



SCOLIOSIS:

Treatment Demonstration

Presenter: James M. Cox, DC, DACBR, FICC, FIANM(Hon), HonDLitt
Date: June 5, 2020

1

Scoliosis Part 1

Recording available online

2

McAvinney J1, Roberts C2, Sullivan B2, Alevras AJ2, Graham PL3, Brown BT4,5. The prevalence of adult de novo scoliosis: A systematic review and meta-analysis. Eur Spine J. 2020 May 22. doi: 10.1007/s00586-020-06453-0. [Epub ahead of print]

- THE PREVALENCE OF ADULT DE NOVO SCOLIOSIS: A SYSTEMATIC REVIEW AND META-ANALYSIS INDIVIDUALS AGED < 60 YEARS HAD A PREVALENCE OF 13% WHEREAS THE PREVALENCE ESTIMATES WERE SUBSTANTIALLY HIGHER IN THE > 60 AGE GROUP 36%
- PRIMARY DEGENERATIVE SCOLIOSIS IS A HIGHLY PREVALENT CONDITION, ESPECIALLY IN FEMALES. FURTHER RESEARCH TARGETING THIS TYPE OF SCOLIOSIS IS REQUIRED TO OBTAIN MORE PRECISE GLOBAL PREVALENCE ESTIMATES AND TO UNDERSTAND THE INFLUENCE OF AGE AND SEX.

3

Dai F1, Yu PF1, Liu JT1, Jiang H1. [A 5 year follow-up study on non-surgical treatment of ruptured lumbar disc herniation]. Zhongguo Gu Shang. 2020 May 25;33(5):414-9. doi: 10.12200/j.issn.1003-0034.2020.05.005. [Article in Chinese]


- NON-SURGICAL TREATMENT OF RUPTURED LUMBAR DISC HERNIATION CAN ACHIEVE GOOD RESULTS
- 75 CASES WERE STUDIED. THE LESIONS WERE LOCATED AT L3,4 IN 4 CASES, AT L4,5 IN 29 CASES, AT L5S1 IN 42 CASES. RADIATION PAIN IN 46 CASES ON THE LEFT AND 29 CASES ON THE RIGHT.
- ACCORDING TO JOA SCORE, THE RESULTS WERE EXCELLENT IN 26 CASES, GOOD IN 26 CASES, FAIR IN 14 CASES, POOR IN 5 CASES, AND THE EXCELLENT AND GOOD RATE WAS 73.24%. THE VOLUME OF PROTRUSION DECREASED FROM (1 981.73±588.72) MM³ TO (1 011.82±395.47) MM³. THE TOTAL ABSORPTION RATE WAS (45.65±2.83)%. THE PROTRUSION WAS OBVIOUSLY ABSORBED IN 24 CASES, PARTIALLY ABSORBED IN 26 CASES, NOT ABSORBED IN 19 CASES, AND INCREASED IN 2 CASES

4



Minetama, Masakazu PT, PhD; Kawakami, Mamoru MD, PhD; Teraguchi, Masatoshi MD, PhD; Kagotani, Ryohei MD, PhD; Mera, Yoshimasa MD; Therapeutic Advantages of Frequent Physical Therapy Sessions for Patients With Lumbar Spinal Stenosis. *SPINE*: June 1, 2020 - Volume 45 - Issue 11 - p E639-E646


- **THERAPEUTIC ADVANTAGES OF FREQUENT PHYSICAL THERAPY SESSIONS FOR PATIENTS WITH LUMBAR SPINAL STENOSIS.**
- **SIX WEEKS OF SUPERVISED PT TWICE A WEEK RESULTED IN SIGNIFICANT SHORT-TERM IMPROVEMENTS IN SYMPTOM SEVERITY, PHYSICAL FUNCTION, BACK AND LEG PAIN, AND GAIT DISTURBANCE COMPARED WITH ONCE A WEEK AND/OR HOME EXERCISE ALONE. PATIENTS WITH LSS SHOULD BE TREATED WITH INTENSIVE AND SUPERVISED EXERCISE PROGRAMS TO OBTAIN MAXIMUM BENEFIT OF EXERCISE THERAPY.**



5

Spears CA1, Hodges SE1, Kiyani M1, Yang Z2, Edwards RM1, Musick A1, Park C1, Parente B1, Lee HJ2, Lad SP1. Healthcare Resource Utilization and Management of Chronic, Refractory Low Back Pain in the United States. *Spine (Phila Pa 1976)*. 2020 May 21. doi: 10.1097/BRS.0000000000003572. [Epub ahead of print]


