



Cleveland Spine Review: *Hands-On 2018*

Presented by Cleveland Clinic Center for Spine Health

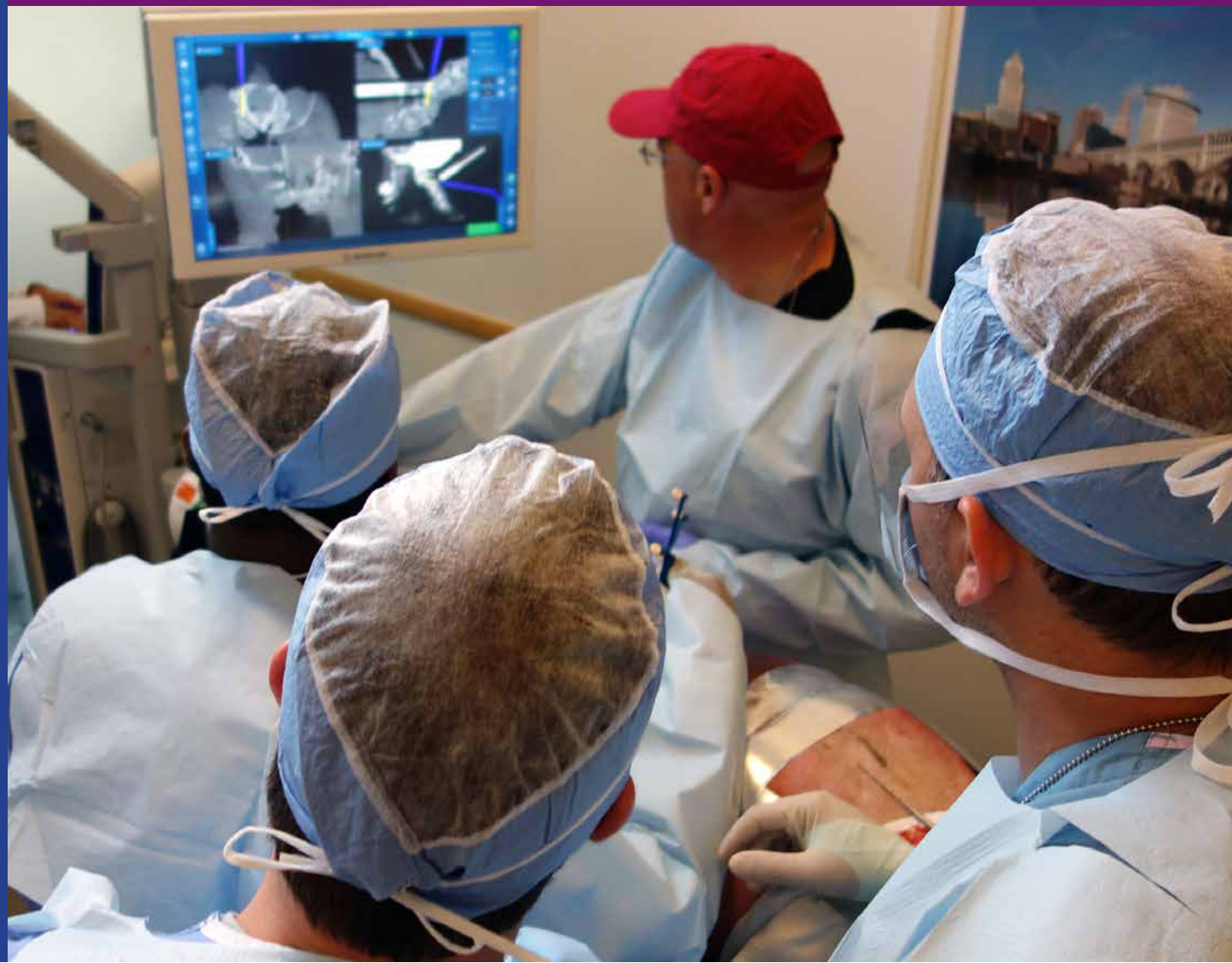
A comprehensive approach
for Neurosurgeons,
Orthopaedic Surgeons,
Medical Spine Specialists,
and Advanced Practice
Providers

July 10-17, 2018

Cleveland Clinic Lutheran Hospital
Hyatt Regency at the Arcade
Cleveland, OH

Now Included

“Management of Spine Tumors” didactic
lectures on July 10 & 11



Cleveland Spine Review: *Hands-On 2018*



Cleveland Spine Review: *Hands-On 2018* is a comprehensive course utilizing the cadaver laboratory and didactic sessions with ample time for discussion. This intensive course emphasizes the fundamentals of spine surgery, particularly biomechanical considerations, and the surgery decision-making process.

Through intensive, hands-on sessions utilizing cadavers, participants study surgical techniques and strategies for a range of procedures including occipitocervical, cervical, thoracic, and lumbar fixation techniques. Complex surgical exposures in all regions of the spine are emphasized.

