

出國報告（出國類別：進修）

脊椎手術研習

服務機關：國立成功大學醫學院附設醫院

姓名職稱：李榮順醫師

派赴國家：美國/俄亥俄州

出國期間：102年7月8日至102年7月18日

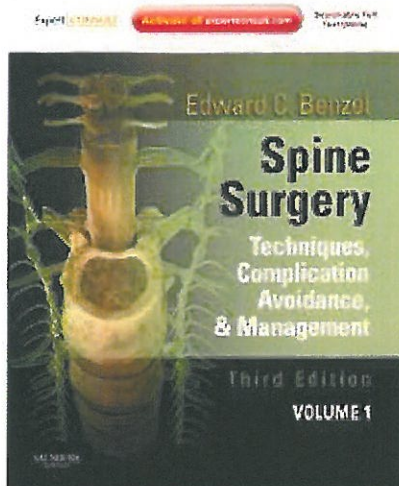
報告日期：102年9月23日

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摘要

位於美國俄亥俄州的克里夫蘭的 Cleveland Clinic 是全美排名第四的神經外科醫學中心，該院的神經外科主任 Dr. Edward C. Benzel 是國際知名脊椎手術專家，發表過上百篇的國際知名論文，他主編的專書 Spine Surgery (第三版) 也是一本世界知名的脊椎手術專業書籍；他的手術技巧十分精湛，最重要的是富有教學的熱忱，每年舉辦脊椎手術的訓練課程，指導來自世界各地的醫師，如何精進脊椎手術，如何避免併發症。研習期間為七天，邀請世界各地的專家一同指導，報名費為美金 3750 元，從非手術治療到各種手術治療的優缺點，並同時在 cadaver (大體老師)上練習如何手術，從頸椎到薦椎，是目前全世界最完整的脊椎訓練課程。



Dr. Edward C. Benzel 主編的專書 Spine Surgery

本文

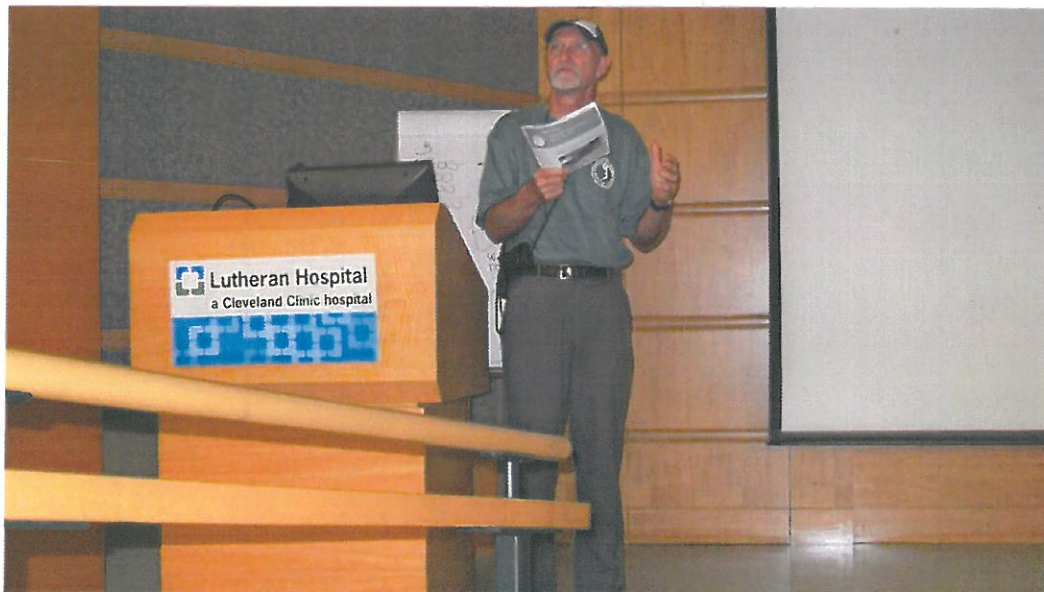
一、目的

成功大學醫學院附設醫院(醫學中心)為南部重要之醫療機構，具有教學及提攜後進的責任和義務，基於專業之培育的目標，申請出國至知名醫療機構參訪，本次出國目的在於：

- (一)與國外學者建立研究合作關係。
- (二)藉由實際 hand-on 手練習脊椎手術之技巧與手術相關照護。

二、過程

本次出國行程為 102 年 7 月 8 日至同年 7 月 18 日在美國俄亥俄州 Cleveland Clinic，參加由世界知名的神經外科醫師 Dr. Edward C. Benzel(圖一)所主持為期一周的 spine course，上課地點在 Lutheran Hospital(Cleveland Clinic 位於 downtown 的分院)。



