

Vikas V. Patel MA, MD

Personal history or biographical sketch

Professor, Chief of Orthopaedic Spine Surgery, Department of Orthopaedic Surgery;
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Education

The Spine Institute at St. John's Hospital, Santa Monica, California
Spine Surgery Fellowship, Rick Delamarter, Hyun Bae, Ed Dawson Aug. 2003-July 2004
University of California, San Francisco Department of Orthopaedic Surgery
Internship, General Surgery 1997-1998
Residency, Orthopaedic Surgery 1998-2003
Washington University School of Medicine, St. Louis Missouri
Masters in Biomedical Sciences 1997
Doctor of Medicine 1992-1997
University of Illinois, Champaign-Urbana Illinois
Bachelor of Science, Mechanical Engineering 1987-1991
Technical University of Munich, Munich, Germany
Engineering 1989-1990

Academic appointments

Professor, Chief of Orthopaedic Spine Surgery, Department of Orthopaedic Surgery,
July 2014 to present
Associate Professor, Chief of Orthopaedic Spine Surgery, Department of Orthopaedic Surgery,
June 2009 to July 2014
Assistant Professor, Orthopaedic Spine Surgery, Department of Orthopaedic Surgery, September
2004 to May 2009
Graduate Faculty, University of Colorado Denver, Bioengineering, March 2014 to present
Faculty: AO North America, 2008 to present

Hospital, government or other professional positions

University of Colorado Health Sciences, Chief of Orthopaedic Spine Surgery
Consultant – Synthes: Cervical spine fusion product development.
Consultant – Biomet Spine: Lumbar spine fusion product development.
Consultant – Cerapedics: Biologic spine fusion product development.
Consultant – Aesculap: Pedicle screw system development
Consultant – Lanx: Spine surgical practice teaching and medical
Consultant – Allosource: Clinical trial design

Engineer – Baxter Healthcare Renal Division, Chicago Illinois 1991-1992
New Product Development
Robotic Production Equipment Design

Honors, special recognitions and awards

Becker's Orthopedics and Spine: Ten Spine Surgeon Leaders of Academic Medicine to Know
Best Poster Presentations, North American Spine Society Annual Meeting 2010
WhiteCloud Award for Best Basic Science Paper: SRS International Meeting of Advanced Spine
Techniques, 2010
Russell A. Hibbs Award for Best Basic Science Paper 43rd Annual SRS 2008

John H. Moe - Best Basic Science Award, Scoliosis Research Society 2004
Cervical Spine Research Society Top 10 Poster Award, 2008
AAOS Basic Educator's Course Scholarship 2002
The Dames Prize for Cell Biology
Master's in Biomedical Science Scholarship and Stipend, Washington University
Bone and Joint Decade Young Investigator's Recipient
University of Colorado Hospital Inspired Kindness Award 2011
Minor: Strathmore's Who's Who in America 2007, 2008, 2009, 2010
America's Top Orthopedists, 2009, 2010, 2011, 2012
Best Doctors in America: 2011
Marquis Who's Who 2010, 2011, 12
Who's Who in Science and Engineering, 2012.
Colorado Biz, Best Doctors, 2012
Nominated: Best Paper SICOT 2010
Scoliosis Research Society Travelling Fellowship 2013
University of Colorado Hospital Pioneer Award 2014
Becker's Spine Review: 28 Spine Leaders at Academic Medical Centers 2014

Membership in professional organizations

American Academy of Orthopaedic Surgery
Colorado Medical Society
Scoliosis Research Society
Western Orthopaedic Association
AO North America
American Association of Neurologic Surgeons
Society International of Orthopaedic Surgery and Traumatology
American Orthopaedic Association

Committee and Service Responsibilities

University/Institutional

Member Orthopedic Department Faculty Research Committee
Member Orthopedic Department Marketing Committee
Member Spine Center Leadership
Spine Fellowship Co-Director
Resident Spine Surgery Rotation Co-Director
Resident Spine Core Curriculum Educational Director
Research Advisory Committee
Clinical Leadership Committee Task Force for Quality, Safety and Process Improvement
Physical Therapy Scholarship Advisory Board Member
Development Committee for Office of Clinical Research

National/International

Scoliosis Research Society: Research Grant Committee 2010 – Present
Scoliosis Research Society: IMAST Program Committee 2014 - Present
AO Biologics Committee 2010-Present
North American Spine Society: Public Relations Committee 2009 - 2015
North American Spine Society: Biologics Committee 2010 - 2015
North American Spine Society: Research Committee 2011 – 2015
American Pain Association: Board Member 2016 - Present

Clinical Service

Spine Center, University of Colorado Hospital
Orthopedic Call Coverage, University of Colorado Hospital
Spine Team Surgical Medical Director
University of Colorado Hospital in-patient Spine Service
Denver Health Spine Trauma and Spine Clinic
Denver Veteran's Hospital Call Coverage

Volunteer Activity

Orthopaedics Overseas: Umtata South Africa, Oct 2001
Rotary International, India Polio Follow Up and Gujarat Earthquake, Jan 2001
Operation Rainbow, Huehuetenango, Guatemala, 2003
University of Colorado Biomedical Engineering Society, Medical Advisor 2011, 2012, 2013
Indo-American Spine Alliance (IASA) 2014 – present

Licensure and board certification

Medical License, Colorado, active: 2004-Present. California, active: 1998-2004, retired 2004
Board Certification: American Board of Orthopedic Surgeons 2006-present

Inventions, intellectual property and patents held or pending

Yakacki, C. Carpenter, D. **Patel, V.** Noshchenko, A. 2014. Porous, Patient-Specific Interbody Fusion Cages with Enhanced Loading Characteristics to Reduce Subsidence. US Patent Application 62/026,678, Filed July 31, 2014. Patent Pending.

Editor, Review and Referee work

Associate Editor: Orthopedics
Reviewer: Spine
Reviewer: Orthopedics
Reviewer: Clinical Orthopedics and Related Research
Reviewer: Medical Engineering and Physics
Reviewer: Current Orthopaedic Practice
Editorial Board: Orthopedics
Editorial Board: Orthopedics Today
Editorial Board: Spine Surgery Today
Grant Reviewer: National Medical Research Council, Singapore 2009-2011, 2014, 2015
Program Reviewer: Medical Education Resources 2011
NASS Abstract Reviewer, Annual Meetings 2010 and 2011, 2012, 2015
SRS Abstract Reviewer, Annual Meeting 2014, 2015
IMAST Abstract Reviewer, Annual Meeting 2014, 2015

Invited extramural lectures, presentations and visiting professorships***Local***

Physical Therapy Core Curriculum Lecture Oct 2004
Physical Medicine and Rehabilitation Core Curriculum Lecture Dec. 2004
Neurosurgery Core Curriculum Lecture – Biologics Oct. 2006
University of Colorado Grand Rounds:
Artificial Disc Replacement 2005
Geriatric Medicine Grand Rounds Oct. 2006:
The Aging Spine

Resident Course March 2007
 Treating the Aging Spine
 Physical Medicine and Rehabilitation Department Core Curriculum May 2008
 Spine Surgery Indications and Treatments
 Department of Rheumatology Fellow Lecture Series Feb 2007, 2008.
 Spine Surgery Review
 Resident's Spine Course, Degenerative Lumbar Spine, May 2008
 Lumbar Spine Case Discussion Leader
 University of Colorado OR Personnel 04/2009
 Spine Surgical Approaches
 University of Colorado, Dept. of Mechanical Engineering, Medical Device Design
 Course Lecture 02/23/2010
 Orthopedic Resident Core Curriculum Jan 2011
 Primary and Metastatic Spine Tumors
 Department of Rheumatology, Rheumatology and Spine Surgery
 Lecture 3/29/11.
 Department of Bioengineering Spine Section Course BIOE 5011
 Lectures and Practical Workshop, 3/29-3/31/11
 Low Back Pain's Missing Piece – Diagnosing the Sacroiliac Joint, Jan. 24, 2011
 Orthopaedic Surgery and Regenerative Medicine, Yesterday and Today, Gates Center, March 22, 2012.
 Bioengineering PhD Program, BIOE 5041 Lecturer, April 2012: Spine Surgery
 Grand Rounds for the Department of Neurosurgery, University of Colorado, August 13, 2013
 Department of Rheumatology, Rheumatology and Spine Surgery Lecture, University of Colorado, May 6, 2015

Regional

Colorado State University, Dept. Mechanical Engineering Nov. 2005:
 Spine Biomechanics
 Colorado Spine Symposium, 16th Annual: Biomechanical Evaluation of Floating and Fixed Center of Rotation Total Disc Replacements: Facet Joint Loads Nov 2005
 16th Annual Colorado Spine Symposium Nov. 4, 2005: Biomechanics of Artificial Disc Replacement
 Radiology Technologist's Review 2005:
 Spinal Disorders Review
 Colorado State University, Dept. Mechanical Engineering Nov 2006, 2007, 2008, 2009
 Spine Biomechanics
 Colorado Spine Symposium, 18th Annual: Sept 2007
 Trans-1 Screw Fixation
 Channel 7 Colorado and Company, Denver CO, 2005
 Anterior Spinal Fusion
 Channel 7 News, Denver CO, 2007
 Interspinous Spacer Minimally Invasive Surgery
 Channel 7 News, Denver CO, 2008
 Minimally Invasive Anterior Fusion and Physician Education
 Channel 7 News, Denver CO, 2008
 Lumbar Spinal Disc Replacement
 Rocky Mountain Resident's Forum 05/2009
 Hemostasis in Spine Surgery, TLIF/PLIF demonstration, Cases
 Rocky Mountain Resident Forum: Treatments in Thoracolumbar Trauma
 Biomechanics of Thoracolumbar Fixation. Cadaver Demonstration, Lab Instructor

Colorado State University, Dept. Mechanical Engineering Nov. 2010:
 Spine Biomechanics
 Fox News, January 2012, Intraoperative Computer Assisted Surgical Navigation
 Channel 9 News, Denver CO, July 3, 2013
 Back Pain Procedure Offers Less Pain Shorter Recovery time
 Fox 31 News, Denver, CO, January 17, 2014
 Community Rallies Around Colorado Crossfit Athlete Paralyzed During Competition
 Fox 31 News, Denver, CO, January 18, 2014
 Community Bands Together to be “Ogar Strong” for Paralyzed Crossfit Athlete
 Associated Press, January 28, 2014
 Super Bowl Marks Milestone for Manning
 Channel 7 News, Denver, CO, June 9, 2014
 Colorado’s Olympic Swimmer Amy Van Dyken-Rouen Severed Spine in ATV Crash
 Denver Post, Denver, CO, June 9, 2014
 Amy Van Dyken-Rouen, 6-Time Olympic Gold Medalist, Severs Spinal Cord in ATV Crash
 Fox 31 News, Denver, CO, June 10, 2014
 A Closer Look at Amy Van Dyken’s Spinal Cord Injury
 Vail Symposium, Vail CO, January 28, 2016
 Stem Cells: Exploring the Research Perspective

National

AO OR Personnel Course – Spine Surgery May 21-22, 2005: Anterior Lumbar Plating
 Synthes Resident and Fellows Course – Cervical Spine Trauma Oct 15-16, 2005:
 Biomechanics of Cervical Spine Trauma
 Case Discussion Leader
 Table Instructor
 Synthes Resident and Fellows Course – Degenerative Lumbar Spine May 15-16, 2005:
 Biomechanics of Lumbar Spine
 Lumbar Spine Degeneration
 Case Discussion Leader
 Table Instructor
 Colorado Family Medicine Review Course Nov. 4, 2005:
 Minimally Invasive Spine Surgery
 Fall Orthopaedic Summit – Section Director: Minimally Invasive Surgery; September 15-17, 2005:
 Minimally Invasive Spine Surgery
 Colorado Family Practice Review Nov. 2005
 New Spine Technology for Primary Care
 Colorado Family Practice Review May. 2005
 New Spine Technology for Primary Care
 AO North America National Resident’s Spine Course Nov 2007
 Spinal Biomechanics
 History and Physical, Imaging and Diagnostics
 Case Discussion Leader
 Table Instructor
 AAOS Maintenance of Certification Course Nov 2007
 Pain Management
 Trauma: Cervical, Thoracic, Lumbar
 Spinal Cord Injury and Rehabilitation
 Spinal Infection

ProDisc-L National Physician Training, Jan 2008
 Design Rationale
 Table Instructor
 DePuy National Spine Fellows Course
 Table Instructor
 ProDisc-L National Physician Training, Jan 2008
 Design Rationale
 Complications
 Table Instructor
 AAOS Maintenance of Certification Course Nov 2008
 Pain Management
 Trauma: Cervical, Thoracic, Lumbar
 Spinal Cord Injury and Rehabilitation
 Spinal Infection
 AO North America National OR Personnel Course 2008
 Course Co-Chairman, Spine Section
 Cervical Surgical Anatomy
 Lumbar Degenerative Disease
 Society of Air Force Clinical Surgeons 04/2009
 Hemostasis in Spine Surgery: State of the Art
 Disc Replacement and Motion Preservation Update
 1st Annual Operating Room Spine Course, Sept. 2009
 Course Chairman. Course for operating room personnel
 AAOS Maintenance of Certification Course Nov 2009
 Trauma: Cervical, Thoracic, Lumbar
 Spinal Cord Injury and Rehabilitation
 Spinal Infection
 Colorado Family Medicine Review Course June 2010
 Low Back Pain
 Colorado Family Medicine Review Course October 2010
 Low Back Pain
 AAOS Maintenance of Certification Course Nov 2010
 Trauma: Cervical, Thoracic, Lumbar
 Spinal Cord Injury and Rehabilitation
 Spinal Infection
 John McCulloch Memorial 19th annual Winter Spine Conference
 Visiting Professor. Lecture: Lumbar Pseudarthrosis, Feb 2011
 Sacroiliac Joint Surgery Society, 1st annual meeting, 2/2012: Pre-operative protocol with discussion.
 Sacroiliac Joint Surgery Intraoperative Navigation, University of Colorado 2/28/2012 and 5/16/2012
 American Association of Orthopedic Surgery, Maintenance of Certification Course, 2012 Section Director
 American Association of Orthopedic Surgery, Maintenance of Certification Course, 2012 Lectures: Spine Trauma
 Cutting Edge MD TV Series, 6th Episode – Herniated Disc, Fox Sports Network, 2014
 SI Bone National Training Course, Minimally-Invasive Sacroiliac Fusion with the iFuse Implant System, lecture and live surgery, February 7, 2014
 The Winter Clinics for Cranial and Spinal Surgery, Experience with the Minimally Invasive Sacroiliac Fusion from a Lateral Approach, February 25, 2014

Washington Post Blogs, Washington, DC, June 10, 2014
 Olympic Swimmer Amy Van Dyken Severs Spine in ATV Accident
 USA Today, Englewood, CO, October 16, 2014
 Injury to Nervous System Doesn't Mean End of an NFL Career
 AAOS Maintenance of Certification Course December 2014
 Lumbar Degenerative Diseases
 Cervical Degenerative Diseases
 Spinal Cord Trauma and Spinal Cord Injury
 Spine Deformity and Special Considerations
 Bacterial Spine Infections
 AAOS Maintenance of Certification Course December 2015
 Lumbar Degenerative Diseases
 Cervical Degenerative Diseases
 Spinal Cord Trauma and Spinal Cord Injury
 Spine Deformity and Special Considerations
 Bacterial Spine Infections
 Stryker Spine MedED Resident and Fellow Cervical and Lumbar Education, March 12, 2016
 Cervical Surgical Techniques
 Cervical Case Presentations
 Lumbar Indications for Surgery
 Lumbar Case Presentations
 Stryker Spine MedED The Great Debate: Advanced Techniques and Training, May 20, 2016
 Diagnosis and Treatment Options for Juxtafusion Disease in a Patient with Flat Back Syndrome, Presentation 1 & 2
 Miller Orthopedic Surgery Board Review Part II, May 30, 2016
 Spine Surgery Sub-Specialty Highlight Lecture and Mock Presentations
 AAOS Maintenance of Certification Preparation and Review Course November 19, 2016
 Spine Infections
 Thoracic and Lumbar Trauma
 AAOS Maintenance of Certification Preparation and Review Course December 1-3, 2016
 Degenerative Conditions Lumbo - Spine
 Degenerative Diseases Cervical Spine
 Spinal Trauma
 Spine Deformity, Infections Involving the Spine