Led by experienced faculty, the course examines the multiple adjuncts to surgery, including soft tissue and bone retractors and distractors, minimally invasive surgical techniques, spinal implants (from multiple vendors), and dissection tools. Non-operative strategies are also emphasized. Significant time is dedicated to operative indication discussions. The problem-based decision-making process is introduced and emphasized during these very interactive discussions.

Upon completion of the Cleveland Spine Review, the participant will be able to:

- Utilize problem-based decision-making to develop logical algorithms for solving complex problems.
- Employ physiological and surgical principles to spinal fusion and instrumentation.
- Apply anatomic and physiologic principles to the variety of surgical approaches available to access all regions of the spine.

- Recognize the fundamental skills required to perform the most appropriate operation for any given clinical pathology, and to recognize one's own limitations in this regard.
- Evaluate available instrumentation systems and appreciate the advantages of each, as well as the relative indications for their use.

Why Should Non-Surgeons Attend?

Nurses, Advanced Practice Nurses, Physician Assistants, Physiatrists and other medical spine specialists have the unique opportunity to learn side by side, in didactic sessions as well as a cadaver laboratory, with surgeons in a relaxed, collegial atmosphere. Additionally, a special session for non-surgeons is held prior to the start of the Spine Review on the first day to meet fellow attendees and prepare for the content to be presented throughout the remainder of the course. A variety of non-surgical breakout sessions and a cadaver dedicated to non-surgeons gives participants a multifaceted learning experience. Social functions complete an extremely memorable course.

The Ohio Board of Nursing will accept at face value the number of contact hours awarded for an educational activity that has been approved for CE by a nationally accredited system of CE approval. Nurses are able to obtain CE that has been approved or provided by a nationally recognized accreditation system of continuing education. Examples include:

- The American Nurses Credentialing Center (ANCC)
- The Accreditation Council for Continuing Medical Education (ACCME)
- The International Association for Continuing Education and Training (IACET)

Comments from the past course evaluation forms...

This was a one of a kind course! It was wonderful dealing with a very friendly group of people. Everyone was so helpful and willing to teach. The course was intense during the day and the social activities were a great way to unwind from the day. The lectures followed by labs enhanced the learning process.

Another great conference. A+ for the course!

I feel that this was an excellent course, truly one of a kind. Faculty was great. There was a wealth of knowledge and everyone was friendly and did not mind explaining or talking to you.

This is by far the best course I have attended. The topics covered are all pertinent and the course is the right length. The interaction with the faculty during dissections was very valuable. The hike is a great break and occurred at the right time. It would be hard to improve the course.

Happy to work in a small group especially in the lab. Thank you for offering special nursing topics.

This is the best course ever.

Great conference and social events.

Register online at www.ccfcmc.org/spinereview18

The Art Steffee Honored Guest Lecturer

Wellington K. Hsu, MD

Clifford C. Raisbeck Distinguished Professor
of Orthopaedic Surgery
Northwestern University Feinberg School
of Medicine

Course Directors

Lilyana Angelov, MD

Cleveland Clinic, Cleveland, OH

Edward C. Benzel, MD

Cleveland Clinic, Cleveland, OH

Douglas Orr, MD

Cleveland Clinic, Cleveland, OH

Jason Savage, MD

Cleveland Clinic, Cleveland, OH

Richard Schlenk, MD

Cleveland Clinic, Cleveland, OH

Michael Steinmetz, MD

Cleveland Clinic, Cleveland, OH

Gregory R. Trost, MD

University of Wisconsin, Madison, WI

Planning Committee Members

Erin Anderson, PA-C

Cleveland Clinic, Cleveland, OH

Andrea Strayer, MS, A/G NP, CNRN

University of Wisconsin, Madison, WI

Rachel Waite, CNP

Cleveland Clinic, Cleveland, OH

Wellington K. Hsu, MD

The Art Steffee Honored Guest Lecturer



Wellington K. Hsu, MD currently serves with distinction as the Clifford C. Raisbeck, MD, Professor of Orthopaedic Surgery at the Northwestern Feinberg School of Medicine. In addition, Dr. Hsu serves as Director of Research for the Musculoskeletal Institute at Northwestern Medicine and also holds a faculty appointment in the Department of Neurological Surgery.

Dr. Hsu's clinical practice focuses on the use of minimally invasive procedures to treat spinal disorders. This includes the integration of technological advances such as image navigation, percutaneous instrumentation placement, and robotic surgery. He has widely popularized and internationally introduced the use of novel techniques to shorten recovery times and improve outcomes such as lateral interbody lumbar fusions, cortical pedicle screws, and posterior tubular access surgery. As a result of his clinical expertise and reputation, Dr. Hsu was named one of the Top 26 North American Spine Surgeons, by *Orthopaedics This Week* in 2016. He is also a past winner of the James K. Stack Northwestern Department of Orthopaedic Surgery Teaching Award, voted upon the resident physicians of the program.

