions: UGCNB of PNST is a safe method. However, UGCNB cannot stand alone in the clinical work-up due to the risk of false negative results. The results shows, that time from referral to decision of treatment is acceptable and in accordance with the National Danish Cancer Patient Pathway for soft tissue sarcomas.

Local Recurrence Rate after Surgical Excision of Desmoid Fibromatosis

187.

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Background: Surgical treatment of desmoid fibromatosis is still the standard treatment but oncologic treatment with medicine or radiation therapy is increasingly applied.
Purpose / Aim of Study: To determine the local recurrence rate among surgically excised desmoid fibromatosis.
Materials and Methods: We retrospectively assessed all tumours (34 patients (F/M = 25/9, mean age 38 (12 – 67) years)) of the extremities, spine and trunk wall (abdominal wall/ other locations=13/21) with the histology desmoid fibromatosis surgically excised at our clinic between 1995 and 2005. Patients primarily operated on in other clinics or operated on for a local recurrence were excluded. Data were extracted from the patient files and from the Danish National Pathology Registry (DNPR). Statistics: Data are presented as mean (range). Kaplan Meir survival analysis.
Findings / Results: Mean tumor size was 6.1 (2-15) cm and the surgical margins obtained were: wide (n=28), intralesional (n=3) or inconclusive (n=3). 7 patients had a local recurrence 21.5 (5-51) months after initial tumour excision (mean DNPR follow-up for patients without recurrences was 119 (96-220) months) corresponding to a probability of 5-year local recurrence free survival of 79%. Local recurrences were seen in 6 patients with wide margin and 1 patient with intralesional margin. The majority of local recurrences were seen in patients with tumours of the extremities and paraspinal location (n=5) and 2 abdominal wall tumour recurred.
Conclusions: Overall the treatment seemed reasonable with a 79% probability avoiding local recurrences after 5 years. The recurrences did not seem to depend on the surgical margin, thus a less aggressive approach not always aiming at wide tumour resection could be considered.

Persistent wound drainage after tumor resection and endoprosthetic reconstruction the proximal femur

188.

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Background: Persistent post-operative wound drainage is associated with an increased incidence of periprosthetic infection and occurs in about 4% of conventional total hip arthroplasties. Similar data is not available for endoprosthetic reconstruction of the proximal femur after tumor resection.
Purpose / Aim of Study: To determine the duration of postoperative surgical wound drainage, administration of antibiotics and date of discharge, and to establish if a change in the wound closure routine could improve these variables.
Materials and Methods: We performed a retrospective review of all adult patients (n=41, mean age = 63 (37-86) years) who received a proximal femoral tumor arthroplasty in our department in 2012 and collected similar data prospectively from 2013 (n=5, mean age = 72 (54-86) years), where routine wound closure with staples was substituted with intradermal suture, application of Steristrips and an occlusive skin adhesive (Liquiband Flex).
Findings / Results: In 2012 mean duration of post operative wound drainage was 8 (2-45) days, mean duration of administration of postoperative antibiotics was 8.2 (1-45) days and mean hospital stay was 9.4 (3-45) days. Nineteen (45%) had prolonged wound drainage (7 days or longer). The preliminary first 5 patients, who underwent skin closure with a skin adhesive, all had dry wounds at the first scheduled post operative dressing change (mean 2.9 (2-4) days), mean duration of post operative administration of antibiotics was reduced to 3.6 (2-7) days and mean hospital stay was reduced to mean 6.5 (3-10) days.
Conclusions: Our small sample showed a high prevalence of prolonged drainage from the surgical site. A simple change in the wound closure routine appears to show a promising reduction in wound drainage, postoperative antibiotic administration, and hospital stay. Further studies are warranted.

Computer assisted 3D navigation for minimally invasive bone tumor biopsy and resection

189.