圖一、Dr. Edward C. Benzel

進修過程：

(一)102年7月8日由台南搭高鐵到桃園登機前往美國洛杉磯轉機。

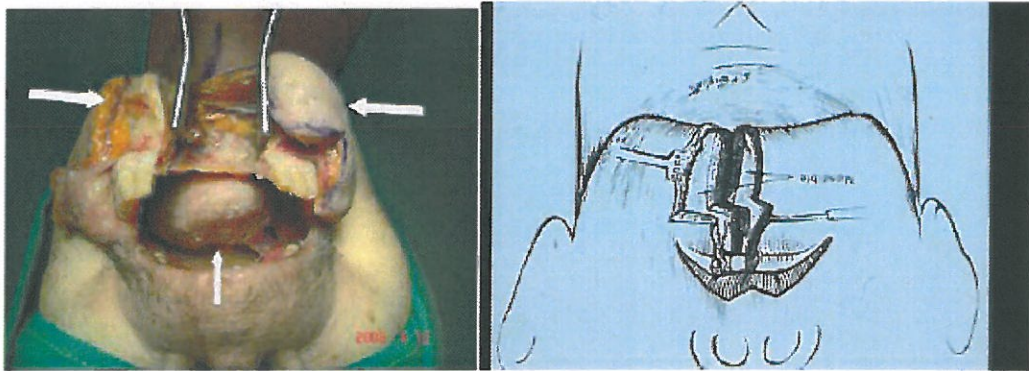
(二)102年7月9日早上抵達克里夫蘭，練習適應時差。

(三)102年7月10日在飯店的會議室開始上課，第一天先介紹 anatomy 及非手術的治療方法，例如硬腦膜上注射、神經阻斷術等，還有臨床上其它類似脊椎病變的疾病，避免日後誤診，重要的是提醒所有的外科醫師，注意並不是每個脊椎病變都要用手術解決，要先考慮非手術的治療，晚上在飯店的大廳有簡單的歡迎會(welcome party)。

(四)102年7月11日一早6:30從飯店搭接駁車前往 Lutheran Hospital(Cleveland Clinic 位於 downtown 的分院)(圖二)先吃早餐，接著在七點就開始上課，先介紹 spine biomechanic, 這是過去沒有學過的重要概念，接著是前位頸椎疾病及治療，之後進入解剖實驗室進行手術練習，四個學員為分配一組大體老師，互相協助，每組都有一位講師負責指導，第一天練習的是高位頸椎疾病的治療，這是很困難的手術(圖三)，對一位年輕的醫師是很有挑戰性，經由此次練習可以增加手術的熟練度，減少臨床手術的併發症，其中 odontoid screw 的放置是我過去從沒有過的經驗，也減輕心中一直的恐懼。