International

North American Spine Society: PreCourse Spine Biologics and Research:
 Biologics for the Treatment of Spinal Disorders, Oct 2007
 Tissue Engineering and Regenerative Medicine Annual Meeting: Porto, Portugal, 2008
 Clinical and Basic Science Interactions of Fibrin Glue and Bone Morphogenetic Protein
 North American Spine Society: PreCourse Spine Pain Management:
 Discogenic and Psychologic Pain, Oct 2008
 Woordul Hospital Group, Seoul Korea, Feb 2009
 Hemostasis in Spine Surgery
 AO Spine TK Users Group Meeting 2009
 Case Presentations
 North American Spine Society Annual Meeting, 2009
 Spine and Sports Symposium: Implications for the Senior Athlete, How does competitive sport affect surgical decision making in multilevel cervical disease
 American College of Spine Surgeons, Annual Meeting June 2010

Lumbar Pseudarthrosis
 Indian Medical Association, Mehsana, India Oct 12, 2010
 Low Back Pain
 Asia Pacific Orthopedic Association: Taipei, Taiwan, Nov 4-6, 2010
 Symposium, Hemostasis in Spine Surgery
 Advanced Techniques for Complex Spinal Resection and Reconstruction: A Hands-on Human
 Anatomic Specimen Course: August 3-4, 2012 (AO)
 North American Spine Society 2012 Annual Meeting: Biologics Pre-Course Chairman
 North American Spine Society 2012 Annual Meeting: Thoracolumbar Complications of rhBMP-2
 Use
 North American Spine Society 2012 Annual Meeting: Growth Factors in Spine Surgery
 North American Spine Society 2012 Annual Meeting: Breaking Developments in Surgical Biology
 North American Spine Society 9th Spine Summit, Feb 28-March 2, New Technology Symposium
 Presenter/Chair: SI joint fusion
 North American Spine Society Webinar: Potential Risks of rh-BMP-2 Use in Spine Surgery,
 August 21, 2013
 SRS Traveling Fellowship: Pitfalls and Prevention of Complications in Adult Deformity Surgery,
 Istanbul Turkey, Nizhniy Novgorod, Bristol United Kingdom, Lyon France, August 30 to
 September 17, 2013
 North American Spine Society: Section on Biologics and Basic Research Webinar Series: BMP:
 Risk Management Strategies, August 21, 2013
 SRS Traveling Fellowship: Spinal Fusion: Optimizing the Mechanical Fixation to Meet the Biology
 of the Patient, Istanbul Turkey, August 30, 2013
 SRS Traveling Fellowship: Modern 3-D Imaging and Computer Navigation in Spine Surgery,
 Zurich Switzerland, September 13, 2013
 North American Spine Society 2013 Annual Meeting: Section on Biologics and Research: Stem
 Cell Procedures, Cell Enhanced Allografts (Osteocell, Trinity) Are as Good as BMP and
 Cheaper: Con, October 9, 2013
 North American Spine Society 2013 Annual Meeting: Section on Biologics and Basic Science:
 Update on rhBMP-2: Current Usage, YODA Findings and Risk Management, October 11, 2013
 AO Spine Latin America Symposium – Bone Biomaterial: BMP the Good and the Bad, Mexico
 City, Mexico, June 14, 2014
 AO Spine Latin America Symposium – Bone Biomaterial: BMP or DBM? A New Step In-between:
 Cellular Allografts, Mexico City, Mexico, June 14, 2014
 Association of Spine Surgeons of India Visiting Professor Bharati Didyapeeth University Medical
 College, Department of Orthopedic Surgery, January 20 – 21, 2015
 Association of Spine Surgeons of India: Cervical, Thoracic and Lumbar Spine Trauma, Bharati
 Didyapeeth University Medical College, Department of Orthopedic Surgery, January 21, 2015
 Pune Spine Society: Lumbar Pseudoarthrosis, Pune India, January 22, 2015
 Association of Spine Surgeons of India Annual Meeting (ASSICON): Dynamic Stabilization for
 Multilevel Degenerative Disc Disease, Pune India, January 24, 2015
 The International Society for the Advancement of Spine Surgery 2015 Annual Meeting: TDR vs.
 Fusion Panel, San Diego, California, April 16, 2015
 The International Society for the Advancement of Spine Surgery 2015 Annual Meeting: Spine Talk
 – Treatment of L4-5 Degenerative Spondylolisthesis (Moderator), San Diego, California, April
 16, 2015
 Essentials In Spine: Spinal Osteotomies, An Advanced Level BioSkills Experience: Thoracolumbar
 Osteotomies – Principles of Different Types of Osteotomies with Decision Making, Bangalore,
 India, September 19, 2015

- Essentials In Spine: Spinal Osteotomies, An Advanced Level BioSkills Experience: Cadaveric Demonstration: Thoraco-Lumbar PSO and SPO (Ponte's) – Surgical Technique (Positioning to Closure), Tips and Pearls, Bangalore, India, September 19, 2015
- 2nd International Extreme Sports Medicine Congress, Spine Injuries in the Extreme Sports Athlete: Treating the tingling, June 10, 2016
- 2nd International Conference on Sacroiliac Joint Surgery and annual meeting: Statistical shape modelling of the SIJ, Hamburg, Germany, September, 16, 2016
- 2nd International Conference on Sacroiliac Joint Surgery and annual meeting: Different revision techniques after a failed SIJ fusion - How do we accomplish fusion in case of a pseudoarthrosis and when do we switch one method for another? Hamburg, Germany, September, 17, 2016
- 2nd International Conference on Sacroiliac Joint Surgery and annual meeting: Lateral based system, iFuse, Hamburg, Germany, September, 17, 2016

Teaching record

- Orthopedic Resident Core Curriculum Spine Section Director 2004 - Present
- Orthopedic Resident Spine Surgery Clinical Education Section Director: 2004-Present:
Supervision, bedside teaching, outpatient clinic teaching, surgical teaching 24 hours/week.
- Fellowship Director for Spine Surgery Fellowship 2008 - present. Co-developed the fellowship starting in 2007 and obtained ACGME accreditation in 2010.
- Orthopedic Resident Spine Trauma Course Director and Lecturer for weekly lectures: Aug-Nov 2005
- Monthly Spine Journal Club, co-organizer and frequent moderator/
- Physical Medicine and Rehabilitation Resident Elective Clinical Instructor: 2 week blocks of clinical and surgical teaching twice / year
- Physical Medicine and Rehabilitation Spine Fellow Elective Clinical Instructor: 6 week block 2007
- Rheumatology Fellow Elective Clinical Instructor: 6 week block 2006.
- Primary Care Physician CME Accredited Evening Lecture Series: Developed, directed, and administered monthly lecture series for the 12 months of 2005.
- Primary Care Physician CME Accredited Webcast Lecture Series: Developed, directed, and administered monthly lecture series via interactive web based format allowing access from anywhere in world. Jan 2006 – Present.
- Developed Spine Surgery Resident Rotation Guideline Packet
- Posterior Cervical Fixation, Director, cadaver workshop March 2005
- Mentored 2 resident projects, 1 medical student, 1 engineering student
- Compiled and Developed patient education packets for pre-surgery education
- Medical School Orthopedics 6620 class lecturer, 2005, 2006, 2007, 2008, 2009
- Medical Student Clinical Education in Spine Center: Regular students rotating in clinic
- Developed National Teaching Program for physician education for minimally invasive anterior spinal fusion surgery technique, Trans-1
- Mentored Scholarly Activity mentor for medical school students, Engineering Students and residents:
- Dale Cassidy, Laura Brown, Aris Sophocles, Scott Golembeski, Alex Yaszemski, Blake Sherman, Matt McCullough, Whitney Strom, Liz Robinson, Grant Armour, Sami Jaafar, Brianna Patti, Ryan Farmer, Patrick Obrien, Doug Kasow, Mike Zimkowski, Morgan Hill, Alireza Hemmati, Yalda Nazeri, Brett Matoian, Damian Illing, Cameron Barton, Kenneth Milligan, Chris Johnson, Ben Saccamano, Ryan Martyn
- Thesis Committees
- Mike Zimkowski: MA and PhD (CU) 2009-2011
- Nina Vollmer: PhD (Mines) 2010-2013
- Lillian Chatham: MA (CU Bioengineering) 2014

Maria Bortot: MA (CU Bioengineering) 2014
 Anna Laura Nelson: MA (CU Bioengineering) 2014
 Ryan Arce: MA (CU Bioengineering) 2015
 James R. Bardill: MA (CU Bioengineering) 2015
 Madia Stein: MA (CU Bioengineering) 2016
 Judge for University of Colorado, Denver Research and Creative Activities Symposium, 2010
 Developed National Teaching Program for Operating Room Personnel education in spine surgery.
 Presented 11/2009, 6/2010, 7/2010,
 Bioengineering PhD Program, BIOE 5041 Lecturer
 North American Spine Society 2012 Annual Meeting: Biologics Pre-Course Chairman
 NASS 9th Spine Summit, Feb 28-March 2, New Technology Symposium Presenter/Chair: SI joint fusion
 Cervical Spine Anatomy, Feb 20, 2013
 Cervical Spine Anatomic Dissection and Surgical Procedure Lab, Feb 20, 2013
 Rocky Mountain Medical Technology Conference, Feb 25, 2012, Medical Advisory Board,
 University of Colorado, Boulder, School of Engineering
 CU Biomedical Engineering Society, medical advisor, 2011-present
 Co-Chair AAOS Maintenance of Certification Course

PEER REVIEWED GRANTS

1. A Double Blind, Placebo-Controlled Crossover Study Comparing the Analgesic Efficacy of Cannabis versus Oxycodone, PI Emily Lindley, Investigator, Colorado Department of Public Health and Environment (CDPHE) Medical Marijuana Research Grant 2016-2019 \$743,122
2. Bioscience Discovery and Evaluation Grant, PI DaeWon Park, CI, Colorado Office of Economic Development and International Trade, 2014-2015
3. Porous, Patient Specific Interbody Fusion Cages with Enhanced Loading Characteristics, CI, National Institute for Arthritis and Musculoskeletal and Skin Diseases for 2014-2016, 3% effort, \$176,125
4. Revitalization of Bone Allograft with Induced Pluripotent Stem Cells to Enhance Spinal Fusion, CI Musculoskeletal Transplant Foundation, 2/1/2014 to 1/31/2015, 3% effort, \$100,000
5. Fellowship Grant in Spine Care for 2015-2016, PI, Globus Medical, Industry, 8/1/2015 to 7/31/2016, 1% effort, \$67,022
6. Fellowship Grant in Spine Care for 2014-2015, PI, OMeGA, Industry, 8/1/2014 to 7/31/2015, 1% effort, \$15,000
7. Fellowship Grant in Spine Care for 2013-2014, PI, OREF, Industry, 8/1/2013 to 7/31/2014, 1% effort, \$31,290
8. Fellowship Grant in Spine Care for 2012-2013, PI, OREF, Industry, 8/1/2012 to 7/31/2013, 1% effort, \$34,324
9. Fellowship Grant in Spine Care for 2011-2012, PI, OREF, Industry, 8/1/2011 to 7/31/2012, 1% effort, \$54,250
10. Fellowship Grant in Spine Care for 2011-2012, PI, Synthes, Industry, 8/1/2011 to 7/31/2012, 1% effort, \$32,500

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11. Fellowship Grant in Spine Care for 2010-2011, PI, OREF, Industry, 8/1/2010 to 7/31/2011, 1% effort, \$69,500
12. American Association of Hip and Knee Surgeons, 2002, Three Dimensional Morphologic and Kinematic MRI Analysis of the Knee. \$25,000
<http://www.aahks.org/member/research/AAHKSResearchGrantsandAwardRecipients.asp>

NON-PEER REVIEWED GRANTS

1. DuraSeal TM Exact Spine Sealant System Post Approval Study, PI, Integra Life Sciences Corporation, Industry, 9/29/2014 to 9/28/2017, 5% effort, \$36,393
2. Cervical Stim Retrospective (CDA – Orthofix Cervical Stim Retrospective Protocol), PI, Orthofix, Inc., Industry, 9/2/2014 to 9/1/2017, 5% effort, \$83,457
3. Odontoid: Safety and Efficacy of Pulsed Electromagnetic Fields (Cervical Stim) as an Adjunct to Enhanced Union, PI, Orthofix, Inc., Industry, 3/2/2015 to 2/15/2018, 5% effort, \$10,433
4. Retrospective Study Evaluating the Efficacy of the Orthofix Spinal-Stim Bone Growth Stimulator in Patients Who Have Undergone Lumbar Fusion Surgery with Adjunctive Use of the Spinal-Stim Device, PI, Orthofix, Inc., Industry, 9/5/2015 to 9/14/2018, 5% effort, \$18,900
5. A Phase 2b Randomized, Double-blind, Placebo Study to Evaluate the Safety and Efficacy of Staphylococcus, PI, Pfizer, Inc., Industry, 5/5/2015 to 5/1/2018, 5% effort, \$10,099
6. Prospective, Concurrently Controlled, Multi-Center Study to Evaluate the Safety and Effectiveness of the Spinal Kinetics M6-C Artificial Cervical Disc Compared to ACDF for the Treatment of Symptomatic Cervical Radiculopathy, PI, Spine Kinetics, Inc., Industry 2/15/2015 to 2/15/2018, 5% effort, \$16,099
7. Three dimensional accuracy of Stealth Surgical Navigation with O-Arm Imaging, PI, Medtronic Sofamor-Danek, Industry, 12/29/2011 to 1/17/2015, 3% effort, \$63,504
8. Activ-L Artificial Disc. CT, PI, Aesculap, Inc., Industry, 11/28/2007 to 7/31/2015, 5% effort, \$1,180,140
9. Biomechanical Cervical Disc Replacement Facet Force, PI, Synthes, Industry, 6/1/2011 to 9/30/2013, 3% effort, \$47,397
10. Investigation of Sacroiliac Fusion Treatment – INSITE - CT, PI, SI Bone, Industry, 12/4/2012 to 12/3/2016, 3% effort, \$54,904
11. ISSIS Clinical Trial, PI, Vertiflex, Industry, 3/2/2009 to 7/31/2016, 5% effort, \$524,219
12. The Relationship between Sagittal Plane Correction and Quality of Life in Adult Deformity Patients Treated with Posterior Instrumentation-CT, CO-I, Medicea, Industry, 7/31/2012 to 7/31/2016, 3% effort, \$49,107