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Background: Three dimensional computer navigation enables the surgeon to intraoperatively verify and confirm the precise location of intraosseous bone lesions and helps achieve adequate, representative tissue samples and/or resection margins, even with a minimally invasive approach, without obvious compromise in patient safety and surgical accuracy.
Purpose / Aim of Study: To share our initial experience with computer navigation using the O-arm in selected muskuloskeletal tumor cases.
Materials and Methods: We performed six minimally invasive open biopsies and/or resections of intraosseous musculoskeletal tumors, using intraoperative 3D computer navigation (Medtronic Stealth Station and O-Arm). All lesions were located in anatomically challenging locations, with no anatomical landmarks available to safely and adequately guide a conventional open procedure. Of five intraosseus lesions, four were located in the os ilium and one in the proximal tibia. The remaining bone tumor was an osteochondroma of the proximal fibula in close proximity to all 3 neurovascular bundles, which was resected in its entirety using navigated osteotomy.
Findings / Results: All procedures could be successfully completed through limited, minimally invasive approaches and conversion to a larger open approach was not required in any case. All biopsies yielded adequate material for pathological diagnosis and histological examination confirmed that the desired margin of resection was achieved in all cases.
Conclusions: Our initial experience with 3D computer navigation confirms that accurate biopsy and resection of intraosseous bone lesions appears feasible through minimally invasive approaches, without compromising patient safety and surgical accuracy, even in anatomically difficult locations.

Testing A New Type Of Osteosynthesis And After Care – In Treatment Of Antebrachium Fractures in Children, Preliminary Result Of A Prospectiv Case-Control Study

190.

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Background: Fractures of the lower arm in children are the most common, comprising about 40% of all pediatric fractures. Generally there is consensus regarding treatment, but the displaced distal dia-metaphyseal fractures (DDMF) are there no apparent adequate surgical option. A new type of combined internal elastic nail and external fiksation (MIROS@) was applied in 10 patients compared with 10, age and fracture type matched, children.
Purpose / Aim of Study: To compare MIROS@ to the conventional osteosynthesis methods in treatment of children with DDMF of the antebrachium.
Materials and Methods: The prospective case-control study including 20 children, age 4-15, operated on with standard treatment - with elastic nails / Kirschner wires or MIROS@ for DDMF. Follow-up at 3 month after removal of osteosynthesis material including x-rays of both antebrachii, systematic testing of bilateral range of motion, visual analogue pain scale and strength measurements.
Findings / Results: There were minor differences in clinical and radiological outcome after 3 month follow up. Operating for insertion and removal time of the MIROS was faster with a smaller surgical incision. All Miros@ had a plaster-cast-free aftercare.
Conclusions: MIROS@ is as good as conventional osteosynthesis methods at 3 month follow- up, though having advantages – faster operating time, less surgical scaring, faster removal, no plaster cast and early movement of elbow-/ wrist-joints. However, prospective randomized trials should be performed.

Normal distribution of seating balance for healthy Danish children

191.

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Background: Measurement of seating balance is a promising method for analysis and evaluation of children's seating balance in relation to orthopedic conditions such as hip dislocation and scoliosis. Furthermore seating balance can be used to evaluate postural control in children with neurodevelopmental diseases such as Cerebral Palsy.
Purpose / Aim of Study: To develop a normal distribution of seating balance in healthy Danish Children for comparison with children with orthopedic disorders.
Materials and Methods: Sixty-six children aged 7-14 years from the 1th, 3 th, 5th and 7th levels were included at a Danish primary school after informed consent were obtained. Tekscan CONFORMat Research was used and the measurements of seating position were analyzed with the Tekscan Sway Analysis Module. Three consecutive measurements of both normal seating and seating in up-right position were used to calculate the average result for each of the 5 parameters of balance. The percentage of pressure distribution on the left and right side were calculated.
Findings / Results: Data were stratified according to age, weight and height. For the 1th level (n=15) two of five parameters for balance showed improvement in the up-right position (pÐ0,0003, pÐ0,013) and primarily for females. Furthermore a significant correlation was found between seated balance and both height and weight. Statistical analysis with STATA 11 was used, and Spearman correlation and students t- test was calculated.
Conclusions: We measured the effect of BMI, age, gender and back position on seating balance and have established a normal distribution for seating balance in healthy Danish children. This normal distribution can be used as reference data for comparison of seating balance in children with orthopedic disorders in a clinical setting.

Hamstring lengthening in CP patients by needle tenotomy is safe

192.