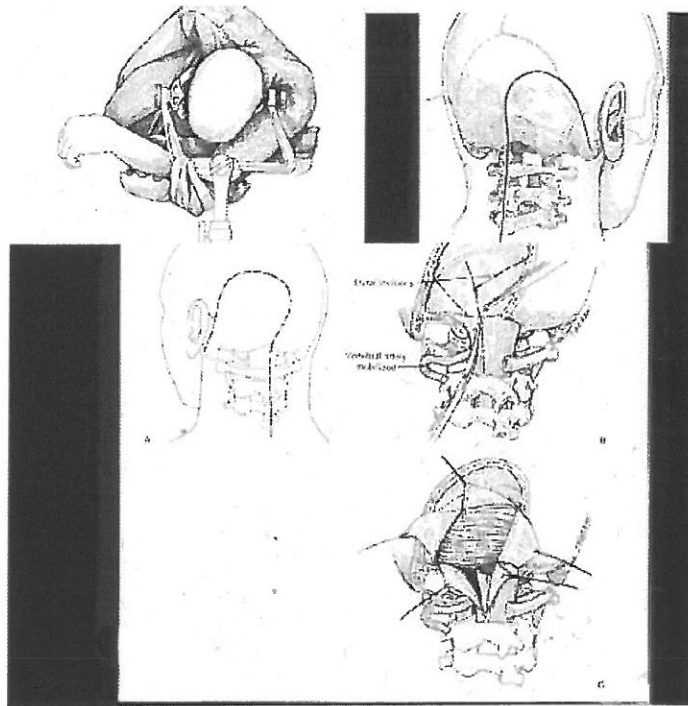


圖二、Lutheran Hospital(Cleveland Clinic 位於 downtown 的分院)



圖三、解剖說明

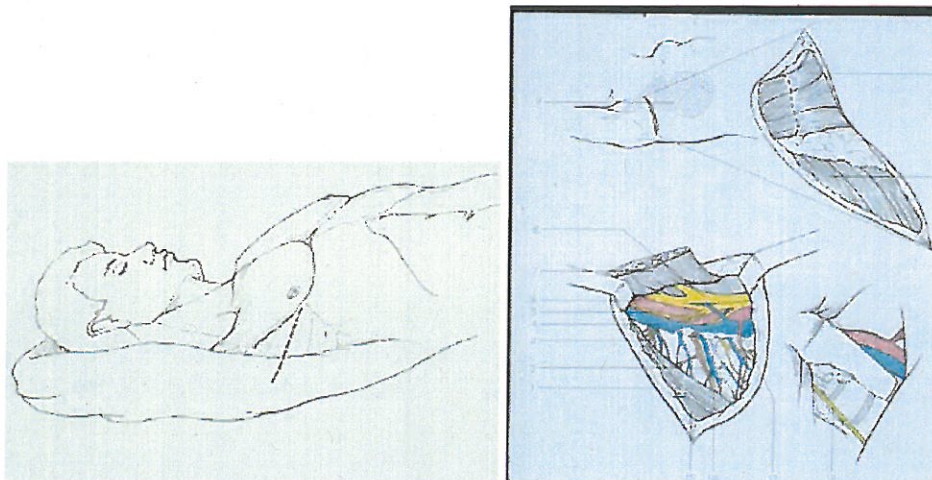
(五)102 年 7 月 12 日講解後位頸椎疾病及治療，最重要的是如何執行椎弓成形術和如何放置後位椎骨釘(圖四)，之後進入解剖實驗室進行手術練習，這一天最重要的是了解 C1/2 pedicle screw 和 transarticular screw 的手術差別，過去雖然施行過 pedicle screw，但是一直不清楚兩者的不同，經由此一練習，終於分辨兩者的差異，也明白甚麼是 high riding vertebral artery。



圖四、解剖說明

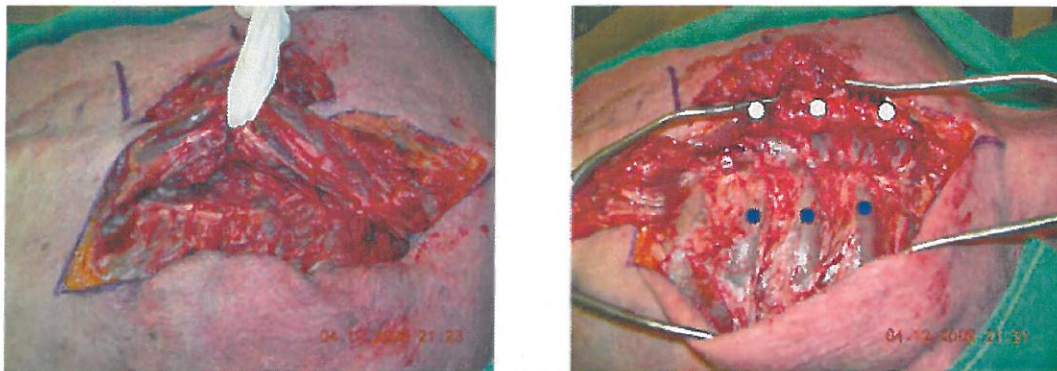
(六)102年7月13日介紹人工關節的優缺點，並且根據目前已發表的論文客觀討論，不要過度被廠商所制約；連續上了三天課，對我們從外國來的學員實在很疲累，主辦單位很有經驗的安排一個很有意義的放鬆活動，從當地有名的健行步道走到主持人 Dr. Edward C. Benzel 的家聚會互相交流，不僅可以活動筋骨，也可以建立日後溝通的管道。