13. Biomechanical Evaluation of Anterior Cage-Plate Fixation (ALIF cage and ATB Plate or Synfix) Versus Iliac Screws with TLIF., CO-I, Synthes, Industry, 5/1/2012 to 5/01/2015, 3% effort, \$53,063
14. Effects of vitamin D deficiency on lumbar spine fusion and the role of rhBMP-2, CO-PI, Medtronic, Industry, 11/15/2012 to 11/14/2014, 1% effort, \$28,932
15. Validation of a New Sacroiliac-Joint Specific Disability Questionnaire, CO-I, SI Bone, Industry, 3/4/2012 to 3/3/2015, 1% effort, \$48,834
16. Rabbit Study Protocol CR-055: P-15 ABM Formulations in a Rabbit Femur Drill Hole Healing Study, PI, Cerapedics, Industry, 4/1/2009 to 12/31/2009, 3% effort, \$23,048
17. Evaluation of Blood Platelet Concentrate Methodology with ABM/P-15., PI, Snoasis Medical, Industry, 2/1/2010 to 5/31/2010, 3% effort, \$10,240
18. In vitro biomechanical evaluation of adjacent level facet joint forces relative to pedicle screw head size, PI, Aesculap, Industry, 1/1/2005 to 12/31/2005, 3% effort, \$19,841
19. Inflammatory effects of BMP with protective and bone limiting effects of Fibrin Glue, PI, Medtronic, Industry, 2/3/2006 to 4/30/2009, 3% effort, \$21,055
20. Post market Surveillance of Clinical and Functional Outcomes with Post-Operative Adjunctive use of Cervical-Stim aor Spinal Stim, PI, Orthofix, Industry, 6/1/2008 to 5/31/2011, 3% effort, \$18,849
21. A Clinical evaluation of cervical STIM and Spinal-STIM, PI, Orthofix, Industry, 1/27/2006 to 1/26/2009, 3% effort, \$2,050
22. BMP Diffusion from a Novel Bone Graft Substitute, PI, Globus Medical Inc., Industry, 7/5/2007 to 7/4/2008, 3% effort, \$9,435
23. EBI'S Lumbar Anterior Plate System, PI, Biomet, Industry, 4/16/2007 to 4/15/2008, 3% effort, \$15,873
24. Facet force relative to disc degeneration and disc replacement, PI, Synthes, Industry, 5/31/2007 to 8/31/2008, 3% effort, \$31,577
25. The effect of auto claving on metal memory, PI, DePuy, Industry, 8/1/2007 to 12/31/2008, 3% effort, \$6,000
26. Fellowship Grant in Spine Care for 2011-2012, PI, OREF, Industry, 8/1/2011 to 7/31/2012, 1% effort, \$54,250
27. Fellowship Grant in Spine Care for 2008-2010, PI, Synthes, Industry, 9/1/2008 to 8/31/2010, 1% effort, \$121,837
28. Fellowship Grant in Spine Care for 2010-2011, PI, Synthes, Industry, 9/1/2010 to 8/31/2011, 1% effort, \$65,000

29. EPhysical Capacity Outcomes Study PD-L and ALIF, PI, Synthes, Industry, 11/20/2009 to 10/31/2011, 3% effort, \$15,407
30. Synthes ED Support, PI, Synthes, Industry, 1/1/2011 to 1/31/2011, 1% effort, \$2,600.
31. Retrospective Multicenter Clinical Evaluation of Fusion and Complications for Single Lvl AxiaLIF and ALIF Subjects, PI, Trans 1, Industry, 4/27/11 to 12/31/2012, 3% effort, \$31,561
32. Synthes AO Spine, PI, Synthes, Industry, 8/1/2012 to 8/30/2012, 1% effort, \$1,500
33. Lanx Aspen Spinous Process Clamp CT, PI, Lanx, Industry, 09/21/2012 to 9/20/2015, 3% effort, \$7,240
34. Skull to sacrum course, PI, Medtronic, Industry, 4/1/2013 to 4/8/2013, 1% effort, \$2,000
35. Nubac Disc Arthroplasty, CO-I, Pioneer Surgical Company, Industry, 7/1/2009 to 6/30/2012, 3% effort, \$26,678
36. Facet Force Disc Degen/Metal Memory, Co-PI, Showa Ika Kohgyo Co. LTD, Industry, 10/1/2007 to 12/1/2008, 3% effort, \$70,453

CLINICAL TRIALS

1. Activ-L Artificial Disc. CT, PI, Aesculap, Inc., 11/28/2007 to 7/31/2015
2. Investigation of Sacroiliac Fusion Treatment – INSITE - CT, PI, SI Bone, 12/4/2012 to 12/3/2015
3. ISSIS Clinical Trial, PI, Vertiflex, 3/2/2009 to 7/31/2016
4. Validation of a New Sacroiliac-Joint Specific Disability Questionnaire, CO-I, SI Bone, 3/4/2012 to 3/3/2015
5. Post market Surveillance of Clinical and Functional Outcomes with Post-Operative Adjunctive use of Cervical-Stim aor Spinal Stim, PI, Orthofix, 6/1/2008 to 5/31/2011
6. A Clinical evaluation of cervical STIM and Spinal-STIM, PI, Orthofix, 1/27/2006 to 1/26/2009
7. EPhysical Capacity Outcomes Study PD-L and ALIF, PI, Synthes, 11/20/2009 to 10/31/2011
8. Retrospective Multicenter Clinical Evaluation of Fusion and Complications for Single Lvl AxiaLIF and ALIF Subjects, PI, Trans 1, 4/27/11 to 12/31/2012
9. Lanx Aspen Spinous Process Clamp CT, PI, Lanx, 09/21/2012 to 9/20/2015
10. Nubac Disc Arthroplasty, CO-I, Pioneer Surgical Company, 7/1/2009 to 6/30/2012

Bibliography

Peer Reviewed Journal Articles

Submitted

1. Price JS, Tackett, SM, **Patel VV**. Clinical Outcomes and Resource Utilization from Hemostatic Matrices in Spine Surgery. Submitted to Journal of Spinal Disorders and Techniques.
2. Lindley EM, Sherman BP, Ohnmeiss D, Zigler J, Kasow DB, Janssen ME, Burger EL, **Patel VV**. The positive predictive value of provocative discography in artificial disc replacement. Submitted to AO Global
3. Noshchenko A, Lindley EM, Burger EL, Cain CMJ, **Patel VV**. Clinical outcomes after lumbar arthrodesis with BMP: a systematic review with meta analysis.
4. Lindley EM, Barton C, Blount T, Burger EL, Cain CMJ, **Patel VV**. Outcomes of cervical and lumbar fusion in the sheep model: a review of available control data and recommendations for future studies.

Accepted

1. Nunley P, **Patel VV**, Orndorff D, Lavelle W, Block J, Geisler F, “Superion® InterSpinous Spacer Treatment of Moderate Spinal Stenosis: 4-year Results” World Neurosurgery, 2017 May. DOI: <http://dx.doi.org/10.1016/j.wneu.2017.04.163>
2. **Patel VV**, Wuthrich Z, McGilvray K, Lafleur M, Lindley E, Sun D, Puttlitz C, “ Cervical facet force analysis after disc replacement versus fusion” Clinical Biomechanics. Vol. 44, 2017 May, pp 52-58, <https://doi.org/10.1016/j.clinbiomech.2017.03.007>
3. Chathem L, **Patel VV**, Yakacki, C, Carpenter R D, “Interbody Spacer Material Properties and Design Conformity for Reducing Subsidence During Lumbar Interbody Fusion” Journal of Biomechanical Engineering. 2017 May; 139 (5) BIO-16-1396; doi: 10.1115/1.4036312, <http://biomechanical.asmedigitalcollection.asme.org/article.aspx?articleid=2613838>
4. D Makhija, M Rock, S Ikeme, E Kuntze, J Epstein, G Nicholson, JS Price & **V Patel**, “Cost-Consequence analysis of two different active flowable hemostatic matrices in spine surgery patients”, Journal of Medical Economics, 2017 Feb. <http://dx.doi.org/10.1080/13696998.2017.1292916>.
5. **Patel VV**; Andersson G, Garfin S; Resnick D; Block J, “Utilization of CT Scanning Associated with Complex Spine Surgery”, [BMC Musculoskeletal Disorders](#). 2017 Jan 31;18(1):52. doi: 10.1186/s12891-017-1420-9. <http://rdcu.be/oVhV>
6. Kleck CJ, Illing D, Lindley EM, Noshchenko A, **Patel VV**, Barton C, Baldini T, Cain CMJ, Burger EL, “Strain in Posterior Instrumentation Resulted by Different Combinations of Posterior and Anterior Devices for Long Spine Fusion Constructs” SPINE DEFORMITY, Vol. 5, No. 1, Jan 2017, pp 27-36.
7. Bae HW, **Patel VV**, Sardar ZM, Badura JM, Pradhan BB, Seim III HB, Turner AS, Toth JM, “Transient Local Bone Remodeling Effects of rhBMP-2 in an Ovine Interbody Spine Fusion

Model,” THE JOURNAL OF BONE & JOINT SURGERY, Vol. 98, No. 24, Dec 2016, pp 2061-2070. <https://doi.org/10.2106/JBJS.16.00345>

8. Lindley EM, Barton C, Blount T, Burger EL, Cain CM, Seim HB 3rd, Turner AS, **Patel VV**. An analysis of spine fusion outcomes in sheep pre-clinical models. Eur Spine J. 2016 May 10. [Epub ahead of print] Review. PubMed PMID: 27165183.
9. Zaghoul KM, Matoian BJ, Denardin NB, **Patel VV**. Preventing Proximal Adjacent Level Kyphosis With Strap Stabilization. Orthopedics. 2016 May 6:1-6. [Epub ahead of print] PubMed PMID: 27158827.
10. **Patel VV**, Payne K. Cellular Grafts for Bone Formation. Spine (Phila Pa 1976). 2016 Apr;41 Suppl 7:S13. PubMed PMID: 27015059.
11. Fattor JA, Hollenbeck JF, Laz PJ, Rullkoetter PJ, Burger EL, **Patel VV**, Cain CM. Patient-Specific Templating of Lumbar Total Disk Replacement to Restore Normal Anatomy and Function. Orthopedics. 2016 Mar 1;39(2):97-102. PubMed PMID: 27023417.
12. Kleck CJ, Perry JM, Burger EL, Cain CM, Milligan K, **Patel VV**. Sacroiliac Joint Treatment Personalized to Individual Patient Anatomy Using 3-Dimensional Navigation. Orthopedics. 2016 Mar 1;39(2):89-94. PubMed PMID: 27023416.
13. Barton C, Noshchenko A, **Patel V**, Kleck C, Burger E. Early Experience and Initial Outcomes With Patient-Specific Spine Rods for Adult Spinal Deformity. Orthopedics. 2016 Mar 1;39(2):79-86. PubMed PMID: 27023415.
14. Rashbaum RF, Ohnmeiss DD, Lindley EM, Kitchel SH, **Patel VV**. Sacroiliac Joint Pain and Its Treatment. Clin Spine Surg. 2016 Mar;29(2):42-8. PubMed PMID: 26889985.
15. Garcia R Jr, Yue JJ, Blumenthal S, Cordic D, **Patel VV**, Leary Sp, Dihn DH, Buttermann GR, Deutsch H, Girardi F, Billys J, Miller LE. Lumbar Total Disc Replacement for Discogenic Low Back Pain: Two-year Outcomes of the activL Multicenter Randomized Controlled IDE Clinic Trial. Spine (Phila Pa 1976). 2015 Dec;40(24):1873-81. PubMed PMID: 26630435.
16. Burger E, Lindley E, **Patel VV**, Sun D, Weyant M, “Pulmonary cement embolism after navigated pedicle screw placement: a report of two cases and review of the literature,” CURRENT ORTHOPEADIC PRACTICE, Vol. 26, No. 5, Sep-Oct 2015, pp 553-558. Published
17. Barton C, Noshchenko A, **Patel VV**, Cain C, Kleck CJ, Burger EL. Risk Factors for Rod Fracture after Posterior Correction of Adult Spinal Deformity with Osteotomy: A Retrospective Case-Series. Scoliosis. 2015, 10:30.
18. **Patel VV**, Nunley PD, Whang PG, Haley TR, Bradley WD, Davis RP, Block JE, Geisler FH. Superion® InterSpinous Spacer for Treatment of Moderate Degenerative Lumbar Spinal Stenosis: Durable Three-Year Results of Randomized Controlled Trial. Journal of Pain Research. 2015, 8:657-662.
19. Polly DW, Cher DJ, Wine KD, Whang PG, Frank CJ, Harvey CF, Lockstadt H, Glaser JA, Limoni RP, Sembrano JN; **Patel VV** (INSITE Study Group). Randomized Controlled Trial of Minimally Invasive Sacroiliac Joint Fusion Using Triangular Titanium Implants vs Nonsurgical Management

for Sacroiliac Joint Dysfunction: 12-Month Outcomes. *Neurosurgery*. 2015 Nov;77(5):674-90; discussion 690-1. PubMed PMID: 26291338; PubMed Central PMCID: PMC4605280.

20. Storm K, Coughlin R, Nobhojit R, **Patel VV**. The Capacity to Manage Orthopaedic Trauma: Systems, Training, Technology in Low-Resource Settings. *The Journal of Orthopedic Trauma*. 2015 October JOT7115
21. Coughlin RR, Roy N, **Patel V**. Wrong Place, Wrong Time: Coincidental Involvement in the Gujarat Earthquake, India (2001). *J Orthop Trauma*. 2015 Oct;29 Suppl 10:S11-3. PubMed PMID: 26356205.
22. Kleck CJ, Cullimore I, LaFleur M, Lindley E, Rentschler ME, Burger EL, Cain CM, **Patel VV**. A New 3-Dimensional Method for Measuring Precision in Surgical Navigation and Methods to Optimize Navigation Accuracy. *Eur Spine J*. 2015 Sep 22. [Epub ahead of print]
23. Lindley EM, Milligan K, Farmer R, Burger EL, **Patel VV**. Patient-Controlled Transdermal Fentanyl Versus Intravenous Morphine Pump After Spine Surgery. *Orthopedics*. 2015 Sep 1; 38(9):e819-24.
24. Noshchenko A, Hoffecker L, Lindley EM, Burger EL, Cain CM, **Patel VV**, Bradford AP. Predictors of Spine Deformity Progression in Adolescent Idiopathic Scoliosis; A Systematic Review with Meta-Analysis. *World J Orthopedics*. 2015 Aug 18;6(7): 537-58.
25. Noshchenko A, Lindley EM, Burger EL, Cain CM, **Patel VV**. What is the Clinical Relevance of Radiographic Nonunion after Single-level Lumbar Interbody Arthrodesis in Degenerative Disc Disease? A Meta-Analysis of the YODA Project Database. *Spine*. 2015 Aug 13 [Epub ahead of print]
26. Parker SL, Anderson LH, Nelson T, **Patel VV**. Cost-Effectiveness of Three Treatment Strategies for Lumbar Stenosis: Conservative Care, Laminectomy, and the Superior Interspinous Spacer. *International Journal of Spine Surgery*. 2015 July 9; <http://dx.doi.org/10.14444/2028>
27. Price JS, Tackett S, **Patel VV**. Observational Evaluation of Outcomes and Resource Utilization from Hemostatic Matrices in Spine Surgery. *Journal of Medical Economics*. 2015 May 1 [Epub ahead of print]
28. Sun D, Burger EL, Weyant MJ, Lindley EM, **Patel VV**. Pulmonary cement embolism after navigated pedicle screw placement: A report of two cases and review of the literature. *Curr Orth Prac*. In Press (Accepted January 2015)
29. **Patel VV**, Whang PG, Haley TR, Bradley WD, Nunley PD, Davis, RP, Miller LE, Block JE, Geisler FH. Superior Interspinous Process Spacer for Intermittent Neurogenic Claudication Secondary to Moderate Lumbar Spinal Stenosis: Two-Year Results From a Randomized Controlled FDA-IDE Pivotal Trial. *Spine*. 2014 December 9; 40:5:275-282.
30. **Patel VV**, Whang PG, Haley TR, Bradley WD, Nunley PD, Miller LE, Block JE, Geisler FH. Two-year clinical outcomes of a multicenter randomized controlled trial comparing two interspinous spacers for treatment of moderate lumbar spinal stenosis. *BMC Musculoskelet Disord*. 2014 July 5; 15:221.