- 100 MILLION PATIENT CLAIMS SHOWED 56000 HAD PERSISTENT LOW BACK PAIN DESPITE CONVENTIONAL MEDICAL CARE AND NOT SURGICAL CANDIDATES. 33,664 (60.2%) PATIENTS ENGAGED PHYSICAL THERAPY, 28,016 (50.1%) ENGAGED CHIROPRACTORS, AND 14,488 (25.9%) HAD STEROID INJECTIONS. 36,729 (65.7%) PATIENTS USED PRESCRIPTION PAIN MEDICATIONS, MOST COMMONLY OPIOIDS (N=31,628, 56.5%) AND MUSCLE RELAXANTS (N=21,267, 38.0%).
- CONTRARY TO LBP MANAGEMENT GUIDELINES, MOST PATIENTS USED OPIOIDS, AND SEVERAL NON-PHARMACOLOGIC THERAPIES WERE USED BY ONLY A FEW PATIENTS.



6

Tian G, Shen MR, Jiang WG, Xie FR, Wei WW. Case-control study on spinal leveraging manipulation and medicine for the treatment of degenerative scoliosis]. *Zhongguo Gu Shang*. 2015 Jun;28(6):508-11


- To compare clinical effects of spinal leveraging manipulation and medicine for the treatment of degenerative scoliosis in pain and function.
- **RESULTS:** After treatment, VAS score in manipulation group was (5.38±0.99), (6.36±1.31) in medicine group.
- Cobb angle between manipulation group (16.51±4.89)° and medicine group (19.85±5.03)
- ODI score between manipulation group (20.20±2.93) and medicine group (26.01±3.11).
- **CONCLUSION:** Spinal leveraging manipulation for degenerative scoliosis could regulate muscle balance on both side of spine, correct coronal imbalances in spine, recover normal sequence of spine, reduce and remove oppression and stimulation of nerve root, relieve pain in leg and waist and further improve quality of life.



7

Faraj SSA1, Haanstra TM1, Martijn H1, de Kleuver M2, van Royen BJ1. Functional outcome of non-surgical and surgical management for de novo degenerative lumbar scoliosis: a mean follow-up of 10 years. *Scoliosis Spinal Disord*. 2017 Dec 5;12:35. doi: 10.1186/s13013-017-0143-x. eCollection 2017.

- **FUNCTIONAL OUTCOME OF NON-SURGICAL AND SURGICAL MANAGEMENT FOR DE NOVO DEGENERATIVE LUMBAR SCOLIOSIS AT 10 YEAR FOLLOW UP SHOWED NO SIGNIFICANT DIFFERENCE IN FUNCTIONAL OUTCOME**
- **NON-SURGICAL MANAGEMENT OF PATIENTS WITH DNDLS MAY LEAD TO ADEQUATE FUNCTIONAL OUTCOME AFTER LONG PERIODS OF TIME, WITH NO CROSSOVER TO SURGERY**




8



Bao H, Zhu F, Liu Z, et al. Coronal curvature and spinal imbalance in degenerative lumbar scoliosis: disc degeneration is associated. *Spine (Phila Pa 1976)*. 2014;39(24):E1441-E1447. doi:10.1097/BRS.0000000000000603


- SPINAL IMBALANCE IN DEGENERATIVE DISCS AND LUMBAR SCOLIOSIS IS DUE TO DECREASED THORACIC KYPHOSIS LUMBAR LORDOSIS. WITH SAGITTAL MALALIGNMENT, THIS PROVIDES INSIGHT INTO REASONS FOR LOW QUALITY OF LIFE IN ELDERLY PATIENTS WITH DEGENERATIVE LUMBAR SCOLIOSIS



9

Kobayashi K1, Ando K1, Nakashima H1, Machino M1, Morozumi M1, Kanbara S1, Ito S1, Inoue T1, Yamaguchi H1, Mishima K1, Ishiguro N1, Imagama S1. Scoliosis Caused by Limb-Length Discrepancy in Children. *Asian Spine J*. 2020 May 21. doi: 10.31616/asj.2019.0374. [Epub ahead of print]


- LLD IS A COMMON PEDIATRIC CONDITION THAT CAN CAUSE SCOLIOSIS OF THE SPINE. SEVERE SCOLIOSIS MAY DEVELOP IF THE LLD IS ≥ 30 MM. LONG-TERM STUDIES ARE NEEDED TO EXAMINE THE EFFECT OF LLD RESOLUTION ON THE ELIMINATION OF SCOLIOSIS.