(七)102年7月14日講解前位胸椎疾病及治療，介紹如何開胸的方法(圖五)，這也是以前不常做的術式，之後進入解剖實驗室進行手術練習，過去在成功大學都是請胸腔外科的同事來幫忙，藉由此練習，日後我們有機會可以獨立執行開胸的手術。



圖五、解剖說明

(八)102年7月15日講解後位胸腰椎疾病及治療，之後進入解剖實驗室進行手術練習，在這裡學會如何放置胸椎的骨釘，還有如何做椎體縮短的治療(圖六)，這可以減少病人長期的脊椎負荷。



圖六、解剖說明

(九)經過這幾天的 hand-on 練習，最後一天(102年7月16日)上午以綜合討論為主，客觀的檢討手術結果、併發症等，最重要如何避免併發症的發生，為整個課程畫下完美的句點，下午便搭機先到洛杉磯，再轉機回臺灣。

(十)102年7月18日終於回到臺灣。

三、心得

脊椎疾病的治療是占神經外科疾病的大部分，加上老化社會的因素，退化性的脊椎病變是未來的一大問題，這個研討會是目前世界上最完整的訓練課程，最難能可貴的是，課程中安排了臺灣神經外科最欠缺的 biomechanic 的課程，上完之後豁然開朗，加上來自世上各地的脊椎專家提供很多寶貴的經驗，這是書本上學不來的，每堂課後緊接著做手術練習，並有專家在一旁指導，可以避免錯誤，雖然這個活動的費用很高，藉由實際操作加深印象，這對我個人獲益良多，相當充實。

四、建議事項

- (一)希望健保局能對目前的脊椎手術材料給予給付，避免只有少數有錢的病人才
能使用。
- (二)Dr. Edward C. Benzel 非常有教學熱誠，希望日後能邀請來臺灣指導。
- (三)成立專責的脊椎復健之家，讓病人能有完整的復原。



Cleveland Spine Review: *Hands-On 2013*

Presented by Cleveland Clinic Center for Spine Health

Call For Abstracts
Details on
General Information Page

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



July 10-16, 2013

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

Cleveland Spine Review: Hands-On 2013



Cleveland Spine Review: Hands-On 2013 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, 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 at noon 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 a continuing education activity that has been approved by a nationally recognized accreditation system of continuing education approval. Therefore 45.75 physician AMA PRA Category 1 Credits™ will be accepted for nursing credits. Nurses from other states should contact their State Board of Nursing.



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.cfcme.org/spinereview13

Course Faculty

Honored Guest

Russ P. Nockels, MD
Professor of Neurological and Orthopaedic Surgery
Loyola University Medical Center
Maywood, IL

Course Directors

Edward C. Benzel, MD
Cleveland Clinic, Cleveland, OH

Marc E. Eichler, MD
Newton Centre, MA

Doug Orr, MD
Cleveland Clinic, Cleveland, OH

Richard Schlenk, MD
Cleveland Clinic, Cleveland, OH

Gregory R. Trost, MD
University of Wisconsin, Madison, WI

Nursing Directors

Ann Harrington, MSN, RN, CNS
Cleveland Clinic, Cleveland, OH

Andrea Strayer, MS, A/G NP, CNRN
University of Wisconsin, Madison, WI

Russ P. Nockels, MD

Dr. Russ P. Nockels is a gifted clinician and academician. A Diplomate of the American Board of Neurological Surgeons since 1999, Dr. Nockels graduated from the Loyola University of Chicago Stritch School of Medicine. He



completed his Neurosurgical training at New York University Medical Center including St. Vincent's Medical Center and Bellevue Hospital. He also trained in complex spine surgery in Miami, London, Germany, France, and Monaco.