31. Noshchenko A; Hoffecker L, Lindley EM, Burger EL, Cain CM, **Patel VV**. Long Term Treatment Effects of Lumbar Arthrodeses in Degenerative Disc Disease: A Systematic Review with Meta Analysis. *J Spinal Disord Tech*. 2014 June 6.
32. Price JS, Tackett S, **Patel VV**. Observational Evaluation of Outcomes and Resource Utilization from Hemostatic Matrices in Spine Surgery. *Journal of Medical Economics*: 1-10. 2015 June 1
33. Burger EL, Noshchenko A, **Patel VV**, Lindley E, Bradford AP. Ultrastructure of Intervertebral Disc and Vertebra-Disc Junctions as a Link in Etiopathogenesis of Idiopathic Scoliosis (IS). *Advances in Orthopedic Surgery*. Vol. 2014. Article ID 850594
34. Noshchenko A, Hoffecker L, Lindley EM, Burger EL, Cain CM, **Patel VV**. Perioperative and Long Term Clinical Outcomes for Bone Morphogenetic Protein versus Iliac Crest Bone Graft for Lumbar Fusion in Degenerative Disc Disease. Systematic Review with Meta-analysis. *J Spinal Discord Tech*. 2014 May 27; 3:117-35.
35. Lindley EM, Levy BJ, Burger EL, Cain CMJ, **Patel VV**. Failure of the Fernstrom ball in contemporary spine surgery: A case of history repeating itself. *Curr Orth Prac*. June 2013
36. Whang PG, Sasso RC, **Patel VV**, Ali RM, Fischgrund JS. “Comparison of Axial and Anterior Interbody Fusions of the L5-S1 Segment: A Retrospective Cohort Analysis”, *Journal of Spinal Disorders and Techniques*, 2013
37. Noshchenko A, Plasied A, **Patel VV**, Burger EL, Baldini T, Lu Y. Correlation of Vertebral Strength Topography with 3-Dimensional Computed Tomography Structure. *Spine*. 2013 Feb 15;38(4):339-49
38. Golembeski S, Lindley EM, McBeth ZL, Sophacles A, Burger EL, Cain CMJ, **Patel VV**. Translating versus non-translating cervical plates. *Curr Orth Prac*. In Press. Accepted November 11, 2012
39. Puttlitz C, **Patel VV**, Ayturk U, Schuldt D, Gadowski B. Modeling Degenerative Disc Disease In The Lumbar Spine: A Combined Experimental, Constitutive, And Computational Approach. *J Biomech Eng*. 2012, 134(10):101003.
40. Ayturk UM, Gadowski B, Schuldt D, **Patel VV**, Puttlitz CM: “Modeling degenerative disk disease in the lumbar spine: a combined experimental, constitutive, and computational approach”, *J Biomech Eng*. 2012 Oct;134(10)
41. Lindley EM, Patti BN, Taylor MRG, Burger EL, **Patel VV**. Lumbar Artificial disc replacement in Ehlers-Danlos syndrome: A case report and discussion of clinical management. *International Journal of Spine Surgery* (In Press). Accepted February 17, 2012
42. Puttlitz CM, **Patel VV**, Ayturk U, Schuldt D, Gadowski B: “Modeling Degenerative Disc Disease In The Lumbar Spine: A Combined Experimental, Constitutive, And Computational Approach”: *Journal of Biomechanical Engineering*, 2012
43. Myers KD, Lindley EM, Burger EL, **Patel VV**. “C1-C2 fusion: postoperative C2 nerve impingement—is it a problem?” *Evidence Based Spine Journal*, V 3, No 1. Pp53-56, 2012.

44. **Patel VV**. "Sacroiliac joint injuries" *Orthopedics*. 2012 May;35(5):398
45. Lindley EM, McBeth ZL, Henry SE, Cooley R, Burger EL, Cain CMJ, **Patel VV**. Retrograde ejaculation following anterior lumbar spine surgery. *Spine (Phila Pa 1976)*. 2012 Sep 15;37(20):1785-9.
46. Lindley EM, Zimkowski M, **Patel VV**, Rentschler M. Pain sensitivity testing using a novel computer-controlled pressure algometer that simultaneously records sympathetic nervous system responses to pain stimuli. *The Journal of Pain* 13(4): S9 April 2012
47. Womack W, Leahy PD, **Patel VV**, Puttlitz CM. "Finite element modeling of kinematic and load transmission alterations due to cervical intervertebral disc replacement" *Spine (Phila Pa 1976)*. 2011 Aug 1;36(17):E1126-33.
48. Patil S, Lindley EM, Burger EL, Yoshihara H, **Patel VV**. Pedicle Screw Placement With O-arm and Stealth Navigation. *Orthopedics*. 2012 Jan 16;35(1).
49. Yao X, Blount TJ, Suzuki N, Brown LK, van der Walt CJ, Baldini T, Lindley EM, **Patel VV**, Burger, EL. A Biomechanical Study on the Effects of Rib Head Release on Thoracic Spinal Motion. *Eur Spine J*. v21 n4, pp606-612, 2012
50. Lindley EM, Botolin S, Burger EL, **Patel VV**. Unusual spine anatomy contributing to wrong level spine surgery: a case report and recommendations for decreasing the risk of preventable never events. *Patient Safety in Surgery*. V5, #33, 2011
51. Lyons AS, Sherman BP, Puttlitz CM, **Patel VV**, Abjornson C, Turner AS, Seim HB, Burger EL, Lindley EM. Failure of Resorbable Plates and Screws in an Ovine Model of Anterior Cervical Discectomy and Fusion. *The Spine J*. Vol. 7, Issue 9 pp 876-883, Sept. 2011
52. Zimkowski MM, Lindley EM, **Patel VV**, Rentschler ME. Design and Evaluation of a Computer-Controlled Pressure Algometer: *ASME Journal of Medical Devices* Vol.5, Iss.3, 2011
53. Lindley EM, McCullough MA, Burger EL, Brown CW, **Patel VV**. Complications of axial lumbar interbody fusion. *J Neurosurg Spine*. 2011 May 20.
54. Noshchenko A, Xianfeng Y, Armour GA, Baldini T, **Patel VV**, Ayers R, Burger E. Evaluation of spinal instrumentation rod bending characteristics for in-situ contouring. *J Biomed Mater Res B Appl Biomater*. 2011 Jul;98(1):192-200.
55. Patil SS, Lindley EM, **Patel VV**, Burger EL, Clinical and radiological outcomes of axial lumbar interbody fusion, *Orthopedics*. 2010 Dec 1;33(12):883. doi: 10.3928/01477447-20101021-05
56. Robinson ES, Lindley EM, Gonzalez P, Estes S, Cooley R, Burger EL, **Patel VV** Piriformis Syndrome versus Radiculopathy Following Lumbar Artificial Disc Replacement. *Spine*. 2011 Feb 15;36(4):E282-7
57. Sherman BP, Lindley EM, Turner AS, Seim HB, Benedict J, Burger EL, **Patel VV**. Evaluation of ABM/P-15 vs. Autogenous Bone in an Ovine Lumbar Interbody Fusion Model. *Eur Spine J*. 2010 Dec;19(12):2156-63. Epub 2010 Aug 9

58. Noshchenko A, **Patel VV**, Baldini T, Yun L, Lindley EM, Burger EL. Thermomechanical Effects of Spine Surgery Rods Composed of Different Metals and Alloys. *Spine (Phila Pa 1976)*. 2011 May 15;36(11):870-8
59. Botolin S, Puttlitz C, Baldini T, Petrella A, Burger E, Abjornson C, **Patel V.**, Facet joint biomechanics at the treated and adjacent levels after total disc replacement, *Spine (Phila Pa 1976)*. 2011 Jan 1;36(1):E27-32
60. Lindley EM, Jaafar S, Noshchenko A, Baldini T, Nair DP, Shandas R, Burger EL, **Patel VV**. Nucleus replacement device failure: A case report and biomechanical study. *Spine (Phila Pa 1976)*. 2010 Oct 15;35(22):E1241-7
61. Lindley EM, Guerra FA, Krauser JT, Matos SM, Burger EL, **Patel VV**. Small peptide (P-15) bone substitute efficacy in a rabbit cancellous bone model. *J Biomed Mater Res B Appl Biomater*. 2010 Aug;94(2):463-8
62. Botolin S, Agudelo J, Dwyer A, **Patel VV**, Burger E. High rectal injury during trans-1 axial L5-S1 fixation: A case report. *Spine*. 2010, 35(4):E144-8
63. Sloan TB, Myers G, Janik DJ, Burger EM, **Patel VV**, Jameson LC. Intraoperative autologous transfusion of hemolyzed blood. *ANESTHESIA AND ANALGESIA*. 2009, 109(1): 38-42.
64. Ben-Masaud A, Solomonow D, Davidson B, Zhou BH, Lu Y, **Patel VV**, Solomonow M. Motor control of lumbar instability following exposure to various cyclic load magnitudes. *EUR SPINE J*. 2009, 18(7):1022-34. Published.
65. Freudenberger C, Lindley EM, Beard DW, Reckling WC, Williams A, Burger EL, **Patel VV**. Posterior versus anterior lumbar interbody fusion with anterior tension band plating: retrospective analysis. *ORTHOPEDICS*. 2009, 32(7):492. Published.
66. **Patel VV**, Estes S, Naar E, Lindley EM, Burger EL: "Histologic Evaluation of High Speed Burr Shavings Collected During Spinal Decompression Surgery" *ORTHOPEDICS*, Jan. 2009, V32 No1 p23.
67. Le B, Davidson B, Solomonow D, Zhou BH, Lu Y, **Patel VV**, Moshe Solomonow: "Neuromuscular Control of Lumbar Instability Following Static Work of Various Loads", *MUSCLE NERVE* 39:71-82, 2009. Published.
68. Solomonow D, Davidson B, Zhou BH, Lu Y, **Patel VV**, Solomonow M: "Neuromuscular neutral zones response to cyclic lumbar flexion" *J. OF BIOMECHANICS*, 2008. Published.
69. Weiss HR, Bess S, Wong MS, **Patel VV**, Goodall D, Burger EL: "Adolescent Idiopathic Scoliosis-to Operate or Not? A Debate Article", *PATIENT SAFETY IN SURGERY*, 2008 2:25. Published.
70. **Patel VV**, Estes S, Lindley EM, Burger E. "Lumbar spinal fusion versus anterior lumbar disc replacement: the financial implications" *J SPINAL DISORD TECH*, 2008 Oct, 21(7):473-6. Published.

71. Szentirmai O, Seinfeld J, Beauchamp K, **Patel VV**. "Traumatic unilateral lumbosacral jumped facet without fracture in a child-presentation of a safe treatment strategy for a rare injury" *PATIENT SAFETY IN SURGERY*, 2008, 2(29). Published.
72. Lu D, Le P, Davidson B, Zhou BH, Lu Y, **Patel VV**, Somonow M, "Frequency of Cyclic Lumbar Loading is a Risk Factor for Cumulative Trauma Disorder" *MUSCLE & NERVE*, 2008 July, 38: 867-874. Published.
73. Youssef J, Davidson B, Zhou BN, Lu Y, **Patel VV**, Somonow M, "Neuromuscular Neutral Zones Response to Static Lumbar Flexion: Muscular Stability Compensator" *CLINICAL BIOMECHANICS*, 2008, 23:870-880. Published.
74. Deviren V, **Patel VV**, Metz LN, Berven SH, Hu SH, Bradford DS, "Anterior arthrodesis with instrumentation for thoracolumbar scoliosis: comparison of efficacy in adults and adolescents." *Spine (Phila Pa 1976)*. 2008 May 15;33(11):1219-23.
75. **Patel VV**, Dwyer A, Estes S, Burger EL: "Use of Intraoperative Multiplanar Imaging and Myelography for Immediate Evaluation of Lumbar Spinal Decompression" *JOURNAL OF SPINAL DISORDERS AND TECHNIQUES*, 2008, May 21(3): 209-212. Published.
76. Burger EL, **Patel VV**. Calcium phosphates as bone graft extenders *ORTHOPEDICS*. 2007 Nov;30(11):939-42. Published
77. Le P, Solomonow M, Zhou BH, Lu Y, **Patel VV**. "Cyclic Load Magnitude is a Risk Factor for a Cumulative Lower Back Disorder" *JOURNAL OF OCCUPATIONAL AND ENVIRONMENTAL MEDICINE* V49, N4, April 2007 pp375-87. Published.
78. Hoops H, Zhou BH, Lu Y, Solomonow M, **Patel VV**. "Short rest between cyclic flexion periods is a risk factor for a lumbar disorder" *CLINICAL BIOMECHANICS* 2007, 22, 745-757. Published.
79. Rabb C, **Patel VV**, and Burger EL. Ethical issues related to training future spine care physicians. *SPINE*. 2007, 8(5):34-35. Published
80. **Patel VV**, Zhao L, Wong P, Bae H, Pradhan B, Delamarter R, "Controlling BMP Diffusion and BMP-Stimulated Bone Growth Using Fibrin Glue" *SPINE*. 2006 May 15;31(11):1201-6. Published
81. **Patel VV**, Zhao L, Wong P, Bae H, Pradhan B, Delamarter R: "An In-Vitro and In-Vivo Analysis of Fibrin Glue Used to Control BMP Diffusion and BMP-Stimulated Bone Growth" *THE SPINE JOURNAL* 2006 V6397-404. Published.
82. **Patel VV**, Andrews C, Pradhan BB, Bae HW, Kanim LE, Kropf MA, Delamarter RB." Computed tomography assessment of the accuracy of in vivo placement of artificial discs in the lumbar spine including radiographic and clinical consequences" *SPINE*. 2006 Apr 15;31(8):948-53. Published.
83. Pradhan BB, Bae HW, Dawson EG, **Patel VV**, Delamarter RB. "Graft resorption with the use of bone morphogenetic protein: lessons from anterior lumbar interbody fusion using femoral ring allografts and recombinant human bone morphogenetic protein-2" *SPINE*. 2006 May 1;31(10):E277-84. Published.