10

Tomoki Oshikawa, Gen Adachi, Hiroshi Akuzawa, Yu Okubo, Koji Kaneoka. Change in Regional Activity of the Quadratus Lumborum During Bridge Exercises. *J Sport Rehabil*. 2020 Apr 22;1-9. doi: 10.1123/jsr.2019-0225. Online ahead of print.


- THE QUADRATUS LUMBORUM (QL) IS EXPECTED TO CONTRIBUTE TO SEGMENTAL MOTOR CONTROL OF THE LUMBAR SPINE TO PREVENT LOW BACK PAIN. IT HAS DIFFERENT LAYERS (ANTERIOR [QL-A] AND POSTERIOR [QL-P] LAYERS), WHOSE FUNCTIONAL DIFFERENCES ARE BECOMING APPARENT. HOWEVER, THE DIFFERENCE BETWEEN THE QL-A AND QL-P ACTIVITIES DURING BRIDGE EXERCISES UTILIZED IN REHABILITATION IS UNCLEAR. THESE RESULTS HAVE IMPLICATIONS FOR THE REHABILITATION OF LOW BACK PAIN OR LUMBAR SCOLIOSIS PATIENTS BASED ON QL RECRUITMENT.



11

Abdulmonem Alsiddiky 1, Rheema Alfadhil 1, Maram Al-Aqel 1, Noura Ababtain 1, Norah Almajed 1, Khalid Bakarman 1, Waleed Awwad 1, Raheef Alatassi . Assessment of Serum Vitamin D Levels in Surgical Adolescent Idiopathic Scoliosis Patients. *BMC Pediatr*. 2020 May 11;20(1):202. doi: 10.1186/s12887-020-02114-9.

- MOST ADOLESCENT IDIOPATHIC SCOLIOSIS PATIENTS HAD INSUFFICIENT SERUM VITAMIN D LEVELS AND ALSO SUFFERED FROM LOW BONE MINERAL DENSITY AT AN EARLY AGE.



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THORACOLUMBAR SCOLIOSIS



- This 58 year old white female is seen for the chief complaint of low back and pelvic pain. Note that there is a thoracolumbar right scoliosis with relatively good disc space maintenance. There is L3-L4 degenerative disc disease.
- No other treatment has helped with patient except long Y-axis decompression and distraction, Cox® manipulation. We will demonstrate its use.



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76 y/o female with BILATERAL LOWER EXTREMITY burning pain for 10 years.

- Note: levoscoliosis with Left L5-S1 facet joint arthrosis and L3-4 advanced disc degeneration and right sided ankylosis



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Note dextroscoliosis with Left L5-S1 facet arthrosis

- Remember osteoporosis increases with degenerative scoliosis
- Patient cannot lie on her stomach due to pain
- Treated side lying with long y axis distraction and flexion and/or supine with pelvis on caudal section of the table and long y axis distraction is given while lateral flexion into the right lumbar rotatory scoliosis.
- Side lying, bilateral tetanizing current is applied to the convexities of this spine curve.
- Patient is on 2000 mg of perna canaliculus GLYCOSAMINOGLYCAN a day (Discat Plus)



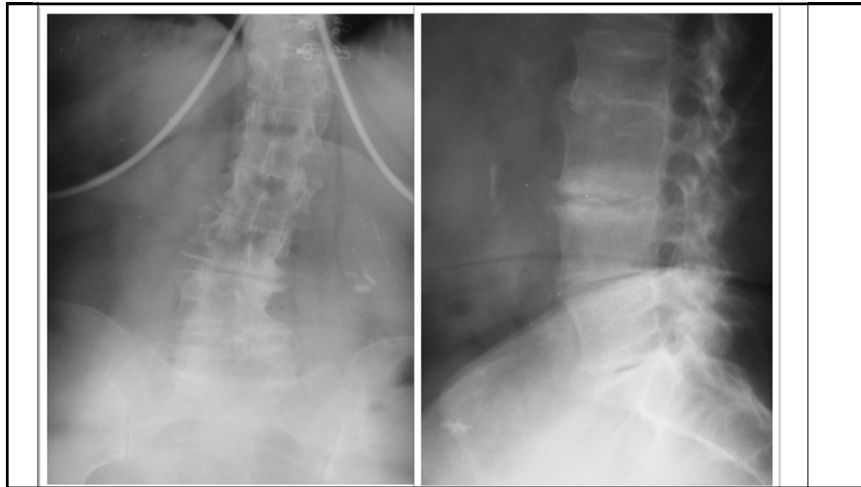
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78 year old female with low back and bilateral leg pain and weakness. DEGENERATIVE LUMBOTHORACO SCOLIOSIS


Dextrorotatory lumbar scoliosis of lumbar spine with levoscoliosis of the thoracic spine. Advanced DDD with vacuum is seen in the lumbar spine with grade III vertebral body rotation. Patients notes loss of height.