As part of the Simpson Querrey Institute of Bionanotechnology, the Hsu laboratory focuses on developing novel biomaterials for bone regeneration. Dr. Hsu and his wife, Erin L. Hsu, PhD, study stem cell-based therapies, nanotechnology-based synthetic matrices, and osteoinductive 3D-printable natural materials in order to provide a growth-factor-free bone graft substitute for spinal fusion. Work from the Hsu laboratory has received international recognition and recently been published in high-impact journals such as *Nature Nanotechnology* and *Science Translational Medicine*. These efforts are funded by a prestigious National Institutes of Health R01 research grant making Northwestern University one of the few orthopaedic departments in the country to hold such an honor.

Dr. Hsu has also been widely acknowledged for his clinical research efforts involving the orthopaedic care of elite and professional athletes. Over the past decade, his research team has developed the Sports Professional Orthopaedic Research Tool (SPORT) which utilizes predictive modeling to increase the understanding of the impact of musculoskeletal procedures on clinical outcomes such as game performance. Work from this research program has led to more than 20 peer-reviewed manuscripts and 70 international presentations reporting outcomes from a variety of injuries and identifying sport-specific demands that affect return-to-play rates after treatment.

Arthur D. Steffee, MD

Arthur D. Steffee, MD, practiced in Cleveland, OH from 1967 thru 1998 with a special interest in total joint replacement and spine surgery. He received his B.S. degree from Allegheny College, graduated from McGill University's medical school and completed his residency at Cleveland Clinic. Throughout his career, he received numerous awards and recognition for his pioneering contributions to medicine. In 1983, Dr. Steffee started AcroMed, a company that produced spinal implants for which he holds many patents. He's traveled extensively throughout the world for AcroMed, operating in 35 different countries. Dr. Steffee retired from active practice in 1996 but continued to travel and operate until 1998. His company was sold to DePuy and subsequently to Johnson & Johnson.