84. Pradhan BB, Bae HW, **Patel VV**, Delamarter RB: "Graft Resorption with rhBMP-2: in Anterior Cervical Discectomy and Fusion: A Radiographic Characterization of the Effect of rhBMP-2 on Structural Allografts" SPINE V 7 N2 P25 March/April 2006. Published.
85. Pradhan BB, Bae HW, Kropf MA, **Patel VV**, Delamarter RB "Graft resorption with rhBMP-2 in anterior cervical discectomy and fusion: a radiographic characterization of the effect of rhBMP-2 on structural allografts" THE SPINE JOURNAL July 2005 (Vol. 5, Issue 4 (Supplement), Pages S42-S43). Published.
86. Pradhan BB, Bae HW, Kropf MA, **Patel VV**, Zhao L, Wong P, Delamarter RB "Leakage of rhBMP-2 from absorbable collagen sponges during use in anterior cervical discectomy and fusion quantification and follow-up of clinical and radiographic consequences" THE SPINE JOURNAL July 2005 (Vol. 5, Issue 4 (Supplement), Page S55). Published
87. Pradhan BB, Bae HW, Kropf MA, **Patel VV**, Delamarter RB. "Kyphoplasty reduction of osteoporotic vertebral compression fractures: correction of local kyphosis versus overall sagittal alignment" SPINE. 2006 Feb 15;31(4):435-41. Published.
88. Roy N, Shah H, **Patel VV**, Bagalkote H: "Surgical and psychosocial outcomes in the rural injured—a follow-up study of the 2001 earthquake victims" Injury, INTERNATIONAL JOURNAL OF THE CARE OF THE INJURED, 2005. Published.
89. **Patel VV**, Hall K, Ries M, Lotz J, Ozhinsky E, Lindsey C, Lu Y, Majumdar S. "A threedimensional MRI analysis of knee kinematics" J ORTHOP RES. 2004 Mar;22(2):283-92. Published
90. **Patel VV**, Hall K, Ries M, Lindsey C, Ozhinsky E, Lu Y, Majumdar S., "Magnetic resonance imaging of patellofemoral kinematics with weight-bearing" J BONE JOINT SURG AM. 2003 Dec;85-A(12):2419-24. Published.
91. Roy N, Shah H, **Patel VV**, Coughlin R: "The Gujarat Earthquake (2001) Experience in a Seismically Unprepared Area: Community Hospital Medical Response" PREHOSPITAL AND DISASTER MEDICINE, 2003 Oct-Dec; 17(4), 186-195. Published.
92. **Patel VV**, Issever AS, Burghardt A, Laib A, Ries M, Majumdar S: "MicroCT evaluation of normal and osteoarthritic bone structure in human knee specimens. J ORTHOP RES. 2003 Jan;21(1):6-13. Published.
93. Burghardt IA, **Patel VV**, Laib A, Lu Y, Ries M, Majumdar S: "A microcomputed tomography study of the trabecular bone structure in the femoral head" J MUSCULOSKEL NEURON INTERACT 2003; 3(2):176-184. Published.
94. Tay, **Patel VV**, Bradford D, "Calcium Sulfate – and Calcium Phosphate – Based Bone Substitutes: Mimicry of the Mineral Phase of Bone: ORTHOPAEDIC CLINICS OF NORTH AMERICA, Vol. 30, No. 4, Oct. 1999, pp615-623. Published.
95. **Patel VV**, Heidenreich F, Bindra R, Yamaguchi K, Gelberman R: "Morphologic changes in the ulnar nerve at the elbow with flexion and extension: a magnetic resonance imaging study with 3-dimensional reconstruction." JOURNAL OF SHOULDER AND ELBOW SURGERY, Vol. 7, No. 4, Jul-Aug 1998, pp368-74. Published

96. **Patel VV**, Vannier M, Marsh J, Lo L: "Assessing Craniofacial Surgical Simulation," IEEE COMPUTER GRAPHICS AND APPLICATIONS, Vol. 16, No. 1, Feb. 1996, pp46-54. Published
97. Lo L, Marsh J, Vannier M, **Patel VV**, "Craniofacial Computer Assisted Surgical Planning and Simulation," CLINICS IN PLASTIC SURGERY, Vol. 21, No. 4, Oct 1994. pp501- 516. Published

Books

Patel, VV, Brown, C, Burger, E: "Spine Trauma Surgical Techniques", Springer Verlag, 2010, ISBN: 978-3-642-03693-4, eISBN: 978-3-642-03694-4.

Patel, VV, Patel, A, Harrop, J, Burger, E: "Spine Surgery Basics", Springer Verlag, 2012, ISBN: 978-3-642-34125-0, eISBN: 978-3-642-34126-7

Book Chapters

1. Burger EL, **Patel VV**: "Spine Injuries in Mass Casualties" in Orthopedics in Disasters, Springer Publishing, 2016
2. Ayers RA, Burger EL, Kleck CJ, **Patel VV**: "Metallurgy of Spinal Instrumentation" in Advances in Metallic Biomaterials Technology Mitsuo Niinomi, Takayuki Narushima, Masaki nakai (eds.). Springer Series in Biomaterials Science and Engineering, Springer-Verlag GmbH Heidelberg (in press 2015).
3. **Patel, VV**, Henry, S, Burger, E: "Diagnosis and Treatment of Iatrogenic Durotomy" in Surgical Anatomy & Techniques to the Spine (2nd Edition Elsevier), 2012
4. **Patel, VV**, Lafleur, M, Burger, E, Cain, A: "Trans-1 Lumbar Fusion" in Surgical Anatomy & Techniques to the Spine (2nd Edition Elsevier), 2012
5. Mongen P, **Patel VV**: "Posterior Cervical Spine Surgery" in Monitoring the Nervous System for Anesthesiologists and Other Health Care Professionals. 2012
6. **Patel VV**, Botolin S, Burger EL: "Anterior Lumbar Interbody Fusion" in -*Sacral and Pelvic Procedures*, edited by Drs. Daniel Kim, Alexander Vaccaro, Peter Whang, See Hoon Kim, and Sang Don Kim, Quality Medical Publishing, 2011
7. **Patel VV**, Botolin S, Burger EL: "Anterior Lumbar Fusion" in Mastering Orthopaedic Techniques, edited by Rajesh Malhotra, Jaypee Brothers Medical Publishers, 2010
8. **Patel VV**, Botolin S: "Bone Morphogenetic Protein in the Cervical Spine" in The Cervical Spine, The Cervical Spine Research Society, 2010.
9. Bravman J, Mejia H, **Patel VV**: "Lumbar Radiculopathy" Nerve and Vascular Injuries in Sports Medicine, edited by Venu Akuthota and Stan Herring, Springer Verlag 2008

10. Dwyer A, Freudenberger C, **Patel VV**: “Clinical Evaluation of Low Back Pain” Chpt 2 in Pain Management in Interventional Radiology ed. By Charles E. Ray, Cambridge University Press. 2008.
11. Dwyer A, Freudenberger C, **Patel VV**, Fleisher M, and Ray CE: “Functional Lumbar Spine Anatomy: A Review” Chapter 4 in Pain Management in Interventional Radiology edited By Charles E. Ray, Cambridge University Press. 2008.
12. Faro F, Dwyer A, **Patel VV**: “Kyphoplasty” Chapter 6 in Pain Management in Interventional Radiology ed. By Charles E. Ray, Cambridge University Press. 2008.
13. Delamarter RB, Pradhan BB, **Patel VV**: “Cervical Pseudarthrosis” In Complications Of Spine Surgery: Treatment And Prevention edited by Howard S. An, Louis G. Jenis, Philadelphia: Lippincott Williams & Wilkins, c2006

Invited Articles

1. **Patel VV** “P-15: A Biomimetic Bone Graft Substitute” InSpine V3 Issue 2, Feb 2007 pp8-11.
2. **Patel VV**, Vannier M, Book Review: A Guide to Radiological Procedures by S. Chapman and R. Nakielnny, 3rd ed., Bailliere Tindall Press, London 1993. In Dentomaxillofacial Radiology, Vol. 24, No. 1, Feb. 1995, p.12.
3. **Patel VV**, Sacroiliac Joint Injuries, ORTHOPEDICS, v.35, N 5, p 398, May 2012

Editorials

1. **Patel VV**: “Interpreting Research” in Orthopedics, V 30, No 10, Oct 2007, p 813
2. Rabb C, **Patel VV**, Burger EL: “Spine Surgical Fellowship Education”, SpineLine, SpineLine

Letters to the Editor

1. **Patel VV**: Response to Commentary: The Spine Journal Volume 7, Issue 2, March-April 2007, Page 259.

Scientific Abstracts, Competitive

1. Patel R, Noshchenko A, Carpenter RD, Baldini T, Frick CP, **Patel VV**, Yakacki CM,: “Evaluation and Prediction of Human Lumbar Vertebra Endplate Mechanical Properties Using Indentation and Computed Tomography,” *ORS 2017 Annual Meeting*, San Diego, California, March, 19-22, 2017
2. Payne KA, Sauque M, Shaw N, Erickson C, Yarger P, Baldini T, Kleck CJ, **Patel VV**, Burger EL,: “Spine Pathogenesis and Therapeutics,” *ORS 2017 Annual Meeting*, San Diego, California, March, 19-22, 2017

3. **Patel VV**, Ou-Yang D, Moldavsky M, Mariano T, Matheis EA, Bucklen BS. A Biomechanical Evaluation of a Potential PJK Treatment Option Utilizing a Reduction Band Tether of the Spinous Process at the Proximal Adjacent Level. EuroSpine 2016. Berlin, Germany, October 5-7, 2016.
4. Bozzio AE, Johnson CR, Fattor JA, Kleck CJ, **Patel VV**, Burger EL, Noshchenko A, Cain CMJ. Clinical and Radiographic Outcomes of Stand-Alone Anterior Lumbar Interbody Fusion Versus Transforaminal Lumbar Interbody Fusions and 360-Degree Fusions. Annual Meeting of the International Society of Orthopaedic Surgery and Traumatology (SICOT). Rome, Italy, September 8-10, 2016.
5. Noshchenko A, Hoffecker L, Kleck CJ, Cain CMJ, **Patel VV**, Burger EL. Defining Of Optimal Spinopelvic Parameters In Adults: A Systematic Review With Meta-Analysis. Annual Meeting of the International Society of Orthopaedic Surgery and Traumatology (SICOT). Rome, Italy, September 8-10, 2016.
6. **Patel VV**, Payne K. Cellular Grafts for Bone Formation. 2016 Annual MERC Symposium, Audubon, Pennsylvania, August 5-6, 2016.
7. Barton C, Noshchenko A, Kleck CJ, **Patel VV**, Burger EL. Early Experience and Initial Outcomes with Patient Specific Rods for Adult Spine Surgery. 13th Annual Meeting of the Combined Orthopedics Associations (COMOC). Cape Town, South Africa, April 11-15, 2016.
8. Kleck CJ, Perry JM, Burger EL, Cain CMJ, **Patel VV**. Minimally Invasive Technique for Placement of Sacroiliac (SI) Arthrodesis Implants using O-Arm and Stealth Navigation. 13th Annual Meeting of the Combined Orthopedics Associations (COMOC). Cape Town, South Africa, April 11-15, 2016.
9. Kleck CJ, Burger EL, **Patel VV**. OneStep Technique for Minimally Invasive Placement of Pedicle Screws with O-Arm and Stealth Navigation. 13th Annual Meeting of the Combined Orthopedics Associations (COMOC). Cape Town, South Africa, April 11-15, 2016.
10. Barton C, Noshchenko A, **Patel VV**, Cain CMJ, Kleck CJ, Burger EL. Factors Associated with Mechanical Complications Including Proximal Junctional Failure after Osteotomy for Adult Spinal Deformity. 13th Annual Meeting of the Combined Orthopedics Associations (COMOC). Cape Town, South Africa, April 11-15, 2016.
11. Kleck CJ, Glueck D, Lind K, Petersen B, Williams A, **Patel VV**. 3D Morphologic Assessment Of Normal And Abnormal Si Joints And The Potential Implications In The Development Of Pain Syndromes. 13th Annual Meeting of the Combined Orthopedics Associations (COMOC). Cape Town, South Africa, April 11-15, 2016.
12. Barton C, Noshchenko A, **Patel VV**, Cain CMJ, Kleck CJ, Burger EL. Risk Factors Associated with Rod Fracture After Osteotomy for Adult Spinal Deformity. 13th Annual Meeting of the Combined Orthopedics Associations (COMOC). Cape Town, South Africa, April 11-15, 2016.
13. Noshchenko A, Lindley EM, Burger EL, Cain CM, **Patel VV**. Long Term Patient-Centered Clinical Outcomes of Lumbar Arthrodeses in Degenerative Disc Disease: A Systematic Review with Meta Analysis. 13th Annual Meeting of the Combined Orthopedics Associations (COMOC). Cape Town, South Africa, April 11-15, 2016.

14. Noshchenko A, Lindley EM, Burger EL, Cain CMJ, Patel **VV**. Rates of Complications and Required Additional Surgical Interventions after Surgical and Nonsurgical Treatment in Lumbar Spondylosis: A Systematic Review with Meta Analysis. 13th Annual Meeting of the Combined Orthopedics Associations (COMOC). Cape Town, South Africa, April 11-15, 2016.
15. Kleck CJ, Illing D, Lindley EM, **Patel VV**, Barton C, Baldini T, Cain CMJ, Burger EL. A Comparative Analysis of Lumbo-sacral Fixation Strengths: What is Best in a Long Fusion? 13th Annual Meeting of the Combined Orthopedics Associations (COMOC). Cape Town, South Africa, April 11-15, 2016.
16. Noshchenko A, Lindley EM, Burger EL, Cain CMJ, **Patel VV**. What is the Clinical Relevance of Nonunion after Lumbar Arthrodesis? A Meta-Analysis of the YODA Project Database. 13th Annual Meeting of the Combined Orthopedics Associations (COMOC). Cape Town, South Africa, April 11-15, 2016.
17. Martyn R, Zaghloul K, Lindley EM, Kleck CJ, Cain CMJ, Burger EL, **Patel VV**. Pedicle Screw Placement in Spine Surgery: A retrospective review of O-arm/Stealth vs Non-Computerized Navigation Techniques. 13th Annual Meeting of the Combined Orthopedics Associations (COMOC). Cape Town, South Africa, April 11-15, 2016.
18. Davis B, Sauque M, Sweeney K, Baldini, T, Kogut I, Bilousova G, **Patel VV**, Payne, K. Revitalization of Bone Allograft with Human Induced Pluripotent Stem Cells for Improved Bone Formation. 16th Annual Meeting of The International Society for the Advancement of Spine Surgery (ISASS). Las Vegas, Nevada, April 6-9, 2016.
19. Noshchenko A, Lindley EM, Burger EL, Cain CMJ, **Patel VV**. What is the Clinical Relevance of Nonunion after Lumbar Arthrodesis? A Meta-Analysis of the YODA Project Database. Annual Meeting of the International Society for the Advancement of Spine Surgery (ISASS). Las Vegas, Nevada, April 6-8, 2016.
20. Kleck CJ, Illing D, Lindley EM, **Patel VV**, Barton C, Baldini T, Cain CMJ, Burger EL. A Comparative Analysis of Lumbo-sacral Fixation Strengths: What is Best in a Long Fusion? Annual Meeting of the International Society for the Advancement of Spine Surgery (ISASS). Las Vegas, Nevada, April 6-8, 2016.
21. Barton C, Noshchenko A, **Patel VV**, Cain CMJ, Kleck CJ, Burger EL. Risk Factors Associated with Rod Fracture After Osteotomy for Adult Spinal Deformity. Annual Meeting of the International Society for the Advancement of Spine Surgery (ISASS). Las Vegas, Nevada, April 6-8, 2016.
22. Cain C, Hollenbeck JFM, Fattor JA, **Patel VV**, Burger EL, Rullkoetter PJ. Patient-specific ROM Predicted by Pre-operative Templating after Total Disc Replacement Surgery. Annual Meeting of the International Society for the Advancement of Spine Surgery (ISASS). Las Vegas, Nevada, April 6-8, 2016.
23. Hollenbeck JFM, Cain C, Fattor JA, **Patel VV**, Burger EL, Rullkoetter PJ. Pre-operative Templating for TDR Predicts Post-operative ROM and Could Improve Clinical Outcomes. Annual Meeting of the Orthopaedic Research Society (ORS). Orlando, Florida, March 5-8, 2016.
24. Barton C, Noshchenko A, **Patel VV**, Cain CMJ, Kleck CJ, Burger E. Risk Factors Associated with Rod Fracture After Osteotomy for Adult Spinal Deformity. Annual Meeting of the International

Society of Orthopaedic Surgery and Traumatology (SICOT). Guangzhou, China, September 17-19, 2015.

