Please join us for this annual must-attend course! Each December, NYC-MISS brings national and international practicing neurosurgeons and orthopedic spine surgeons, fellows, and residents in training to explore minimally invasive spinal surgery techniques and navigation for spinal surgery. The entire agenda is focused on teaching new operative skills and encouraging debate and discussion around MIS spine techniques. Combining didactic and case-based sessions with hands-on cadaveric dissections and learning on state-of-the-art simulation models, the course will equip participants with the skills they need to start utilizing these approaches in their own practices.

Learn the advanced techniques (with and without navigation) for the operative treatment of spinal disorders.

Hear proponents and critics of MIS surgery discuss and debate MIS approaches.

Acquire skills essential in selecting appropriate patients.

Practice the latest techniques, including spinal navigation, using cadavers and state-of-the-art models.

Visit nyc-miss.org to register.
DAY 1: Friday, December 15, 2023

SESSION 1: Updates on MISS (all talks 10 min with 10 min discussion)
Belfer Research Building, Third Floor

- 8:10-8:20 am: Single-Position Surgery: State of the Art (Frank Phillips, MD)
- 8:30-8:40 am: Prone Lateral: Advantages (Luiz Pimenta, MD, PhD)
- 8:50-9:00 am: Total Navigation: TLIF vs ELIF (Roger Hartl, MD)
- 9:10-9:20 am: Deformity MISS: Where Are We? (Neel Anand, MD)
- 9:30-9:40 am: Thoracic Disc Herniation: MIS and Classification (Juan Uribe, MD)
- 9:50-10:00 am: Complication Avoidance with MISS (Nitin Agarwal, MD)

10:10-10:30 am: MORNING BREAK: COFFEE AND EXHIBITS
Belfer Research Building, Second and Third Floors

SESSION II: Breakout Sessions, MISS Cases
"This is what I did—what would you do?"
Belfer Research Building, Second and Third Floors

- 10:30 am-12:00 pm: Room 1: Cases From the Masters
  Cases from Themistocles Protopsaltis, Chevy Iyer, Frank Phillips
  Moderator: Luiz Pimenta, MD, PhD
- 12:00-12:10 pm: TLIF with the Robot (Sheeraz Qureshi, MD)
- 12:20-12:30 pm: New Developments in Robotic Spine Surgery (Jesus Lafuente, MD)
- 12:40-12:50 pm: Comparison of Accuracy in Robotic Spine Surgery (Ibrahim Hussain, MD)

1:00 - 1:40 pm: Working Lunch: Video Cases From the Masters
Moderator: Rachel Bratescu, MD

SESSION III: Robotics in MISS
Belfer Research Building, Third Floor

- 12:00-12:10 pm: TLIF with the Robot (Sheeraz Qureshi, MD)
- 12:20-12:30 pm: New Developments in Robotic Spine Surgery (Jesus Lafuente, MD)
- 12:40-12:50 pm: Comparison of Accuracy in Robotic Spine Surgery (Ibrahim Hussain, MD)

SESSION IV: MISS Enabling Technologies
Belfer Research Building, Third Floor

- 1:40-1:50 pm: Current and Future State of Robotics (Ronald Lehman, Jr, MD)
- 2:00-2:10 pm: 3D Navigation and MISS (Avelino Parajón, MD)
- 2:20-2:30 pm: Current Status and Future of Spine Endoscopy (Christoph Hofstetter, MD, PhD)
- 2:40-2:50 pm: New MIS Devices for Muscle Pain (Neel Mehta, MD)
- 3:00-3:10 pm: How to Incorporate Endoscopy Into Your MISS Practice (Sravisht (Chevy) Iyer, MD)
- 3:20-3:30 pm: New Directions for Augmented Reality in MISS (Roger Härtl, MD)
<table>
<thead>
<tr>
<th>SESSION V</th>
<th>Breakout Sessions, MISS Cases</th>
</tr>
</thead>
</table>
| 4:00 pm-5:00 pm | Room 1: Cases From the Masters  
Cases from Themistocles Protopsaltis, Chevy Iyer, Jesus Lafuente  
Room 2: VR Case Presentations  
Cases From Christoph Hofstetter, Ronal Lehmann, Jr., Juan Uribe |
| Moderator: Luiz Pimenta, MD, PhD |
| Moderator: Galal Elsayed, MD |