Course Faculty



Guest Faculty

Jonathan Belding, MD
MetroHealth Medical Center
Cleveland, OH

Nathanial Brooks, MD
University of Wisconsin Hospitals
& Clinics
Madison, WI

Eldad Hadar, MD
University of North Carolina
Chapel Hill, NC

Wellington K. Hsu, MD
Northwestern University
Chicago, IL

Alex Jones, MD
Loyola University Medical Center
Chicago, IL

Des Kwok, BSc, MD, FRCS
Hamilton General Hospital
Hamilton, Ontario

Vince Miele, MD
University of Pittsburgh Medical
Center
Pittsburgh, PA

Tim Moore, MD
MetroHealth Medical Center
Cleveland, OH

Denise Niklasch, DNP-CNRN
Medical College of Wisconsin
Milwaukee, WI

Sharad Rajpal, MD
University of Wisconsin Hospitals
& Clinics
Madison, WI

Abdelfattah Saoud, MD, PhD
Ain Shams University
Cairo, Egypt

Shelly Schmoller, PA-C
University of Wisconsin Hospitals
& Clinics
Madison, WI

**Andrea Strayer, MS, A/G NP,
CNRN**
University of Wisconsin Hospitals
& Clinics
Madison, WI

Suzanne Tharin, MD
Stanford University
Stanford, CA

Greg Trost, MD
University of Wisconsin Hospitals
& Clinics
Madison, WI

Andrew Wakefield, MD
Hartford Hospital
Hartford, CT

Cleveland Clinic Faculty

Erin Anderson, PA-C
Center for Spine Health

Lilyana Angelov, MD
Center for Spine Health

Edward Benzel, MD
Center for Spine Health

Sam Chao, MD
Radiation Oncology

Sara Davin, PhysD
Psychiatry and Psychology

Russ DeMicco, MD
Center for Spine Health

Todd Emch, MD
Diagnostic Radiology

Ryan Goodwin, MD
Orthopaedic Surgery

Kush Goyal, MD
Center for Spine Health

Iain Kalfas, MD
Center for Spine Health

Ajit Krishnaney, MD
Center for Spine Health

Alfred Melillo, PA-C
Center for Spine Health

Don Moore, MD
Center for Spine Health

Tom Mroz, MD
Center for Spine Health

Sean Nagel, MD
Center for Neurological Restoration

Kaine Onwuzulike, MD
Center for Pediatric Neurosciences

Douglas Orr, MD
Center for Spine Health

Dominic Pelle, MD
Center for Spine Health

Peter Rasmussen, MD
Cerebrovascular Center

Pablo Recinos, MD
Brain Tumor and Neuro-Oncology
Center

Jason Savage, MD
Center for Spine Health

Richard Schlenk, MD
Center for Spine Health

Joanne Schneider, DNP
Pain Management

Michael Steinmetz, MD
Center for Spine Health

Gandhivarma Subramaniam, MD
Center for Spine Health

John Suh, MD
Radiation Oncology

Santhosh Thomas, DO
Center for Spine Health

Rachel Waite, CNP
Center for Spine Health

Lab Faculty

James Anderson, MD

St Vincent Charity
Cleveland, OH

Basem Awad, MD

Mansoura University School of
Medicine
Mansoura, Egypt

Haluk Berk, MD

Dokuz Eylul University
Izmir, Turkey

Avery Buchholz, MD

Medical University of South
Carolina
Charleston, SC

Navjot Chaudhary, MD

Stanford University
Stanford, CA

Dan Coughlin, MD

Cleveland Clinic
Cleveland, OH

Renato Deusdara

SOS Neurologico
Brasilia, Brazil

Perry Dhaliwal, MD

Orlando Health Neurosurgery
Orlando, FL

Payman Farsi, MD

Atieh Hospital
Tehran, Iran

Pablo Fiorillo, MD

S.A.P.C.V
Buenos Aires, Argentina

Brett Freedman, MD

Mayo Clinic
Rochester, MN

Gaith Habboub, MD

Cleveland Clinic
Cleveland, OH

Nader Hebela, MD

Cleveland Clinic Abu Dhabi

Gwyneth Hughes, MD

Akron Children's Hospital
Akron, OH

James Liu, MD

Moffitt Cancer Center
Tampa, FL

Miguel Lopez-Gonzalez, MD

Loma Linda University
Loma Linda, CA

Konstantino Margetis, MD

Icahn School of Medicine
New York, NY

Virgilio Matheus, MD

Orlando Health Neurosurgery
Orlando, FL

Salvador Mattar Diaz, MD

Barranquilla, Colombia

Dennis McDonnell, MD

Fargo, ND

Yousif R. Mohammed, MD

Erbil Teaching Hospital
Erbil, Iraq

Jeff Mullin, MD

University of Virginia
Charlottesville, VA

Jaime Nieto, MD

New York Presbyterian
Los Angeles, CA

Kostas Paterakis, MD

University of Thessaly
Thessaly, Greece

Nikolay Peev, MD

Belfast HSC Trust
Belfast, Northern Ireland

Tiffany Perry, MD

Cedars-Sinai Medical Center
Los Angeles, CA

Ioanis Polythorakis, MD

Hygeia Hospital
Athens, Greece

Paul Porensky, MD

San Diego, CA

Srinivas Prasad, MD

Thomas Jefferson University
Hospital

Luigi Rigante, MD

Cleveland Clinic Abu Dhabi

Mario Rott, MD

Rio Grande
Tierra Del Fuego, Argentina

Sergey Ryabykh, MD

Ilizarov Center
Kurgan, Russia

Krishna Sharma, MD

Nepal Medical College
Kathmandu, Nepal

John Shin, MD

Mass General Hospital
Boston, MA

Ranvijai Singh, MD

Neurosurgical Associates
Norfolk, VA

Saksith Smithason, MD

Southeastern Regional Medical
Center
Lumberton, NC

Gandhivarma Subramaniam, MD

Cleveland Clinic
Cleveland, OH

Assem Sultan, MD

Cleveland Clinic
Cleveland, OH

Amit Thapa, MD

Kathmandu Medical College
Kathmandu, Nepal

Kene Ugokwe, MD

Youngstown Neurologic Associates
Youngstown, OH

Vedant Vaksha, MD

Indian Spinal Injuries Centre
New Delhi, India

Felipe Valdivia, MD

Clinica Alemana de Santiago
Santiago, Chile

Rodrigo Vallejo, MD

Clinica Alemana de Santiago
Santiago, Chile

Shaleen Vira, MD

Cleveland Clinic
Cleveland, OH

Steven Will, MD

Berkshire Medical Center
Pittsfield, MA

Patricio Yokota Beuret, MD

Universidad Valparaíso
Valparaíso, Chile

Unique Features of the Course

- Interactive Small Group Case Presentations – Participants are **encouraged** to bring cases for discussion
- Collegial atmosphere with ample opportunity to pose questions to the faculty and honored guest one-on-one and during lectures

Course Schedule

- The program runs from Tuesday, July 10 through Tuesday, July 17.
- The pre-course non-surgical lectures begin at 11:30 am on Wednesday, July 11.
- **Round-trip transportation from the Hyatt Regency Hotel at the Arcade to Cleveland Clinic Lutheran Hospital will be provided each day.**
- **Now Included** – “Management of Spine Tumors” didactic lectures on July 10 & 11.