25. Kleck CJ, Jesse MK, Illing D, Williams A, Petersen B, Milligan K, Glueck D, Lind K, **Patel VV**. 3D Morphometric Analysis Of Normal Sacroiliac Joints: A New Classification Of Surface Shape Variation. Annual Meeting of the International Society of Orthopaedic Surgery and Traumatology (SICOT). Guangzhou, China, September 17-19, 2015.
26. Noshchenko N, Lindley EM, Burger EL, Cain CMJ, **Patel VV**. What is the Clinical Relevance of Nonunion after Lumbar Arthrodesis? A Meta-Analysis of the YODA Project Database. Annual Meeting of the International Society of Orthopaedic Surgery and Traumatology (SICOT). Guangzhou, China, September 17-19, 2015.
27. Burger EL, Barton C, Noshchenko A, **Patel VV**, Cain CMJ, Kleck CJ. Risk Factors Associated with Rod Fracture After Osteotomy for Adult Spinal Deformity. Annual Meeting of Eurospine. Copenhagen, Denmark, September 2-4, 2015.
28. Burger EL, Barton C, Noshchenko A, **Patel VV**, Cain CMJ, Kleck CJ. Risk Factors Associated with Mechanical Complications Including Proximal Junctional Failure after Osteotomy for Adult Spinal Deformity. Annual Meeting of Eurospine. Copenhagen, Denmark, September 2-4, 2015.
29. Burger EL, Illing D, Razavi-Shearer D, Weitzel NS, Lindley EM, Kleck CJ, Cain CMJ, Jameson LC, **Patel VV**. Preoperative Coagulation Profile Testing to Predict Blood Loss in Complex Spine Surgery: Identifying the Patient at Risk. 15th Annual Meeting of The International Society for the Advancement of Spine Surgery (ISASS). San Diego, California, April 15-17, 2015.
30. Kleck CJ, Perry J, Burger EL, Cain C, **Patel VV**. Minimally Invasive Technique for Placement of Sacroiliac Arthrodesis Implants using O-Arm and Stealth Navigation. 15th Annual Meeting of The International Society for the Advancement of Spine Surgery (ISASS). San Diego, California, April 15-17, 2015.
31. Lindley EM, Razavi-Shearer D, **Patel VV**, Burger EL, Cain CMJ, Finn MA. Medical Marijuana Use Characteristics in Patients With Chronic Spine Pain Disorders. 15th Annual Meeting of The International Society for the Advancement of Spine Surgery (ISASS). San Diego, California, April 15-17, 2015.
32. Noshchenko A, Lindley EM, Burger EL, Cain CMJ, **Patel VV**. Rates of Complications and Required Additional Surgical Interventions after Spinal Arthrodesis versus Alternative Treatment in Lumbar Spondylosis: A Systematic Review with Meta Analysis. 15th Annual Meeting of The International Society for the Advancement of Spine Surgery (ISASS). San Diego, California, April 15-17, 2015.
33. Noshchenko A, Lindley EM, Burger EL, Cain CMJ, **Patel VV**. Long Term Patient-Centered Clinical Outcomes of Lumbar Arthrodeses in Degenerative Disc Disease: A Systematic Review with Meta Analysis. 15th Annual Meeting of The International Society for the Advancement of Spine Surgery (ISASS). San Diego, California, April 15-17, 2015.
34. Cain C, Hollenbeck JFM, Fattor JA, **Patel VV**, Burger EL, Laz PJ, Rullkoetter PJ. Patient-specific templating for ADR identifies factors that influence clinical outcomes. 15th Annual Meeting of The International Society for the Advancement of Spine Surgery (ISASS). San Diego, California, April 15-17, 2015.

35. Noshchenko A, Lindley EM, Burger EL, Cain CMJ, **Patel VV**. Rates of Complications and Required Additional Surgical Interventions after Surgical and Nonsurgical Treatment in Lumbar Spondylosis; A Systematic Review with Meta Analysis. Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)*. Rio de Janeiro, Brazil, November 19-22, 2014.
36. Kleck CJ, Illing D, Lindley EM, Cain CMJ, Burger EL, **Patel VV**. Post-Market Analysis of Pulsed Electromagnetic Field (PEMF) Stimulation Use for Cervical Fusion. Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)*. Rio de Janeiro, Brazil, November 19-22, 2014.
37. Illing D, Perry J, Lindley EM, **Patel VV**, Cain CMJ, Kleck CJ, Burger EL. The Effect of Electronic Medical Record System Implementation on Complication Rate in Adult Spine Deformity Surgery. Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)*. Rio de Janeiro, Brazil, November 19-22, 2014.
38. Kleck CJ, Illing D, Lindley EM, **Patel VV**, Barton C, Baldini T, Razavi-Shearer D, Cain CMJ, Burger EL. A Comparative Analysis of Lumbo-Sacral Fixation Strengths: What is Best in a Long Fusion? Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)*. Rio De Janeiro, Brazil, November 19-22, 2014.
39. Noshchenko A, Lindley EM, Burger EL, Cain CMJ, **Patel VV**. Long Term Patient-Centered Clinical Outcomes of Lumbar Arthrodeses in Degenerative Disc Disease: A Systematic Review with Meta Analysis. Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)*. Rio De Janeiro, Brazil, November 19-22, 2014.
40. Noshchenko A, Lindley EM, Burger EL, Cain CMJ, **Patel VV**. Long Term Patient-Centered Clinical Outcomes of Lumbar Arthrodeses in Degenerative Disc Disease: A Systematic Review with Meta Analysis. 29th Annual Meeting of the *North American Spine Society (NASS)*. San Francisco, California, November 12-15 2014.
41. Burger EL, Illing D, Razavi-Shearer D, Weitzel N, Lindley EM, Kleck CJ, Cain CMJ, Jamison L, **Patel VV**. Preoperative Coagulation Profile Testing to Predict Blood Loss in Complex Spine Surgery: Identifying the Patient at Risk. 29th Annual Meeting of the *North American Spine Society (NASS)*. San Francisco, California, November 12-15 2014.
42. Kleck CJ, Illing D, Lindley EM, **Patel VV**, Barton C, Baldini T, Razavi-Shearer D, Cain CMJ, Burger EL. A Comparative Analysis of Lumbo-sacral Fixation Strengths: What is Best in a Long Fusion? 29th Annual Meeting of the *North American Spine Society (NASS)*. San Francisco, California, November 12-15 2014.
43. Lindley EM, Barton C, Blount T, Burger EL, Cain CMJ, Seim H, Turner AS, **Patel VV**. A Review of Control Group Outcomes in Sheep Fusion Models and Recommendations for Future Studies. 2014 Annual Meeting of the *American Academy of Orthopaedic Surgeons (AAOS)*. New Orleans, Louisiana, March 11-15 2014.
44. Lindley EM, Spiegel B, Zimkowski M, Rentschler M, Blount T, Milligan K, Burger EL, **Patel VV**. A New Method For Clinically Assessing Pain. 2014 Annual Meeting of the *American Academy of Orthopaedic Surgeons (AAOS)*. New Orleans, Louisiana, March 11-15 2014.

45. Lindley EM, Spiegel B, Milligan K, Zimkowski M, Rentschler M, Burger EL, **Patel VV**. A New Method For Clinically Assessing Pain. 34th Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)* and *Orthopaedic World Congress*. Hyderabad, India, October 17-19 2013.
46. Burger EL, Weitzel N, Razavi-Shearer D, Lindley EM, Henry SE, Kleck CJ, Cain CMJ, Noshchenko A, Jamison L, McBeth Z, **Patel VV**. Prospective analysis of coagulation profile testing to predict coagulopathy and morbidity in major spine surgery: Identifying the patient at risk. 34th Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)* and *Orthopaedic World Congress*. Hyderabad, India, October 17-19 2013.
47. Lindley EM, Burger EL, Cain CMJ, **Patel VV**. Fentanyl Iontophoretic Transdermal System and Morphine Intravenous Patient-Controlled Analgesia for Pain Management Following Spinal Surgery. 34th Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)* and *Orthopaedic World Congress*. Hyderabad, India, October 17-19 2013.
48. Lindley EM, Razavi-Shearer D, **Patel VV**, Henry SE, McBeth Z, Burger EL, Cain CMJ, Finn MA. Medical Marijuana Use Characteristics In Patients With Chronic Spine Pain Disorders. 34th Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)* and *Orthopaedic World Congress*. Hyderabad, India, October 17-19 2013.
49. Kleck CJ, LaFleur M, Lindley EM, Clark M, Burger EL, Cain CMJ, Rentschler ME, Razavi-Shearer D, **Patel VV**. Pedicle Screw Precision with 3-Dimensional Imaging, Navigation, and Measurement. 34th Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)* and *Orthopaedic World Congress*. Hyderabad, India, October 17-19 2013.
50. Lindley EM, Barton C, Blount T, Burger EL, Cain CMJ, Seim H, Turner AS, **Patel VV**. A Review of Control Group Outcomes in Sheep Fusion Models and Recommendations for Future Studies. 34th Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)* and *Orthopaedic World Congress*. Hyderabad, India, October 17-19 2013.
51. **Patel VV**, Lindley EM, Cain CMJ, Burger EL. Cervical Fusion Outcomes with the Use an External Bone Stimulator. 34th Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)* and *Orthopaedic World Congress*. Hyderabad, India, October 17-19 2013.
52. **Patel VV**, Lindley EM, Cain CMJ, Burger EL. Efficacy of an External Bone Stimulator in Promoting Lumbar Fusion. 34th Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)* and *Orthopaedic World Congress*. Hyderabad, India, October 17-19 2013.
53. Lindley EM, Bond A, Razavi-Shearer D, Noshchenko A, Henry SE, Burger EL, Cain CMJ, **Patel VV**. Vitamin D Deficiency in Spine Surgery Patients. 34th Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)* and *Orthopaedic World Congress*. Hyderabad, India, October 17-19 2013.
54. Lindley EM, Razavi-Shearer D, **Patel VV**, Henry SE, McBeth Z, Burger EL, Cain CMJ, Finn MA. Medical marijuana use characteristics in patients with chronic spine pain disorders. 28th Annual

Meeting of the *North American Spine Society (NASS)*. New Orleans, Louisiana, October 9-12 2013.

55. Lindley EM, Kleck CJ, **Patel VV**. Clinical and Functional Outcomes with Postoperative Adjunctive use of Pulsed Electromagnetic Field Stimulation in Cervical Fusion. Inagrual Summer Spine Meeting of the *North American Spine Society (NASS)*. Naples, Florida, July 31-August 3 2013.
56. Finn MA, Razavi-Shearer D, Henry SE, **Patel VV**, Burger EL, Cain CMJ, Lindley EM. Medical Marijuana use characteristics in the spinal surgery patient. 6th Annual meeting of the *Lumbar Spine Research Society (LSRS)*. Chicago, Illinois, April 11-12 2013.
57. Chatham L, **Patel VV**, Carpenter D: "Subject-specific Differences in Strain Levels in the Lumbar Spine Following Interbody Fusion" ORS 2013 Annual Meeting in San Antonio, Texas, January 26-29, 2013
58. Farmer R, Paietta R, Ferguson V, **Patel VV**, Burger-Van Der walt EL: "Histological Characterization of the Cartilaginous Endplate in the Human Spine" ORS 2013 Annual Meeting in San Antonio, Texas, January 26-29, 2013
59. Lindley EM, McBeth ZL, Henry SE, Burger EL, Cain CMJ, **Patel VV**. Retrograde ejaculation following anterior lumbar spine surgery. 33rd annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)* & 17th annual meeting of the *Pan Arab Orthopaedic Association (PAOA) Orthopaedic World Conference*. Dubai, United Arab Emirates, November 28-30 2012.
60. Burger EL, **Patel VV**, Noshchenko A. Modeling of vertebral strength topography by quantitative computed tomography (CT) imaging. 33rd annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)* & 17th annual meeting of the *Pan Arab Orthopaedic Association (PAOA) Orthopaedic World Conference*. Dubai, United Arab Emirates, November 28-30 2012.
61. Lindley EM, McBeth ZL, Henry SE, Burger EL, Cain CMJ, **Patel VV**. Retrograde ejaculation following anterior lumbar spine surgery. 27th Annual Meeting of the *North American Spine Society (NASS)*. Dallas, Texas, October 24-27 2012.
62. Chatham L, **Patel VV**, Carpenter D: "Effects of Age-related Cortical Thinning and Trabecular Bone Loss on the Strain Distribution in the Lumbar Spine Following Interbody Fusion" American Society of Bone and Mineral Research Annual Meeting, Oct 12-15, 2012, Abstract #SU0054
63. Farmer RP, Paietta RC, Ferguson VL, Burger E, **Patel VV**. Histological characterization of the cartilaginous endplate in the infant spine. 19th *International Meeting on Advanced Spine Techniques (IMAST)*. Istanbul, Turkey, Toronto, Canada, July 18-21, 2012.
64. Cain CM, Lafleur M, Rao M, Hollenbeck J, Rullkoetter PJ. Pre-operative anatomical FEA templating for patient selection and optimizing range of motion in TDR. 19th *International Meeting on Advanced Spine Techniques (IMAST)*. Istanbul, Turkey, Toronto Canada, July 18-21, 2012.
65. Noshchenko, A; Burger, EL; Cain, CM; Lindley, EM; Patel, **VV**. Two Year Bone Morphogenetic Protein Clinical Effects after Lumbar Fusion in Degenerative Disc Disease. 19th *International Meeting on Advanced Spine Techniques (IMAST)*. Istanbul, Turkey, Toronto, Canada, July 18-21, 2012.