He is among a handful of surgeons who successfully treat the most complex spine cases. Dr. Nockels provides editorial support for *Neurosurgery* and has often served as an invited moderator or speaker at national meetings (AANS, CNS, Joint Section, SRS, LSRS) on subjects of Future Spinal Technologies, Deformity Surgery, Dynamic Stabilization, Aging Spine, Cervical Spine Disease and Trauma. He is currently coordinating international studies in Sagittal Balance and Dynamic Stabilization, and Spinal Cord Injury.

Guest Faculty

Mark Adams, MD
Michigan Spine & Brain Institute
Saginaw, MI

Basem Awad, MD
MetroHealth Medical Center
Cleveland, OH

Nevan Baldwin, MD
Lubbock, TX

Deb Bhowmick, MD
University of North Carolina
Chapel Hill, NC

Nathaniel Brooks, MD
University of Wisconsin
Madison, WI

Tsulee Chen, MD
Akron Children's Hospital
Akron, OH

Eldan Eichbaum, MD
Fremont, CA

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

Ran Harel, MD
Shaba Medical Center
Tel Hasomer, Israel

Girish Hiremath, MD
Riverside Methodist Hospital
Columbus, OH

Dan Hoh, MD
University of Florida
Gainesville, FL

Alex Jones, MD
Hudson Valley Neurosurgical
Associates, LLC
Goshen, NY

Cumhur Kilincer, MD, PhD
Trakya University
Edirne, Turkey

Desmond Kwok, MD
Hamilton General Hospital
Hamilton, Ontario, Canada

Jorge Lastra-Power, MD
Dorado, Puerto Rico

Paula Lidestri, MD
Sacramento Pain Clinic
Sacramento, CA

Miguel Lopez-Gonzalez, MD
Billings Clinic
Billings, MT

Vassilis Lykomitros, MD
Euromedica Geniki Clinic
Thessaloniki, Greece

Dennis McDonnell, MD
Little Rock, AR

Vincent Miele, MD
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Morgantown, WV

Luis Mignucci, MD
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Timothy Moore, MD
MetroHealth Medical Center
Cleveland, OH

Ross Moquin, MD
Empire State Neurosurgical
Institute
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Denise Niklasch, DNP, CNRN
Medical College of Wisconsin
Milwaukee, WI

Antonio Oliveira, MD
Petrolina, Brazil

Joe Ordonez, MD
Norfolk, VA

Rakesh Patel, MD
University of Michigan
Orthopaedic Surgery
Ann Arbor, MI

Konstantinos Paterakis, MD
University of Thessaly
Volos, Greece

Ioannis Polythodorakis, MD
Hygeia Hospital
Athens, Greece

Sharad Rajpal, MD
Boulder Neurosurgical Associates
Boulder, CO

Mario Alberto Rott, MD
Buenos Aires, Argentina

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

Shelly Schmoller, PA-C
University of Wisconsin
Madison, WI

John Shin, MD
Massachusetts General Hospital
Boston, MA

Michael Steinmetz, MD
Case Western Reserve School
of Medicine
Cleveland, OH

Fernando Techy, MD
University of Illinois at Chicago
Chicago, IL

Ray Turner, MD
Medical University of South
Carolina
Charleston, SC

Kene Ugokwe, MD
Youngstown Neurologic
Associates
Poland, OH

Andrew Wakefield, MD
Hartford Hospital
Hartford, CT

Cleveland Clinic Faculty

Bobby Agrawal, MD
Center for Spine Health

Jeremy Amps, MD
Center for Spine Health

David Anderson, MD
Center for Spine Health

Lilyana Angelov, MD
Rose Ella Burkhardt Brain Tumor
and Neuro-Oncology Center

Toomas Anton, MD
Cleveland Clinic East Region

Gordon Bell, MD
Center for Spine Health

Sam Borsellino, MD
Center for Spine Health

Ed Covington, MD
Chronic Pain Rehabilitation
Center for Spine Health

Perry Dhaliwal, MD
Center for Spine Health

Todd Francis, MD, PhD
Center for Spine Health

Iain Kalfas, MD
Center for Spine Health

Mark Kayanja, MD, PhD
Center for Spine Health

Ajit Krishnaney, MD
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Eric Mayer, MD
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Daniel Mazanec, MD
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Graham Mouw, MD
Cleveland Clinic Florida