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Case 142 POST SURGICAL CONTINUED PAIN PATIENT

*FBSS. PLEASE CONSIDER OUR SPINAL
MANIPULATION TO DECIDE IF IT MAKES SENSE
AND CAN HELP YOUR PATIENT. JMC*


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History

- This case shows the marked change in the spine following decompression laminectomy and fusion of the lumbar spine. This female patient had marked bilateral sciatic pain due to spinal stenosis as shown in Figures 1 to 7. The pain was of the intensity that she could not sleep at night nor perform usual activities of daily living.



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Figure 1



- the anteroposterior plain x-ray study showing the scoliosis and discogenic changes responsible for the spinal stenosis and resultant sciatic radiculopathy shown on MRI.



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Figure 2

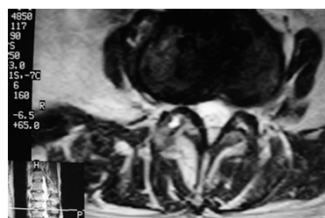


- the sagittal MRI view of the lumbar spine and shows the disc degeneration and posterior multilevel disc protrusion, discogenic spondylosis, and ligamentum flavum hypertrophy causing multilevel spinal stenosis.



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Figure 4

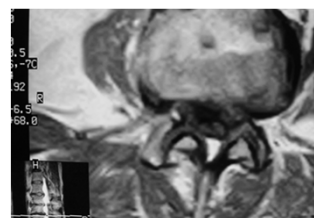


- an axial MRI image at the L3-L4 level showing endplate hypertrophy causing bilateral osseoligamentous foraminal stenosis with facet arthrosis and ligamentum flavum hypertrophy resulting in posterior and lateral stenosis of the vertebral and osseoligamentous canals. Hyperintensity within the bilateral facet joints and ligamentum flavi are noted suggesting synovial cyst change.



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Figure 5



- another axial L3-L4 image showing endplate hypertrophy bilaterally at the posterolateral vertebral body causing bilateral foraminal stenosis. The facet arthrosis and ligamentum flavum hypertrophy contribute to the stenosis by narrowing the posterior vertebral and foraminal areas.



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Figure 7



- the bilateral hip replacements preceding the onset of the stenotic symptoms. This did restrict the distraction force that could be applied to this spine when attempting to relieve the stenosis lower extremity generated pain.



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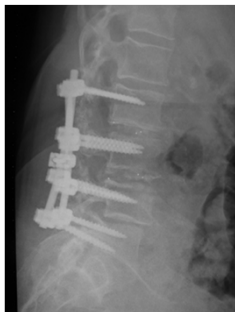
Treatment

- Flexion distraction decompression gave her some early relief, but within two years the pain progressed, and epidural steroid injections were given without relief. A pain control electrical stimulator was implanted into her spinal cord without relief.
- With no help from conservative means, the patient sought care at the Cleveland Clinic where images in figures 8 and 9 show the spine post-surgically. It is a remarkable correction of the scoliosis. This decompressive surgery gave the patient relief of her sciatic pain although back pain persisted.



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Figure 8



- the plain sagittal xray showing the increased disc space height and decompression laminectomy with spinal bolt and rod fusion as well as intertransverse bone fusion. The restoration of disc height is remarkable.