66. Noshchenko A, Burger EL, **Patel VV**. Clinical Outcomes of Lumbar Arthrodeses in Patients with Spondylosis. 125th *Annual Meeting of the American Orthopaedic Association (AOA)*. Washington, DC, June 27-30, 2012.
67. Lindley EM, Zimkowski M, **Patel VV**, Rentschler M. Pain sensitivity testing using a novel computer-controlled pressure algometer that simultaneously records sympathetic nervous system responses to pain stimuli. Annual Meeting of the *American Pain Society (APS)*. Honolulu, Hawaii, May 16-19, 2012.
68. Cain C, Rao M, Rullkoetter P. Pre-op templating for TDR alignment: Is it clinically relevant? 12th Annual Meeting of *The International Society for the Advancement of Spine Surgery (ISASS)*. Barcelona, Spain, March 20-23, 2012.
69. Noshchenko A, Burger EL, Cain CMJ, Lindley EM, **Patel VV**; Two Year Bone Morphogenetic Protein Clinical Effects After Lumbar Fusion in Degenerative Disc Disease. 12th Annual Meeting of *The International Society for the Advancement of Spine Surgery (ISASS)*. Barcelona, Spain March 20-23, 2012.
70. Botolin S, Puttlitz C, Petrella A, Baldini T, Burger E, Abjornson C, **Patel VV**. Facet joint biomechanics at the treated and adjacent levels after total disc replacement. Annual Meeting of *The American Academy of Orthopaedic Surgeons (AAOS)*. San Diego, California, February 15-19, 2011.
71. Burger EL, **Patel VV**, Noshchenko A. Two Year Bone Morphogenetic Protein (BMP) Clinical effects after lumbar fusion in degenerative disc disease. Annual Meeting of *The American Academy of Orthopaedic Surgeons (AAOS)*. San Francisco, California, February 7-11, 2012.
72. Rao M, Cain CMJ, Rullkoetter, PJ. The influence of prodisc-I positioning on mechanics of the lumbar spine. Annual meeting of the *Orthopaedic Research Society (ORS)*. February 4-7, 2012.
73. Leahy P, McGilvray K, Sherman J, Traynelis V, Nottmeier E, Singh V, Murrell B, **Patel VV**, Puttlitz C: "Analysis of Anterior Cervical Discectomy and Fusion Kinematics when Supplemented with Facet Screw Instrumentation" Annual Meeting of the *Orthopaedic Research Society (ORS)*. 2012 Annual Meeting in San Francisco, California, February 4-7, 2012
74. Patil S, Lindley EM, Burger EL, **Patel VV**. O-arm and stealth system navigation for pedicle screw placement in thoracolumbar spine surgery. Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)*. Prague, Czech Republic, September 6-9, 2011.
75. Botolin S, Puttlitz C, Petrella A, Baldini T, Burger E, Abjornson C, **Patel VV**. Facet joint biomechanics at the treated and adjacent levels after total disc replacement. 124th Annual Meeting of *The American Orthopaedic Association (AOA)*. Boston, Massachusetts, June 22-25, 2011.
76. Patil S, Lindley EM, Burger EL, **Patel VV**. O-arm and stealth system navigation for pedicle screw placement in thoracolumbar spine surgery. 11th Annual Meeting of *The International Society for the Advancement of Spine Surgery (ISASS)*. Las Vegas, Nevada, April 26 - 29, 2011.
77. Golembeski S, Lindley EM, Sophacles A, Burger EL, **Patel VV**. Dynamic translating versus variable angle plates in anterior cervical discectomy and fusion. 11th Annual Meeting of The

International Society for the Advancement of Spine Surgery (ISASS). Las Vegas, Nevada, April 26 - 29, 2011.

78. Botolin S, Puttlitz C, Petrella A, Baldini T, Burger E, Abjornson C, **Patel VV**. Facet joint biomechanics at the treated and adjacent levels after total disc replacement. Annual Meeting of The *American Academy of Orthopaedic Surgeons (AAOS)*. San Diego, California, February 15-19, 2011.
79. Ayturk U; Schuldt D; **Patel VV**; Puttlitz C: "Orthotropic Continuum Model Development for Healthy and Degenerated Annulus Fibrosus Based on a Biaxial Testing Protocol": Annual Meeting of the *Orthopaedic Research Society (ORS)*. 2011 Annual Meeting in Long Beach, California, January 13-16, 2011
80. Ayturk U; **Patel VV**; Puttlitz C:" Finite Element Modeling of Degeneration-Related Biomechanical Changes of the Lumbar Spine": *Orthopaedic Research Society (ORS)*. Annual Meeting in Long Beach, California, January 13-16, 2011
81. Noshchenko A, Burger EL, **Patel VV**. Correlation of vertebral strength topography with 3-dimensional computed tomography structure. 25th Annual Meeting of the *North American Spine Society (NASS)*. Orlando, Florida, October 5-9, 2010.
82. Botolin S, Puttlitz C, Petrella A, Baldini T, Burger E, Abjornson C, **Patel VV**. Facet joint biomechanics at the treated and adjacent levels after total disc replacement. 25th Annual Meeting of the *North American Spine Society (NASS)*. Orlando, Florida, October 5-9, 2010.
83. Lindley EM, Sherman BP, Ohnmeiss D, Zigler J, Kasow DB, Janssen ME, Burger EL, **Patel VV**. The positive predictive value of provocative discography in artificial disc replacement. 25th Annual Meeting of the *North American Spine Society (NASS)*. Orlando, Florida, October 5-9, 2010.
84. Lindley, EM, McCullough M, Brown C, Burger EL, **Patel VV**. Complications associated with axial lumbar interbody fusion. 25th Annual Meeting of the *North American Spine Society (NASS)*. Orlando, Florida, October 5-9, 2010.
85. Botolin S, Puttlitz C, Petrella A, Baldini T, Burger E, Abjornson C, **Patel VV**. Facet joint biomechanics at the treated and adjacent levels after total disc replacement. 7th Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)*. Gothenburg, Sweden, August 31-September 3, 2010.
86. Lindley EM, McCullough M, Brown C; Burger EL; **Patel VV**. Complications associated with axial lumbar interbody fusion. 7th Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)*. Gothenburg, Sweden, August 31 – September 3, 2010.
87. Lindley EM, Robinson ES, Gonzalez P, Estes S, Cooley R, Burger EL, **Patel VV**. Piriformis syndrome versus radiculopathy following lumbar artificial disc replacement. 7th Annual Meeting of the *International Society of Orthopaedic Surgery and Traumatology (SICOT)*. Gothenburg, Sweden, August 31 – September 3, 2010.
88. Noshchenko A, Burger EL, **Patel VV**. Correlation of vertebral strength topography with 3-dimensional computed tomography structure. 7th Annual Meeting of the *International Society of*

Orthopaedic Surgery and Traumatology (SICOT). Gothenburg, Sweden, August 31 – September 3, 2010.

89. Botolin S, Puttlitz C, Petrella A, Baldini T, Burger E, Abjornson C, **Patel VV**. Facet joint biomechanics at the treated and adjacent levels after total disc replacement. 12th Meeting of the *Combined Orthopaedic Associations (COMOC)*. Glasgow, Scotland, September 12-17, 2010.
90. Lindley EM, McCullough M, Brown C; Burger EL; **Patel VV**. Complications associated with axial lumbar interbody fusion. 17th *International Meeting on Advanced Spine Techniques (IMAST)*. Toronto, Canada, July 21-24, 2010.
91. Lindley EM, Robinson ES, Gonzalez P, Estes S, Cooley R, Burger EL, **Patel VV**. Piriformis syndrome versus radiculopathy following lumbar artificial disc replacement. 17th *International Meeting on Advanced Spine Techniques (IMAST)*. Toronto, Canada, July 21-24, 2010.
92. Lindley EM, Sherman BP, Ohnmeiss D, Zigler J, Kasow DB, Jansses, ME, Burger EL, **Patel VV**. The positive predictive value of provocative discography in artificial disc replacement. 17th *International Meeting on Advanced Spine Techniques (IMAST)*. Toronto, Canada, July 21-24, 2010.
93. Noshchenko A, Burger EL, **Patel VV**. Correlation of vertebral strength topography with 3-dimensional computed tomography structure. 17th *International Meeting on Advanced Spine Techniques (IMAST)*. Toronto, Canada, July 21-24, 2010.
94. Botolin S, Puttlitz C, Petrella A, Baldini T, Burger E, Abjornson C, **Patel VV**. Facet joint biomechanics at the treated and adjacent levels after total disc replacement. 17th *International Meeting on Advanced Spine Techniques (IMAST)*. Toronto, Canada, July 21-24, 2010. **Winner of the Whitecloud Award for Best Basic Science Paper**
95. Lindley EM, McCullough M, Brown C; Burger EL; **Patel VV**. Complications associated with axial lumbar interbody fusion. *American College of Spine Surgery Annual Meeting (ACSS)*. Newport Beach, CA, June 10-12, 2010.
96. Lindley EM, Robinson ES, Gonzalez P, Estes S, Cooley R, Burger EL, **Patel VV**. Piriformis syndrome versus radiculopathy following lumbar artificial disc replacement. *American College of Spine Surgery Annual Meeting (ACSS)*. Newport Beach, CA, June 10-12, 2010.
97. Lindley EM, Sherman BP, Ohnmeiss D, Zigler J, Kasow DB, Jansses, ME, Burger EL, **Patel VV**. The positive predictive value of provocative discography in artificial disc replacement. *American College of Spine Surgery Annual Meeting (ACSS)*. Newport Beach, CA, June 10-12, 2010.
98. Botolin S, Puttlitz C, Petrella A, Baldini T, Burger E, Abjornson C, **Patel VV**. Facet joint biomechanics at the treated and adjacent levels after total disc replacement. *American College of Spine Surgery Annual Meeting (ACSS)*. Newport Beach, CA, June 10-12, 2010.
99. Noshchenko A, Burger EL, **Patel VV**. Correlation of vertebral strength topography with 3-dimensional computed tomography structure. *American College of Spine Surgery Annual Meeting (ACSS)*. Newport Beach, CA June 10-12, 2010.
100. Botolin S, Puttlitz C, Petrella A, Baldini T, Burger E, Abjornson C, **Patel VV**. Facet joint biomechanics at the treated and adjacent levels after total disc replacement. 10th Annual Meeting of the *Spine Arthroplasty Society (SAS)*. New Orleans, LA, April 27-30, 2010.

101. Lindley EM, McCullough M, Brown C; Burger EL; **Patel VV**. Complications Associated with Axial Lumbar Interbody Fusion. 10th Annual Meeting of the *Spine Arthroplasty Society (SAS)*. New Orleans, LA, April 27-30, 2010.
102. Lindley EM, Sherman BP, Ohnmeiss D; Zigler J; Kasow DB; Janssen ME; **Patel VV**. "The Positive Predictive Value of Provocative Discography in Artificial Disc Replacement." 10th Annual Meeting of the *Spine Arthroplasty Society(SAS)*. New Orleans, LA, April 27-30, 2010.
103. McCullough M, Lindley EM, Brown C; Burger EL; **Patel VV**. "Complications Associated with Axial Lumbar Interbody Fusion". 10th Annual Meeting of the *Spine Arthroplasty Society (SAS)*. New Orleans, LA, April 27-30, 2010.
104. Botolin S, Puttlitz C, Petrella A, Baldini T, Burger E, Abjornson C, **Patel VV**. "Facet joint biomechanics at the treated and adjacent levels after total disc replacement." 26th Annual Meeting of the *American Association of Neurological Surgeons/Congress of Neurological Surgeons: Disorders of the Spine and Peripheral Nerves*. Orlando, FL, February 17-20, 2010.
105. Robinson ES, Gonzalez P, Lindley EM, Estes S, Cooley R, Burger EL, **Patel VV**. "Piriformis Syndrome versus Radiculopathy Following Lumbar Artificial Disc Replacement". 26th Annual Meeting of the *American Association of Neurological Surgeons/Congress of Neurological Surgeons: Disorders of the Spine and Peripheral Nerves*. Orlando, FL, February 17-20, 2010.
106. Lindley EM; Sherman BP; Ohnmeiss D; Zigler J; Kasow DB; Janssen ME; **Patel VV**. "The Positive Predictive Value of Provocative Discography in Artificial Disc Replacement". 26th Annual Meeting of the *American Association of Neurological Surgeons/Congress of Neurological Surgeons: Disorders of the Spine and Peripheral Nerves*. Orlando, FL, February 17-20, 2010.
107. McCullough M; Lindley EM; Brown C; Burger EL; **Patel VV**. "Complications Associated with Axial Lumbar Interbody Fusion". 26th Annual Meeting of the *American Association of Neurological Surgeons/Congress of Neurological Surgeons: Disorders of the Spine and Peripheral Nerves*. Orlando, FL, February 17-20, 2010.
108. Botolin S, Baldini T, Burger EL, Puttlitz C, Abjornson C, Petrella A, Noshchenko A, Lindley E, **Patel VV**. "Lumbar Facet Joint Biomechanics after Nucleotomy, Nucleus Replacement, and Total Disc Replacement". 24th Annual Meeting of the *North American Spine Society (NASS)*. San Francisco, California, November 10-14, 2009.
109. Patil S, Zhang J, **Patel VV**, Burger EL. "AxiaLIF Surgical Outcomes." 24th Annual Meeting of the *North American Spine Society(NASS)*. San Francisco, California, November 10-14, 2009.
110. Lindley EM, Estes S, Burger E, **Patel VV**. "Evaluation of rh-BMP2/fibrin glue-associated edema in rabbit muscle tissue". 44th Annual Meeting of the *Scoliosis Research Society (SRS)*. San Antonio, Texas, September 23-26, 2009.
111. Burger EL, Yao X, **Patel VV**, Brown L, van der Walt C, Suzuki N, Baldini T. "A biomechanical model for evaluating the effects of rib head release on spinal motion". 44th Annual Meeting of the *Scoliosis Research Society (SRS)*. San Antonio, Texas, September 23-26, 2009.

112. Lindley EM, Estes S, Burger E, **Patel VV**. "Evaluation of rh-BMP2/fibrin glue-associated edema in rabbit muscle tissue". 16th Annual *International Meeting on Advanced Spine Techniques (IMAST)*. Vienna, Austria. July 15-18, 2009.
113. Burger EL, Yao X, **Patel VV**, Brown L, van der Walt C, Suzuki N, Baldini T. "A biomechanical model for evaluating the effects of rib head release on spinal motion". 16th Annual *International Meeting on Advanced Spine Techniques (IMAST)*. Vienna, Austria. July 15-18, 2009.
114. **Patel VV**, Abjornson C, Turner S, Seim HB, Lyons A, Puttlitz CM. "Failure Analysis of Absorbable Cervical Plates". 25th Annual Meeting of the *American Association of Neurological Surgeons/Congress of Neurological Surgeons. Section on Disorders of the Spine and Peripheral Nerves*. Phoenix, Arizona, March 11 - 14, 2009.
115. Lindley EM, Estes S, Burger EL, **Patel VV**. "Evaluation of rhBMP-2/Fibrin Glue-Associated Edema in Rabbit Muscle Tissue". 37th Annual Meeting of the *Cervical Spine Research Society*. Austin, Texas, December 4-6, 2008. *2008 Annual Meeting's Top 10 scoring Posters*
116. **Patel VV**, Abjornson C, Turner S, Seim HB, Lyons A, Puttlitz CM. "Histological Evaluation of Bioresorbable Plates in a Sheep Model". 37th Annual Meeting of the *Cervical Spine Research Society*. Austin, Texas, December 4-6, 2008.
117. Lindley EM, Estes S, Burger E, **Patel VV**. "Evaluation of rh-BMP2/fibrin glue-associated edema in rabbit muscle tissue". 23rd Annual Meeting of the *North American Spine Society (NASS)*. Toronto, Ontario, Canada, October 14-18, 2008.
118. **Patel VV**, Abjornson C, Turner S, Seim HB, Lyons A, Puttlitz CM. "Failure Analysis of Absorbable Cervical Plates". 23rd Annual Meeting of the *North American Spine Society(NASS)*. Toronto, Ontario, Canada, October 14-18, 2008.
119. **Patel VV**, Burger EL, Lindley EM, Zhao L, Wong P, Pradhan BB, Bae HW, Kanim L, Delamarter RB. "Tisseel fibrin glue use in spinal surgery: Effects on bone morphogenetic protein diffusion, bone morphogenetic protein-stimulated bone growth, and soft tissue swelling". *Tissue Engineering and Regenerative Medicine International Society*. Portugal, June 23, 2008.
120. **Patel VV**, Lyons A, Abjornson C, Turner AS, Puttlitz C: "P69 Histological Evaluation Of Bioresorbable Plates In A Sheep Model"; *SpineWeek International Spinal Conference*, Geneva, Switzerland, June 2008.
121. Puttlitz C, **Patel VV**, Santoni B: "P104 A Biomechanical Investigation Of Two-Level Cervical Disc Replacement And Associated Salvage Procedure"; *SpineWeek International Spinal Conference*, Geneva, Switzerland, June 2008.
122. Solomonow M, Lu Y, Zhou B, **Patel VV**, Solomonow D, Youssef J; "P273 Spine Stability Is Compromised After Cyclic Flexion"; *SpineWeek International Spinal Conference*, Geneva, Switzerland, June 2008.
123. **Patel VV**, Freudenberger C, Burger EL, Beard D, Reckling WC, Williams A: "P398 Clinical Outcomes Of Posterior Lumbar Interbody Fusion Versus Anterior Lumbar Interbody

Fusion With Anterior Tension Band Plating”; *SpineWeek International Spinal Conference*, Geneva, Switzerland, June 2008.