<table>
<thead>
<tr>
<th>SESSION VI</th>
<th>Socratic Battle: Grade I Spondylolisthesis &amp; Stenosis</th>
</tr>
</thead>
</table>
| 5:00-5:10 pm | Fuse It!  
5:10-5:20 pm | Only Decompress  
5:20-5:40 pm | Q&A |
| Belfer Research Building, Third Floor |
| Alexander Vaccaro, MD, PhD, MBA  
Zoher Ghogawala, MD |
| Moderated by Roger Hartl, MD |

<table>
<thead>
<tr>
<th>SESSION VII</th>
<th>Special Topics in MISS</th>
</tr>
</thead>
</table>
| 5:40-5:50 pm | Social Media and MISS  
6:00-6:10 pm | Annular Closure Techniques in MISS |
| 6:20 pm | Closing Remarks, Surveys and Adjourn |
| Belfer Research Building, Third Floor |
| Juan Uribe, MD  
Claudius Thomé, MD |
| Roger Härtl, MD |

**DAY 2: Saturday, December 16, 2023**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
</table>
| 7:30-7:45 am | Registration and Breakfast  
Griffis Faculty Club, 1300 York Avenue |
| 7:45-8:00 pm | Lab Overview/Instructions  
Roger Härtl, MD |

<table>
<thead>
<tr>
<th>SESSION VIII</th>
<th>Techniques and Hands-on Lab</th>
</tr>
</thead>
</table>
| 8:00-2:00 pm | Surgical Demonstrations and Lab Dissections  
All Faculty |
| 2:00-3:30 pm | Working Lunch/VR Cases (Non Nocere)  
Griffis Faculty Club  
Moderators: Galal Elsayed, MD  
Rachel Bratescu, MD |
| 3:30-3:45 pm | Closing Remarks, Surveys, and Adjourn  
Roger Härtl, MD |
This unique annual course provides a comprehensive overview of new and less invasive techniques with and without stereotactic navigation for the operative treatment of spinal disorders. Proponents and critics of MIS surgery will discuss the pros and cons of MIS approaches, establishing the skills essential in selecting appropriate patients for MIS surgery. Practical sessions will allow the participant to apply the latest spinal techniques, including spinal navigation, both in cadavers and in state-of-the-art simulator models. Combining didactic and case-based sessions with hands-on cadaveric dissections, the course will equip participants with the skills they need to start utilizing these approaches in their own practices. Participants will have an opportunity to discuss difficult cases with the faculty during the Q&A and case presentation sessions. We will discuss in detail the six “T’s” of MIS surgery.

Minimally invasive spinal surgery techniques and navigation for spinal surgery are rapidly evolving. This course will teach and update spine surgeons on the current surgical techniques and will provide up-close views of advanced new techniques. Traditional spinal surgery carries a risk for injury to back muscles and is associated with significant blood loss, long hospital stays, and extended recovery times. Recent reports on less invasive spinal surgery indicate that minimally invasive spinal surgery reduces these downsides. Minimally invasive surgery and navigation are rapidly evolving and include technically demanding techniques that require extensive training and education.

It is intended that this course will lead to improved patient care, including improvements in knowledge, competence, or performance. At the conclusion of this activity, participants should be able to:

a. Identify the anatomy and radiology of spinal and paraspinal structures
b. Determine which types of pathology are amendable to minimally invasive spinal surgery
c. Be familiar with state-of-the-art minimally invasive surgery used in these approaches
d. Recognize the principles of stereotactic spinal navigation and its use for minimally invasive spinal procedures
e. Debate on the pros and cons of MIS approaches and election of patients for MIS surgery

Don’t Miss Our Summer Master Class
We held our first summer Master Class in 2023 and look forward to the 2024 class! Sign up for email notifications at nyc-miss.org