Thomas Mroz, MD
Center for Spine Health

Tiffany Perry, MD
Center for Spine Health

Paul Ruggieri, MD
Center for Neuroimaging

Manuel Saavedra, MD
Center for Spine Health

Donna Sustar, RN, CNOR
Perioperative Education

Jason Taub, MD
Center for Spine Health

Santhosh Thomas, DO, MBA
Center for Spine Health

Jose Valerio, MD
Cleveland Clinic Florida

Course Overview

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

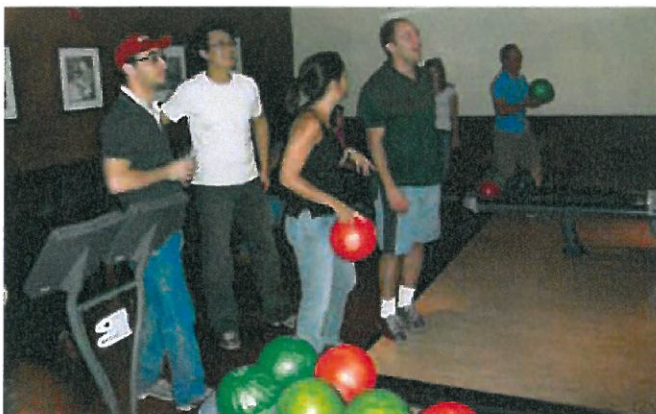
- The program runs from Wednesday, July 10 through Tuesday, July 16.
- On July 11, 12, 14 & 15, the course begins at 6:45 am and ends at 5:30 pm. On July 13, the course begins at 8:00 am and ends at 1:00 pm.
- The physician program begins at 3 pm on July 10 and ends at 10:15 am on July 16.
- The pre-course non-surgical lectures begin at 12 noon on July 10 and end at 10:15 am on July 13.
- **Round-trip transportation from the Hyatt Regency Hotel at the Arcade to Cleveland Clinic Lutheran Hospital will be provided each day.**
- Lab sessions are Non-CME.

Day 1 Topics

Pain Management
Pathophysiology of Spine Degeneration
Mimics of Spinal Pathology
Psychology of Pain
Interventional Techniques to Guide Surgery

Day 2 Topics

Fundamentals of Biomechanics
Craniocervical Pathologies and Approaches
Craniocervical Stabilization
Lab 1: Trans Oral and Whitesides Approach
Cervical Stenosis: The Decision-making Process
Ventral Approaches and Techniques/Tricks
Cervical Subaxial Trauma
Lab 2: Ventral Exposures and Instrumentation



Day 3 Topics

Instrumentation and Construct Design
Cervical Laminoplasty: Indications and Techniques
Dorsal Subaxial Fixation
Cervical Deformity Evaluation and Treatment
Lab 3: Dorsal Exposure and Instrumentation
Biomechanics 301 Back Pain: Fusion and Motion Preservation
Cervical Complications and Avoidance
Cervical Deformity: Pitfall and Complication Avoidance (Doing it the Right Way)
Lab 4: Cervical Deformity
Deformity Correction: Outcome Optimization

Day 4 Topics

Spine Surgical Infection
Cervical Arthroplasty Options and Evidence
Evidence and Outcomes: Understanding the Literature
Surgery of the Geriatric Spine
Spine Bowl I

Day 5 Topics

Spine Tumor Work-up and Treatment Options
Spinal Radiosurgery
Exposures and Techniques: Cervicothoracic Junction
Dorsal Thoracic and Lumbar Instrumentation
Lab 5: Dorsal Thoracic Exposures and Instrumentation
Patient Selection for Fusion
Lumbar Complications: Avoidance and Treatment
Ventral Exposures and Techniques: Thoracolumbar Spine
Interbody Fusion Indications and Techniques
Lab 6: Ventral Exposures and Instrumentation
Spine Bowl II

Day 6 Topics

Thoracolumbar Trauma
Scoliosis: Diagnosis, Classification Measurement and Decision-making
Degenerative Spondy and Scoliosis
Iatrogenic Deformity Prevention
Deformity Correction Techniques
Lumbosacral Fixation Techniques
Lab 7: Deformity
Spine Bowl Finale
MIS Decompression Techniques
MIS Fusion Techniques
MIS in Deformity and Trauma
Vertebral Augmentation Options and Evidence
Lab 8: MIS Lab

Day 7 Topics

Intraoperative Spinal Imaging and Radiation Exposure
Cost-effectiveness of Spinal Surgery
Primary Spinal Infections Investigation and Treatment
Bone and Bone Substitutes
Assessment and Treatment of the Failed Back

Register online at www.cfcme.org/spinereview13

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 opening lectures on Wednesday, July 10, 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
\$99 plus tax, per night
Telephone: 216.575.1234

Visit the hotel link at www.ccfme.org/spinereview13 to reserve your room online or call the hotel directly at 216.575.1234 and ask for the Cleveland Clinic Spine Course group rate.