Management of Spine Tumors

Hyatt Regency Hotel at the Arcade

July 10-11, 2018

Tuesday, July 10, 2018

- 8:30 **Welcome and Introductions** – *Lilyana Angelov*
- 8:40 **Introduction to Spine Tumors** – *Lilyana Angelov*
- 9:05 **Surgical Management of Complex Spine Tumors** – *Ajit Krishnaney*
- 9:30 **Case Studies** – *Lecturing Faculty*
- 10:15 **Break**
- 10:30 **Surgical Navigation for Spine Tumor Resection** – *Iain Kalfas*
- 10:50 **Minimally Invasive Options in the Management of Malignant Spinal Tumors** – *Jason Savage*
- 11:15 **Vertebral Augmentation in Spinal Tumors** – *Richard Schlenk*
- 11:40 **Case Studies** – *Lecturing Faculty*
- 12:00 **Lunch**
- 13:00 **Introduction to Primary Bone Tumors of the Spine** – *Tom Mroz*
- 13:25 **The Role of En Bloc Resection and Techniques in Malignant Spine Tumors** – *Michael Steinmetz*
- 13:50 **Instrumentation Failure in Metastatic Spine Disease** – *Douglas Orr*
- 14:15 **Surgical Management of Malignant Sacral Tumors** – *Abdelfattah Saoud*
- 14:40 **Case Studies** – *Lecturing Faculty*
- 15:00 **Break**
- 15:15 **Conventional Radiotherapy in the Management of Spine Tumors** – *John Suh*
- 16:40 **Introduction to Radiosurgery** – *Lilyana Angelov*
- 16:05 **Surgical Management of Pain in Spine Tumor Patients** – *Sean Nagel*
- 16:30 **Adjourn**

Wednesday, July 11, 2018

- 8:00 **Management of Intradural Extramedullary Tumors** – *Edward Benzel*
- 8:25 **Radiosurgery for Benign Tumors** – *Sam Chao*
- 8:50 **Management of Intramedullary Tumors** – *Gandhivarma Subramaniam*
- 9:15 **Case Studies** – *Lecturing Faculty*
- 9:40 **Break**
- 10:00 **Chordomas Tumors and Other Craniocervical Junction Tumors** – *Greg Trost*
- 10:40 **Quality of Life and Its Impact on Terminal Patients** – *Des Kwok*
- 11:05 **Spine Tumor Management in the 21st Century: A Multidisciplinary Approach** – *Edward Benzel*
- 11:30 **Adjourn**

Spine Course Agenda

Cleveland Spine Review

Wednesday, July 11, 2018

Cleveland Spine Review

- 14:30-15:00 **Welcome and Introduction** – Edward Benzel
- 15:00-15:30 **Assessment and Treatment of the Failed Back** – Douglas Orr
- 15:30-16:00 **Mimics of Spine Pathology with Cases** – Jason Savage
- 16:00-16:30 **Medical Management of Complex Spine Surgery Patients** – Suzanne Tharin
- 16:30-16:50 **Post-Op Pain Management** – Andrea Strayer
- 16:50-18:30 **Panel Discussion**
Moderator: Richard Schlenk
Sara Davin, Santhosh Thomas, Sean Nagel, Jason Savage
- 18:30-19:30 **Cases** – Douglas Orr and Greg Trost



Thursday, July 12, 2018

- 6:45-7:00 **Short Subjects** – Edward Benzel
- 7:00-7:30 **Fundamentals of Biomechanics** – Edward Benzel
- 7:30-8:30 **Craniocervical Pathologies and Approaches with Cases** – Greg Trost, Rich Schlenk, Pablo Recinos
- 8:30-9:00 **Current Strategies in Cranio-cervical Stabilization** – Iain Kalfas
- 9:00-9:10 **It's All About the Hike** – Edward Benzel
- 9:10-9:30 **Case Discussion** – Moderator: Greg Trost and Lecturing Faculty
- 9:30-9:45 **Transition to Lab and Instructor Meeting**
- 9:45-11:25 **Lab 1: Trans-Oral and Whitesides Approach** – Lab Faculty
- 11:25-12:30 **Lunch with Cases** – Greg Trost, Iain Kalfas
- 12:30-13:00 **Ventral Approaches and Techniques/Tricks** – Tom Mroz
- 13:00-13:30 **Cervical Arthroplasty: Indications, Tips, Tricks** – Greg Trost
- 13:30-14:15 **Cervical Subaxial Trauma** – Tim Moore
- 14:15-14:30 **Peds Spine Trauma: Injury Pattern vs Adult** – Kaine Onwuzulike
- 14:30-14:45 **Case Discussion** – Moderator: Greg Trost and Lecturing Faculty
- 14:45-15:00 **Transition to Lab**
- 15:00-16:55 **Lab 2: Ventral Exposures and Instrumentation** – Lab Faculty
- 16:55-17:30 **Cases** – Moderator: Greg Trost and Lecturing Faculty