The 6 T’s of Minimally Invasive Spine Surgery

| Target: | appropriate patient and procedure selection |
| Technology: | specialized technology that enables or facilitates MISS |
| Technique: | surgical skills and perioperative techniques and procedures |
| Training: | adequate training and teaching of the surgeon and collaborating team and trainees |
| Testing: | critical review and testing of surgical outcomes (research) |
| Talent: | development of surgical talent |

nyc-miss.org
COURSE DIRECTORS
Roger Hartl, MD
Hansen-MacDonald Professor of Neurological Surgery
Weill Cornell Medicine
Director, Weill Cornell Medicine Center for Comprehensive Spine Care
Neurosurgical Director, Och Spine at NewYork-Presbyterian/Weill Cornell Medical Center

Luiz Pimenta, MD, PhD
Attending Neurosurgeon
University of California, San Diego Neurepine Surgery
Instituto de Patologia da Coluna
Sao Paulo, Brazil

FACULTY
Nitin Agarwal, MD
Associate Professor, Neurological Surgery
University of Pittsburgh
Director, Minimally Invasive Spine and Robotics Surgery
University of Pittsburgh Medical Center

Neel Anand, MD
Professor of Orthopedic Surgery
Director of Spine Trauma
Cedars Sinai Medical Center, Los Angeles

Dean Chou, MD
Professor and Chief, Spine Division
Vice Chair, Department of Neurosurgery
Och Spine at NewYork-Presbyterian/Columbia University Irving Medical Center

Zoher Ghogawala, MD
Professor, Department of Neurosurgery
Tufts University School of Medicine, Boston
Chairman of Neurosurgery
Lahey Hospital & Medical Center, Burlington

Christoph Holstetter, MD, PhD
Professor of Neurological Surgery
University of Washington Medical Center, Seattle

Ibrahim Hussain, MD
Assistant Professor of Neurosurgery
Och Spine at NewYork-Presbyterian/Weill Cornell Medical Center

Sravisht (Chevy) Iyer, MD
Assistant Professor of Orthopedics
Weill Cornell Medicine, Hospital for Special Surgery

Jesus Lafuente, MD
Spine Surgeon
Barcelona Spine Institute

Ronald Lehmann, Jr., MD
Professor of Orthopaedic Surgery, Columbia University Medical Center
Division Chief, Spine Surgery

Och Spine at NewYork-Presbyterian/Allen Hospital
Lynn McGrath, Jr., MD
Assistant Professor of Neurosurgery
Och Spine at NewYork-Presbyterian/Weill Cornell Medical Center

Neel Mehta, MD
Associate Professor of Clinical Anesthesiology
Division Chief, Pain Management
Co-Director, Weill Cornell Medicine Center for Comprehensive Spine Care
Och Spine at NewYork-Presbyterian/Weill Cornell Medical Center

Avelino Parajón, MD
Chief of Neurosurgery
Hospital Ruber Juan Bravo Quirón
Madrid

Frank Phillips, MD
Ronald DeWald Endowed Professor of Spinal Deformities
Director, Division of Spine Surgery
Rush University Medical Center
Chicago

Themistocles Protopsaltis, MD
Professor, Department of Orthopedic Surgery
NYU Grossman School of Medicine
Chief, Division of Spine Surgery, Department of Orthopaedic Surgery
NYU Langone Health

Sheeraz Qureshi, MD, MBA
Patty and Jay Baker Chair in Minimally Invasive Spine Surgery
Co-Chief of HSS Spine and Attending Orthopedic Surgeon
Weill Cornell Medicine, Hospital for Special Surgery

Claudius Thomé
Professor and Department Head, Neurosurgery
Medical University of Innsbruck

Juan Uribe, MD
Professor and Vice Chair, Chief of Spinal Disorders
Sonntag Chair of Spine Research
Barrow Neurological Institute, Phoenix

Alexander Vaccaro, MD, PhD, MBA
Richard H. Rothman Professor and Chairman, Department of Orthopaedic Surgery
Rothman Orthopaedics at Jefferson Health, Philadelphia

Michael Virk, MD, PhD
Associate Professor of Neurological Surgery
Och Spine at NewYork-Presbyterian/Weill Cornell Medical Center

EXHIBITORS
Company 1
Company 2
Company 3
Company 4
Company 5
Company 6
Company 7
Company 8
Company 9
Company 10
Company 11
Company 12