The cut-off date for the special rate is Monday, June 25, 2013.

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.ccfme.org/spinereview13. The course size is limited. The registration deadline is Friday, June 25, 2013 at 5:00 PM EST, or until all available slots have been taken. To register after June 25, 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 June 25, but registration is transferable through JULY 16, 2013.

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 45.75 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.

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.

Special Needs

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 Monet Smith 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) 216.445.4527

Call For Abstracts

Abstracts for oral presentation now being accepted.

Posters will be on display throughout the course with dedicated sessions for oral presentation. Notification of acceptance, presentation details and poster size will be sent on or before June 15, 2013.

Abstract Requirements

- Deadline for Submission: June 1, 2013. One entry per presenter.
- 250 word limit
- Send via email to tobinm@ccf.org

Register online at www.ccfme.org/spinereview13

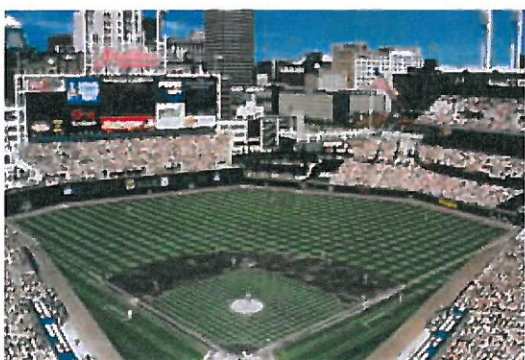
Medical Spine Specialist Lectures

Please Note: Medical spine specialists 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



Great Lakes Science Center



Progressive Field

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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



Cleveland Zoo



Rock and Roll Hall of Fame and Museum

Register online at www.cfcme.org/spinereview13

Registration Form



Cleveland Spine Review: Hands-On 2013

July 10-16, 2013

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

For Office Use Only: 02010031

Fee: _____ M.O.P. _____

Date: _____ CXL/Fee: _____

Name _____ Degree _____
First M.I. Last

Company/Organization _____

Address _____

City, State, Country, Zip Code _____

Phone # _____ Fax # _____

E-mail _____ Specialty _____

SPECIALTY

Surgeon: Neuro Ortho

Medical Spine Specialist: Nurse PA Physiatrist Other _____

Medical Spine Specialist Practice Environment: OR Outpatient Inpatient

Course Registration Fees

(please check appropriate box)

<input type="checkbox"/> Surgeons:	\$3,750
<input type="checkbox"/> Surgical Residents/Fellows:	\$2,500
<input type="checkbox"/> Nurses/PAs/Physiatrists/Other:	\$1,500
<input type="checkbox"/> Cleveland Clinic Surgical Alumni:	\$2,940
<input type="checkbox"/> Cleveland Clinic Physician Alumni:	\$1,050

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

I require a vegetarian meal.

PAYMENT OPTIONS

Credit Card: If you would like to register using a credit card, please go to www.cfcme.org/spinereview13 or call 216.448.0777 where it will be handled directly by a certified processor.

Check: Make check payable and mail to The Cleveland Clinic Educational Foundation, PO Box 931653, Cleveland, OH 44193-1082

Total Amount Paid \$ _____

Mail completed registration form and check to:

Cleveland Clinic Educational Foundation, P.O. Box 931653, Cleveland, OH 44193-1082

Register online at www.cfcme.org/spinereview13



The Cleveland Clinic Foundation
Neurological Institute
9500 Euclid Avenue, S40
Cleveland, OH 44195



Cleveland Spine Review: *Hands-On 2013*

Presented by Cleveland Clinic Center for Spine Health

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General Information Page

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

July 10-16, 2013

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