Spine Course Agenda



Friday, July 13, 2018

- 6:45-7:00 **Short Subjects** – Edward Benzel
- 7:00-7:30 **Instrumentation and Construct Design** – Edward Benzel
- 7:30-7:55 **Dorsal Decompression Techniques** – Don Moore
- 7:55-8:20 **Dorsal Subaxial Fixation** – Eldad Hadar
- 8:20-8:50 **Cervical Deformity Diagnosis and Treatment** – Richard Schenk
- 8:50-9:30 **Cases: The Decision-Making Process** – Greg Trost
- 9:30-9:45 **Transition to Lab**
- 9:45-11:25 **Lab 3: Occipito Cervical Dorsal Exposure and Instrumentation** – Lab Faculty
- 11:25-12:20 **Lunch with Cases** – Eldad Hadar
- 12:20-12:30 **It's All About the Hike 2** – Edward Benzel
- 12:30-13:00 **Biomechanics 301: Fusion and Motion Preservation** – Edward Benzel
- 13:00-13:20 **MIS Cervical Techniques** – Michael Steinmetz
- 13:20-14:05 **Spine Bowl** – Greg Trost and Suzanne Tharin
- 14:05-14:15 **Transition to Lab**
- 14:15-16:15 **Lab 4: Cervicothoracic Dorsal Exposure Instrumentation and Deformity** – Lab Faculty
- 16:15-17:00 **Art Steffee Lecture** – Wellington Hsu
"Surgery in the High Performance Athlete"

Saturday, July 14, 2018

- 8:00-8:15 **Short Subjects** – Edward Benzel
- 8:15-8:45 **Modifiable Factors To Prevent Spine Surgical Infections** – Alex Jones
- 8:45-9:15 **Spine Vascular Pathologies** – Peter Rasmussen
- 9:15-9:45 **Stephen Halton Jr Lecture** – Wellington Hsu
"Current Concepts in Spinal Biologics"
- 9:45-10:05 **How to Write an Article** – Edward Benzel
- 10:05-10:25 **Reading and Interpreting Articles** – Suzanne Tharin
- 10:25-10:45 **Good Article/Bad Article Examples** – Suzanne Tharin
- 10:45-11:05 **Surgery of Geriatric Spine** – Douglas Orr
- 11:05-11:35 **Point-Counterpoint: Degenerative Spondylosisthesis with Stenosis: Fuse or Not** – Wellington Hsu, Jason Savage
- 11:35-12:00 **It's All About the Hike 3** – Edward Benzel
- 12:00-13:00 **Cases** – Moderator: Doug Orr and Lecturing Faculty



Spine Course Agenda



Sunday, July 15, 2018

- 8:00-8:15 **Short Subjects** – Edward Benzel
- 8:15-8:45 **Spine Tumor Work-up and Treatment Options** – Ajit Krishnaney
- 8:45-9:15 **What to Do When Neuromonitoring Changes** – Michael Steinmetz
- 9:15-9:45 **Exposures and Techniques: Cervicothoracic Junction** – Richard Schlenk
- 9:45-10:15 **Dorsal Thoracic and Lumbar Instrumentation** – Nathaniel Brooks
- 10:15-10:30 **Transition to Lab**
- 10:30-12:25 **Lab 5: Dorsal Thoracic Exposures and Instrumentation** – Lab Faculty
- 12:25-13:30 **Lunch Lecture: Patient Selection for Fusion** – Sharad Rajpal
- 13:30-14:00 **Lumbar Complications: Avoidance and Treatment with Cases** – Andrew Wakefield
- 14:00-14:30 **Ventral Exposures and Techniques: Thoracolumbar Spine** – Greg Trost
- 14:30-15:00 **Interbody Fusion Options and Techniques with Cases** – Dom Pelle
- 15:00-15:15 **Transition to Lab**
- 15:15-16:55 **Lab 6: Ventral Exposures and Instrumentation** – Lab Faculty
- 16:55-18:00 **Spine Bowl II** – Greg Trost

Monday, July 16, 2018

- 6:45-7:00 **Short Subjects** – Edward Benzel
- 7:00-7:30 **Thoracolumbar Trauma** – Jonathan Belding
- 7:30-8:00 **Peds Spine Scoliosis: Include Lenke** – Ryan Goodwin
- 8:00-8:30 **Adult Deformity Measurement and Classification** – Jason Savage
- 8:30-9:00 **Degenerative Spondy and Scoliosis** – Richard Schlenk
- 9:00-9:15 **Iatrogenic Deformity Prevention** – Ajit Krishnaney
- 9:15-9:45 **Deformity Correction Techniques** – Douglas Orr
- 9:45-10:05 **Where Should I Stop? L5 S1 Pelvis** – Abdelfattah Saoud
- 10:05-10:15 **Transition to Lab**
- 10:15-12:10 **Lab 7: Deformity** – Lab Faculty
- 12:10-13:00 **Spine Bowl Finale** – Greg Trost
- 13:00-13:15 **MIS Lumbar Decompression** – Tom Mroz
- 13:15-13:30 **MIS: Endoscopic Decompression and Fusion** – Michael Steinmetz
- 13:30-14:00 **MIS Advanced Topics: Deformity and Trauma** – Nathaniel Brooks
- 14:00-14:30 **MIS: TLIF** – Vince Miele
- 14:30-14:50 **SI Fusion Patient Evaluation – Indications and Techniques** – Sharad Rajpal
- 14:50-15:00 **Transition to Lab**
- 15:00-17:00 **Lab 8: Participant Choice Lab and Cases** – Lab Faculty