124. **Patel VV**, Bae H, Pradhan B, Toth J, Badura J, Seim III, H, Turner AS: “Ab121 Transient Short Term Local Bone Remodeling Effects Of High-Doses Of Rhbmp-2 In A Novel Preclinical Interbody Spine Fusion Model”; *SpineWeek International Spinal Conference*, Geneva, Switzerland, June 2008.
125. Puttlitz CM, McGilvray K, Lyons AS, Santoni BG, **Patel VV**, Turner AS: “Kinetic implications of replacement of a cervical intervertebral disc at adjacent levels and associated salvage procedure.” 54th Annual Meeting of the *Orthopaedic Research Society (ORS)*, San Francisco, CA, March 2-5, 2008
126. **Patel VV**, Sasso R, Benedict J: “Novel Cell-Binding Peptide As A Bone Graft Substitute” *North American Spine Society(NASS)* Annual Meeting, Oct. 2007
127. **Patel VV**, Benedict J, Turner S, Seim W: “Lumbar Spine Fusion In An Ovine Model Comparing P-15/Bgs To Autogenous Bone” *North American Spine Society Annual Meeting (NASS)*, Oct. 2007
128. **Patel VV**, Estes S, Burger EL: “The Financial Implications of Lumbar Disc Replacement vs. Fusion” *North American Spine Society(NASS)* Annual Meeting Oct. 2007
129. Burger EL, **Patel VV**: “Metal Memory” *North American Spine Society (NASS)* Annual Meeting, Oct. 2007
130. **Patel VV**, Sasso R, Benedict J: “Novel Cell-Binding Peptide As A Bone Graft Substitute” *Scoliosis Research Society (SRS)* International Meeting on Advanced Spinal Techniques Oct. 2007
131. Puttlitz CM, McGilvray K, Lyons A, Ayturk U, Turner AS, **Patel VV**. “Biomechanical implications of adjacent level cervical disc replacement and associated salvage procedures.” 14th *International Meeting on Advanced Spine Techniques (IMAST)*, July 11-14, 2007.
132. **Patel VV**, Benedict J, Turner S, Seim W: “Lumbar Spine Fusion In An Ovine Model Comparing P-15/Bgs To Autogenous Bone” *Scoliosis Research Society (SRR) International Meeting on Advanced Spinal Techniques (IMAST)*, July, 2007
133. **Patel VV**, Estes S, Burger EL: “The Financial Implications of Lumbar Disc Replacement vs. Fusion” *Scoliosis Research Society (SRS) International Meeting on Advanced Spinal Techniques (IMAST)*, July 2007
134. McGilvray, Lyons A, Turner AS, **Patel VV**, Puttlitz CM. “Kinetic and biomechanical testing of two-level cervical disc replacement.” 2007 *ASME Summer Bioengineering Conference*, Keystone, CO, June 20-24, 2007
135. Puttlitz CM, McGilvray K, Lyons A, Ayturk U, Turner AS, **Patel VV**. “Acute biomechanical implications of two-level cervical disc replacement and associated salvage procedure.” 7th Annual Meeting of the *Spine Arthroplasty Society (SAS)*, Berlin, May 1-4, 2007.
136. **Patel VV**: “Novel Cell-Binding Peptide As A Bone Graft Substitute” Annual Meeting *Orthopaedic Research Society (ORS)*, San Diego, CA, February 2007

137. **Patel VV**, Benedict J, Turner S, Seim W: "Lumbar Spine Fusion In An Ovine Model Comparing P-15/Bgs To Autogenous Bone" Annual Meeting *Orthopaedic Research Society (ORS)*, San Diego, CA, February 2007
138. **Patel VV**: "Novel Cell-Binding Peptide As A Bone Graft Substitute" Annual Meeting *American Academy of Orthopaedic Surgeons (AAOS)*, San Diego, CA, February 2007
139. Puttlitz C. M., McGilvray, K., Lyons, A., Ayturk, U. Turner, S., **Patel, VV**. "Acute Biomechanical Implications of Two-Level Cervical Disc Replacement and Associated Salvage Procedure. *Spine Arthroplasty Society Annual Meeting 2007*
140. **Patel VV**, Freudenberger C, Reckling CC, Beard D: "Lumbar Fusion: Anterior Plating vs Posterior Instrumentation" *Western Orthopaedic Association Annual Meeting*, Santa Fe, NM, Oct 11-15 2006.
141. **Patel VV**, Estes S: "Intraoperative C-Arm Based Multiplanar Myelography" *Western Orthopaedic Association Annual Meeting*, Santa Fe, NM, Oct 11-15 2006.
142. **Patel VV**, Estes S: "Use of Intraoperative Multiplanar Imaging and Myelography for Immediate Evaluation of Lumbar Spinal Decompression" International Meeting of *Advanced Spinal Concepts*, Athens Greece, July 2006
143. **Patel VV**, Pradhan BB, Zhao L, Wong P, Bae HW, Delamarter RB,: "Controlling Bone Morphogenetic Protein Stimulated Bone Growth with Fibrin Glue (A Biologic Sealant)" Proceedings of the *World Spine Society Annual Meeting Rio de Janiero Brazil*, Aug. 2005
144. **Patel VV**, Hsu S, Bae H, Pradhan B, Hedman T, Delamarter R,: "Biomechanical Evaluation of Floating and Fixed Center of Rotation Total Disc Replacements" Proceedings of the *World Spine Society Annual Meeting Rio de Janiero Brazil*, Aug. 2005
145. **Patel VV**, Pradhan B, Bae HW, Andrews C, Kanim LEA, Delamarter RB,: "Computed Tomography Evaluation of Positioning of Artificial Discs, Along with Its Radiographic and Clinical Relevance" Proceedings of the *World Spine Society Annual Meeting Rio de Janiero Brazil*, Aug. 2005
146. Pradhan BB, Bae HW, Kropf MA, **Patel VV**, Zhao L, Wong P, Delamarter RB: "Leakage of BMP from Absorbable Collagen Sponges during ACDF: Quantification and Radiographic Analysis for Ectopic Bone Formation in Canal" Proceedings of the *World Spine Society Annual Meeting Rio de Janiero Brazil*, Aug. 2005
147. Pradhan BB, Rudin B, Bae HW, Kanim LEA, Kamrava W, **Patel VV**, Delamarter RB: "Artificial Disc Replacement as a Salvage Treatment for Failed Back Syndrome" Proceedings of the *World Spine Society Annual Meeting Rio de Janiero Brazil*, Aug. 2005
148. BB Pradhan, Bae HW, **Patel VV**, Dawson EG, Delamarter RB,: "Graft Resorption with Recombinant Human Bone Morphogenetic Protein-2: Lessons from Anterior Lumbar Interbody Fusion Using Stand-Alone Femoral Ring Allografts" Proceedings of the *World Spine Society Annual Meeting Rio de Janiero Brazil*, Aug. 2005

149. **Patel VV**, Hsu S, Bae HW, Pradhan BB, Hedman T, Delamarter RB,: “Biomechanical Evaluation of Floating and Fixed Center of Rotation Total Disc Replacements” *International Meeting on Advanced Spinal Techniques (IMAST)*, Banff Canada 2005
150. **Patel VV**, Baldini T, Pradhan BB, Bach J: “Size Does Matter: Facet Joint Loads Relative to Pedicle Screw Head Size” *International Meeting on Advanced Spinal Techniques (IMAST)*, Banff Canada 2005.
151. **Patel VV**, Pradhan BB, Zhao L, Wong P, Bae HW, Delamarter RB,: “Controlling Bone Morphogenetic Protein Stimulated Bone Growth with Fibrin Glue” Proceedings of the *International Society of Study of the Lumbar Spine Annual Meeting*, New York, NY, Feb. 2005
152. **Patel VV**, Pradhan BB, Zhao L, Wong P, Bae HW, Delamarter RB,: “Controlling Bone Morphogenetic Protein Stimulated Bone Growth with Fibrin Glue” *North American Spine Society (NASS) Annual Meeting*, Chicago, IL, Nov 2004
153. Pradhan BB, Delamarter RB, **Patel VV**, Kropf MA, Bae HW, Dawson ED,: Can rhBMP-2 Enhance Fusion in Anterior Lumbar Interbody Fusion with Stand-Alone Femoral Ring Allografts?” *North American Spine Society (NASS) Annual Meeting*, Chicago, IL, Nov 2004
154. **Patel VV**, Pradhan BB, Zhao L, Wong P, Bae HW, Delamarter RB,: “Controlling Bone Morphogenetic Protein Stimulated Bone Growth with Fibrin Glue” *Scoliosis Research Society (SRS) Annual Meeting*, Buenos Aires, Argentina, Sept 2004
155. Pradhan BB, Delamarter RB, **Patel VV**, Kropf MA, Bae HW, Dawson EG’: Can rhBMP-2 Enhance Fusion in Anterior Lumbar Interbody Fusion with Stand-Alone Femoral Ring Allografts? *Scoliosis Research Society (SRS) Annual Meeting*, Buenos Aires, Argentina, Sept 2004
156. Pradhan BB, Delamarter RB, **Patel VV**, Kropf MA, Bae HW,: Kyphoplasty for Osteoporotic Vertebral Compression Fractures -- Correction of Local Kyphotic Deformity versus Overall Sagittal Alignment. *Scoliosis Research Society (SRS) Annual Meeting*, Buenos Aires, Argentina, Sept 2004.
157. **Patel VV**, Pradhan BB, Bae HW, Delamarter RB,: “Cervical Spine Motion After Disc Replacement”, Proceedings of The 11th *International Meeting on Advanced Spine Techniques(IMAST)* July 1-3, 2004 Southampton, Bermuda
158. **Patel VV**, Zhao L, Pradhan BB, Bae HW, Delamarter RB,: “Controlling BMP-stimulated Bone Growth using Fibrin Glue, Proceedings of The 11th *International Meeting on Advanced Spine Techniques (IMAST)*. July 1-3, 2004 Southampton, Bermuda
159. **Patel VV**, Andrews C, Kanim L, Pradhan BB, Kropf M., Bae HW, Delamarter RB,: “Computed Tomography Evaluation of Intervertebral Prosthesis “ Proceedings of The 11th *International Meeting on Advanced Spine Techniques (IMAST)* July 1-3, 2004 Southampton, Bermuda
160. Pradhan BB, Delamarter RB, **Patel VV**, Kropf MA, Bae HW,: “Kyphoplasty for Osteoporotic Vertebral Compression Fractures -- Correction of Local Kyphotic Deformity versus Overall Sagittal Alignment.” *International Meeting for Advanced Spinal Techniques (IMAST)*, Bermuda, Jun 2004.

161. Pradhan BB, Delamarter RB, **Patel VV**, Kropf MA, Bae HW, Dawson EG,: Can rhBMP-2 Enhance Fusion in Anterior Lumbar Interbody Fusion with Stand-Alone Femoral Ring Allografts? *International Meeting for Advanced Spinal Techniques (IMAST)*, Bermuda, Jun 2004.
162. Pradhan BB, Delamarter RB, **Patel VV**, Kropf MA, Bae HW,: Kyphoplasty for Osteoporotic Vertebral Compression Fractures -- Correction of Local Kyphotic Deformity versus Overall Sagittal Alignment. *International Society for Surgery of the Lumbar Spine*, Porto, Portugal, Jun 2004.
163. **Patel VV**, Andrews C, Delamarter RB, Kanim L, Pradhan BB, Kropf M, Bae HW,: "Intervertebral Prosthesis Position Evaluated by Computed Tomography: Relevance to Clinical Outcome" Proceedings of the *Spine Arthroplasty Society Summit 4*, Vienna Austria, May 2004.
164. **Patel VV**, Welcher J, Bae HW, Delamarter RB, Pradhan BB, Hedman T,: "Floating and Fixed Center of Rotation Intervertebral Prostheses: Biomechanical Comparison" Proceedings of the *Spine Arthroplasty Society Summit 4*, Vienna Austria, May 2004.
165. Pradhan BB, **Patel VV**, Bae HW, Delamarter R,: "The Effect of Kyphoplasty on Lumbar Spinal Alignment" *International Society for Study of the Lumbar Spine*, 31ST Annual Meeting Porto Portugal, May 2004
166. **Patel VV**, Hall K, Ries M, Colman W, Ozhinsky E, Majumdar S,: Non-invasive, weight bearing MRI analysis of tibio-femoral biomechanis. At: *International Society for Magnetic Resonance in Medicine*, Paper #1804, p.275; Honolulu, June 2002.
167. Hall K, **Patel VV**, Colman W, Lindsey C, Ozhinsky E, Ries M, Majumdar S. In-Vivo Quantitative Kinematic Magnetic Resonance Imaging of the Patellofemoral Joint. At: *International Society for Magnetic Resonance in Medicine*, Paper #96 p.17; Honolulu, June 2002.
168. Roy N, **Patel VV**, Coughlin R,: "Buffer Zone Hospital Experience After the Gujarat, India Earthquake" Proceedings of the 1st *Mediterranean Emergency Medicine* Conference, Sept 2-5 2001, Stresa, Italy.
169. **Patel VV**, Issever A, Ries M, Burghardt A, Majumdar S,: "Micro-CT Evaluation of Arthritic and Normal Knee Trabecular Bone Structure" Proceeding of the *American Society of Bone and Mineral Research Annual Meeting*, Phoenix, AZ. Oct. 16, 2001.
170. **Patel VV**, Ries M, Burghardt A, Ghosh S, Majumdar S,: "Micro-CT Evaluation of Normal and Arthritic Knee Trabecular Bone Structure" Proceedings of the 4th *Combined Meeting of the Orthopaedic Research Society*, Rhodes, Greece, June 2001.
171. **Patel VV**, Hall K, Ries M, Majumdar S,: "MRI Evaluation of Knee Biomechanics" Proceeding of the *Western Orthopaedic Association 65th Annual Meeting*, San Francisco CA. Sept.22-26, 2001, p.49.
172. **Patel VV**, Issever A, Ries M, Burghardt A, Majumdar S,: "Use of Micro-CT for Comparison of Normal with Arthritic Knee Bone Structure" Proceeding of the *Western Orthopaedic Association 65th Annual Meeting*, San Francisco CA. Sept. 2001, p.141.

173. **Patel VV**, Vannier M, Marsh J, Lo L,: “Evaluation of Digital Surgical Simulation,” Computer Assisted Radiology – Proceedings of the *International Symposium on Computer and Communication Systems for Image Guided Diagnosis and Therapy*, June, 1995, pp 783-788.
174. Lo L, Marsh J, **Patel VV**, Vannier M,: “Craniofacial Surgical Simulation and Outcome Validation,” Computer Assisted Radiology – Proceedings of the *International Symposium on Computer and Communication Systems for Image Guided Diagnosis and Therapy*, June, 1995, pp 789-794.
175. Lo L, **Patel VV**, Vannier M, Marsh J,: “Craniofacial Surgical Planning and Simulation,” Proceedings of the 6th *International Society of Craniofacial Surgery*, San Tropez, France, Oct. 23-25, 1995.

A handwritten signature in black ink, appearing to read 'Vikas V. Patel', with a large, sweeping underline.

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