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Background: Crouch gait among CP patients are caused by hip and knee flexion contractures. Crouch gait can be treated by lengthening of the hamstrings. Hamstring lengthening is usually done by open surgery.
Purpose / Aim of Study: This study examines whether there is any statistical significant difference between making hamstring lengthening by open surgery or by hypodermic needle tenotomy.
Materials and Methods: Data were collected retrospectively by looking through medical records. 59 patients (93 limbs) were included in this study and all the patients had undergone hamstring lengthening. The population was subdivided into two groups. Group 1 (44 patients, 65 limbs) had their hamstring lengthened by tenotomy with a hypodermic needle. Group 2 (15 patients, 28 limbs) had their hamstring lengthened by open surgical procedure.
Findings / Results: Of the 44 patients in group 1 there was one adverse effect. This patient had pain postoperatively in the lateral hamstring on the operated leg. Of the 15 patients in group 2 there was one adverse effect as well. This patient experienced pain around the area of the ischiadic tubercle. In group 1 there was one relapse in the follow up period and in four situations the surgical procedure had no effect. In group 2 there was no effect of the surgical procedure in two cases.
Conclusions: There was no statistical significant difference (0,5>p>0,25) between the rate of complications in the two groups. Furthermore there was no statistical difference on the missing effect or relapse of the surgical procedure between the two groups. Hamstring lenthening by hypodermic nedle tenotomy is safe and outcome is comparable to open surgery; is easy to perform in supine position and thus offers perioperative evaluation of the effectiveness of the lenthening.

Normal distribution of standing balance for healthy Danish children

193.

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Background: Pedobarographic measurements are increasingly used in children with orthopedic disabilities undergoing surgical procedures. Recent technology provides usable sway analysis of balance parameters but a normal distribution for the standing balance of healthy children is not available.
Purpose / Aim of Study: Firstly, to assess standing balance in healthy Danish children using pedobarographic sway analysis. Secondly, to establish a reference for comparison of balance in children with orthopedic disorders.
Materials and Methods: Sixty-six children aged 7-14 years from the 1 th , 3 th, 5th and 7th levels were included at a Danish primary school after informed consent was obtained. The Tekscan F-scan Research was used and the pedobarographic measurements were analyzed with original Sway Analysis Module software. Three consecutive measurements on standing pedobarograms was used to calculate the average result with eyes open and eyes closed for each of the 5 parameters of balance. Demographic data such as age, height and weight were obtained from each child.
Findings / Results: A positive correlation was observed between two of five balance parameters for both Body Mass Index (BMI) (pÐ0,0008) and age (pÐ0,0001). Three of five balance parameters were significantly worsened with closed eyes compared to open eyes (pÐ0,0000) especially for the younger levels. In general females had a significantly better balance than males with open and closed eyes.
Conclusions: We measured the effect of BMI, age, gender and visual information on standing balance and have established a normal distribution for standing balance in healthy Danish children. This normal distribution can be used as reference data for comparison with children with orthopedic disorders.

Radiographic results of Dega's Transiliac Osteotomy in children with subluxation and dislocation of the hip joints

194.

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Background: Hip dislocation in children with spasticity is a severe problem associated with pain, development of severe contractures, windswept deformity, and scoliosis. The primary cause of the dislocation is muscle imbalance. Strong flexors and adductors across the hip overpower the abductors and extensors muscles causing the rotational center of the joint to move from the center of the femoral head to the lesser trochanter. As a result, the hip joint is destabilized and is thus more likely to dislocate. Here, we report radiographic results of 84 children, most of them with cerebral palsy who were treated for a hip dislocation or subluxation. This was done with a soft tissue release, femoral osteotomy, and the Dega osteotomy. This evaluation can be used for adjusting current interventions concerning subluxation and dislocation in children.

Purpose / Aim of Study: A detailed analysis of the operational effects on radiological parameters was measured before surgery, after surgery, and at follow up. Furthermore, we subdivided the Dega operations in accordance to the release preformed on the soft tissue in order to evaluate the effect of these procedures on the radiological parameters

Materials and Methods: All patients who have undergone pelvic osteotomies between 1988 and 2013 were selected. The radiological x-ray measurements before surgery, days after surgery, and on the most recent x-ray were obtained from each patient. X-ray parameters were assessed using the picture archiving and communication system (PACS) computer system. The assessments were done by the same person.

Findings / Results: X-ray parameters improved immediately after the operation.

Conclusions: In conclusion, treatment with soft tissue release, femoral osteotomy, and the Dega osteotomy can keep the joint in place and is a nessity especially in children with cerebral palsy.

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