Tuesday, July 17, 2018

- 6:45-7:00 **Short Subjects** – Edward Benzel
- 7:00-7:30 **Intraoperative Spinal Imaging and Radiation Exposure** – Tom Mroz
- 7:30-8:00 **Primary Spinal Infections Investigation and Treatment** – Sharad Rajpal
- 8:00-8:30 **Cost Effectiveness of Spinal Surgery** – Suzanne Tharin
- 8:30-10:00 **Case-Based Debates** – Ed Benzel, Moderator
- 8:30-9:00 **Cervical Radiculopathy** – Iain Kalfas, Greg Trost, Tom Mroz
- 9:00-9:30 **Stenosis in Degenerative Scoliosis** – Doug Orr, Jason Savage
- 9:30-10:00 **Collapsed L5-S1 w/L5 Radiculopathy** – Michael Steinmetz, Richard Schenk, Jason Savage

Non-surgeon Lectures

Nurses, Advanced Practice Nurses, Physician Assistants, Physiatrists and other medical spine specialists have the unique opportunity to learn side by side, in didactic sessions as well as a cadaver laboratory, with surgeons in a relaxed, collegial atmosphere.

Wednesday, July 11, at Hyatt Regency Hotel at the Arcade

- 11:00-11:30 **Registration/Meet and Greet/Lunch**
- 11:30-11:40 **Welcome and Introductions** – *Andrea Strayer, Erin Anderson, and Rachel Waite*
- 11:40-12:10 **Spine and Peripheral Nerve Anatomy** – *Andrea Strayer*
- 12:10-12:40 **Spine Pathology Basics** – *Al Melillo*
- 12:40-13:05 **When to Order Imaging?** – *Rachel Waite*
- 13:05-13:35 **Now That I Have Imaging – How to Interpret** – *Todd Emch*
- 13:35-14:10 **Spinal Column Pathology and Medical Decision Making: The Surgeon's Perspectives** – *Greg Trost*

Thursday, July 12, at Lutheran Hospital

- 10:30-11:25 **Spine Cases** – *Erin Anderson and Shelly Schmoller*
- 16:30-16:55 **Chronic Pain** – *Joanne Schneider*

Friday, July 13, at Lutheran Hospital

- 11:00-11:25 **Pre-Operative Assessment** – *Shelly Schmoller*
- 15:00-15:30 **PostOp Complications and Avoidance** – *Andrea Stayer*



Sunday, July 15, at Lutheran Hospital

- 16:30-16:55 **Intensive Care Management of SCI** – *Denise Niklasch*

Monday, July 16, at Lutheran Hospital

- 15:15-16:00 **Conservative Treatment of Spine Disease** – *Russ DeMicco*
- 16:00-16:45 **Injections** – *Kush Goyal*

General Information



Location

Lectures and Labs – Cleveland Clinic Lutheran Hospital:
1730 W. 25th Street, Cleveland

Lodging – Hyatt Regency Cleveland Hotel at the Arcade

(Note: The lectures on Tuesday, July 10, and Wednesday, July 11, will be held at the Hyatt Regency Cleveland Hotel. All other lectures from Thursday through Tuesday will take place at Cleveland Clinic Lutheran Hospital.)

Hotel Reservations

Hotel reservations are separate from the course registration and are the responsibility of the participant. Rooms have been blocked for attendees at the following hotel:

Hyatt Regency Cleveland Hotel at the Arcade

420 East Superior Ave., Cleveland, Ohio, USA 44114

Telephone: 216.575.1234 or 1.888.421.1442

Visit the hotel link at www.ccfcm.org/spinereview18 to reserve your room online or call the hotel directly at 216.575.1234 or 1.888.421.1442 and ask for the Cleveland Clinic Spine Course group rate of \$116 USD/night + 16.5% tax.

The cut-off date for the special rate is Wednesday, June 20, 2018.

The Hyatt Regency Cleveland Hotel is located 12 miles NE from Cleveland Hopkins International Airport. Public transportation through the RTA is available from the airport to Tower City. The hotel is attached to Tower City.