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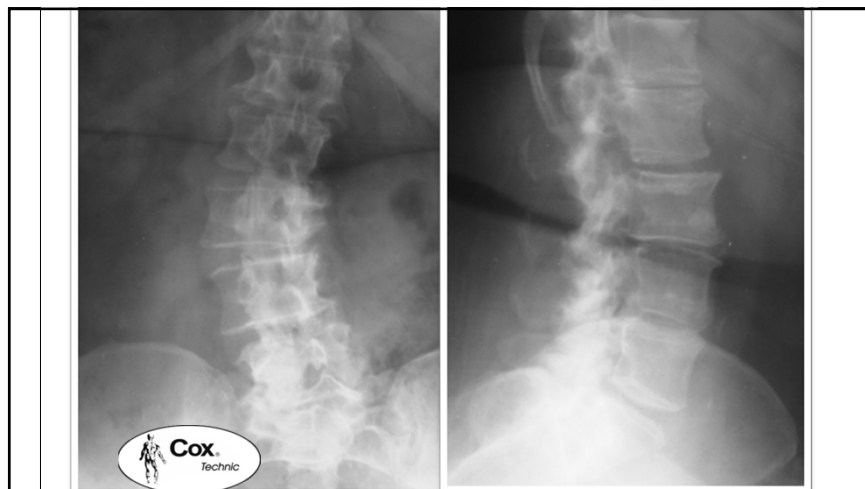
Figure 9



- the rod and bolt fusion with the intertransverse process bone fusion.
- Note the decompressive laminectomies at the L2-3, L3-4, and L4-5 levels and straightening of the scoliosis.




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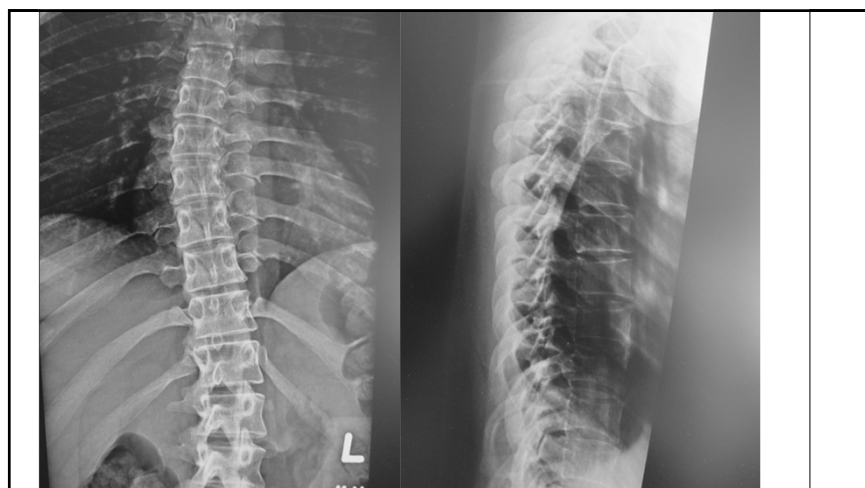
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Good example of degenerative scoliosis

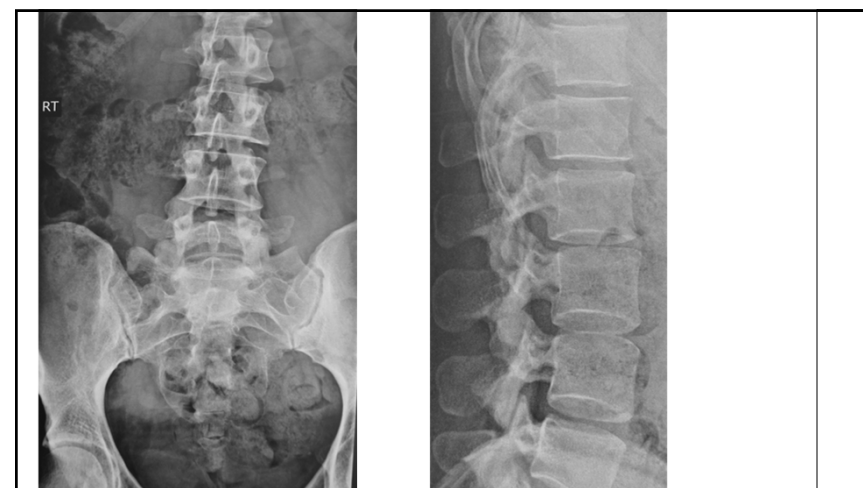
- Treatment includes:
 1. Attended long y axis distraction under tolerance testing with contacts at the T10 level progressively caudal to the L5-S1 segment.
 2. At relief of 30% or more, unattended long y axis distraction is given
 3. Convex side electrical stimulation is applied during or after distraction manipulation
 4. Mehta and Schroth exercises are given with instruction to do in clinic during distraction spine manipulation and at home with assistance.
- Supplementation with Discat Enhanced Chondroitin and Glucosamine Sulfate, B vitamins, Calcium Citrate and if subacute pain Tumeric Root



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