Registration/Refund Policy

Register at www.ccfcm.org/spinereview18. The course size is limited. The registration deadline is Tuesday, July 3, 2018 at 5:00 pm EST, or until all available slots have been taken. To register after July 3 please contact Martha Tobin at 216.445.3449 or tobinm@ccf.org.

In case of cancellation, a \$50 cancellation fee will be deducted from your refund. Written notification of your cancellation is required in order to process your refund. NO REFUNDS WILL BE ISSUED AFTER JULY 3.

Accreditation

The Cleveland Clinic Foundation Center for Continuing Education is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The Cleveland Clinic Foundation Center for Continuing Education designates this live activity for a maximum of 65.25 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Participants claiming CME credit from this activity may submit the credit hours to the American Osteopathic Association for Category 2 credit.

The Ohio Board of Nursing will accept at face value the number of contact hours awarded for an educational activity that has been approved for CE by a nationally accredited system of CE approval. Nurses are able to obtain CE that has been approved or provided by a nationally recognized accreditation system of continuing education. Examples include:

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- The International Association for Continuing Education and Training (IACET)

Faculty Disclosure

The Cleveland Clinic Foundation Center for Continuing Education has implemented a policy to comply with the current Accreditation Council for Continuing Medical Education Standards for Commercial Support requiring resolution of all faculty conflicts of interest. Faculty declaring a relevant commercial interest will be identified in the activity syllabus.

Americans with Disabilities Act

The Cleveland Clinic Foundation Center for Continuing Education fully intends to comply with the legal requirements of the Americans with Disabilities Act. If you need assistance, please notify Shana Spade at 216.444.9380 at least two weeks prior to the activity.

For additional information: Ms. Martha Tobin – 800.223.2273 ext. 53449; (e-mail) tobinm@ccf.org / (fax) 216.445.9908

Non-Surgeon Lectures

Please Note: Non-surgeons attend the same lectures as the surgeons. They also begin with a 3-hour pre-course session on the first day. Special, non-surgical-only lectures include:

- Functional Anatomy and Physiology of the Spine, Spinal Cord and Peripheral Nerves
- Cervical Spine Pathology and Correlative Neuro Assessment
- Radiology Fundamentals
- Biomechanics Fundamentals
- Spinal Column Pathology and Medical Decision-Making: The Surgeon's Perspective
- Outcomes Assessment
- Lumbar Spine Pathology and Correlative Neuro Assessment
- Pre- and Post-Operative Nursing Care Considerations
- Interactive Cervical and Lumbar Case Discussions



Have Your Family Vacation in Cleveland in 2018!

For family entertainment, Cleveland offers a wealth of fun and excitement sure to intrigue families with children of all ages. From thrilling rides at area amusement parks to fun-filled attractions and interesting museums, there's plenty to see and do year round in Greater Cleveland. **See what Fodor's, Travel & Leisure, the LA Times and others are saying about Cleveland:**
www.thisiscleveland.com/media/cleveland-in-the-news

Some Area Attractions

- Cedar Point Amusement Park
- Cleveland Metroparks Zoo and RainForest
- Rock and Roll Hall of Fame and Museum
- Great Lakes Science Center
- NASA John H. Glenn Research Center at Lewis Field
- Cleveland Botanical Garden
- The Steamship William G. Mather
- Cleveland Museum of Natural History
- Pro Football Hall of Fame
- Cleveland Orchestra
- Playhouse Square Center
- Cleveland Play House
- Quicken Loans Arena
- Progressive Field
- Greater Cleveland Aquarium



Rock and Roll Hall of Fame and Museum



Progressive Field



Great Lakes Science Center



Cleveland Zoo

Registration

Cleveland Spine Review: Hands-On 2018

July 10-17, 2018

Hyatt Regency Hotel at the Arcade and
Lutheran Hospital
Cleveland, Ohio

Course Registration Fees

Surgeons:	\$3,850
Surgical Residents/Fellows*:	\$2,600
Physiatrists and Non-Physicians:	\$1,600

*Letter from program director is required to receive discounted fee. If letter is not received two weeks prior to the activity, the full physician fee will be charged.

Course fee includes registration materials, continental breakfasts and lunches, breaks, Opening Reception, Summer Barbeque, Crawfish Boil, and Bowling Night.

Registration and Cancellation

Register at www.ccfcmec.org/spinereview18. The course size is limited. The registration deadline is Tuesday, July 3, 2018 at 5:00 pm EST, or until all available slots have been taken. To register after July 3 please contact Martha Tobin at 216.445.3449 or tobinm@ccf.org.

In case of cancellation, a \$50 cancellation fee will be deducted from your refund if cancelled by July 3, 2018. Written notification of your cancellation is required in order to process your refund. NO REFUNDS WILL BE ISSUED AFTER JULY 3.

For questions about registering online, call 216.448.8710 or email cmeregistration@ccf.org.



Register online at www.ccfcmec.org/spinereview18