AO Spine Online Course—Adult Deformity

Self-directed learning experience
October 26–December 2, 2020

Synchronous live event
December 3–5, 2020
14:00–18:00 CET
**Mission**

The AO's mission is promoting excellence in patient care and outcomes in trauma and musculoskeletal disorders.

**Purpose statement**

The global academic spine community promoting excellence in patient care and outcomes.

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**The AO Spine principles**

1. **Stability**
   - Stabilization to achieve a specific therapeutic outcome

2. **Alignment**
   - Balancing the spine in three dimensions

3. **Biology**
   - Etiology, pathogenesis, neural protection, and tissue healing

4. **Function**
   - Preservation and restoration of function to prevent disability
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Welcome
Dear AO Spine online course participant,

The AO Spine Course—Adult Deformity at the AO Davos Courses is known as one of the most prestigious and traditional events on this topic. Offering this course as a high-level, online event in response to the COVID-19 pandemic added a new challenge to its organization.

What would make this event different from all other webinars that have been widely offered in the past months? Using the AO platform of information is a major advantage, and we aim to make this event unique by helping you, as a deformity surgeon, to make best use of your time: We have selected the appropriate literature and lectures, and we provide you the opportunity to share your knowledge and expertise.

Additionally, we have selected series of cases to guide the you through the decision-making process and pitfalls of adult deformity surgery. There are no grades or obligations; this means that you can tailor your learning process according to your own needs and your own schedule.

Thank you for joining us. We hope you enjoy this course as much as we have enjoyed organizing it!

Emre Acaroglu
Chairperson
AO Spine Education Commission

Emiliano Vialle
Course chairperson
Event description

The AO Spine Course—Adult Deformity online courses will consist of two parts.

The first part is a six-week, self-directed learning experience with educational content that includes recorded lectures, webinars, and reading material, as well as a discussion platform on which you can reflect and discuss your learnings with your faculty and peers.

The second part of the course is a three-day, synchronous, online event (December 3–5) during which you, along with the faculty, will participate in live case discussions and surgical technique demos with interactive live discussions.
Goals of the course

- To update participants on the latest trends regarding adult deformity correction
- To engage participants on active decisionmaking by means of using the adequate tools for patient selection, surgical strategy, and complication avoidance
- To allow interaction and experience exchange between faculty and participants by means of small group discussion and case presentation by both faculty and participants
- To discuss surgical options for deformity correction, osteoporotic bone fixation, and interbody fusion
- To discuss strategies for anticipating and managing complications

Learning objectives

- Analyze the concordance between the clinical symptom and radiological findings: pain originating from spine and non-spine sources. Identify surgical candidates and optimize their comorbidities and bone quality for surgery.
- Recognize the appropriate solicitation of radiological exams to classify the adult deformity and properly plan the treatment strategy. Discuss the classifications, protocols, and guidelines on adult deformity and apply them in decision-making processes for treatment.
- Prevention and management of complications, identification of surgical complications, and description of measures of prevention as well as management
- Apply the technology to improve the patient outcome. List the surgical alternatives in treatment and discuss their advantages and disadvantages.

Target participants

The target audience includes all spine surgeons who want to improve their knowledge in adult spine deformity, and who wish to interact with peers from around the globe and exchange their personal experiences and challenges.
Chairpersons

Asdrubal Falavigna
Caxias do Sul University
Brazil

Emiliano Vialle
Catholic University of Parana
Brazil

Educational advisor

Luiz Gustavo
Hospital Universitario Cajuru/PUC-PR
Brazil

International faculty

Cris Ames,
United States

Vincent Arlet,
United States

Munish Gupta,
United States

Khaled Kebaish,
United States

Mark Kleinschmidt,
Switzerland

Marcelo Valacco,
Argentina
Event structure

**Week 1:**  
Patient selection, optimization and classifications in adult deformity

**Faculty:** all  
- Survey on participant demographics, experience, and surgical preferences/expertise  
- Literature: chapter 1 Master Series  
- Lecture: patient selection for adult deformity  
- Lecture: patient optimization for surgery  
- Debate: what works best in osteoporotic instrumentation (augmented screws versus hooks versus sublaminar bands)  
- Presentation: participants’ adult spine deformity cases and/or adult spine deformity research

**Week 2:**  
Surgical decision-making and surgical techniques

**Faculty:** Emiliano Vialle, Asdrubal Falavigna, Luiz Gustavo, Munish Gupta  
- Twenty cases on adult deformity  
- Literature: chapter 2 MS  
- Lecture: radiographic analysis of the deformity patient  
- Lecture: decision-making in lumbar stenosis without instability  
- Debate: posterior-only versus circumferential surgery in adult deformity  
- Presentation: participants’ adult spine deformity cases and/or adult spine deformity research

**Week 3:**  
Tips, tricks and pearls in adult deformity surgery

**Faculty:** Emiliano Vialle, Asdrubal Falavigna, Luiz Gustavo, Khaled Kebaish  
- No cases  
- Literature: chapter 3 MS  
- Lecture: improving coronal correction with the anterolateral approaches  
- Lecture: improving sagittal alignment in minimally invasive spine surgery (MISS)  
- Debate: pedicle subtraction versus hyperlordotic cages  
- Presentation: participants’ adult spine deformity cases and/or adult spine deformity research

**Week 4:**  
Degen spondy, treatment algorithm, decompression and instrumentation

**Faculty:** Emiliano Vialle, Asdrubal Falavigna, Luiz Gustavo, Mark Kleinschmidt  
- Twenty cases on degenerative spondyloolisthesis  
- Literature: studies comparing instrumentation versus decompression for stenosis  
- Lecture: decision-making in lumbar stenosis without instability  
- Lecture: Is endoscopic treatment reducing the need for instrumentation?  
- Debate: no need for instrumentation versus fusion is safer  
- Presentation: participants’ adult spine deformity cases and/or adult spine deformity research
Week 5:
Degen spondy, tips and tricks, and techniques

Faculty: Emiliano Vialle, Asdrubal Falavigna, Luiz Gustavo, Marcelo Valacco
- Literature: new technologies for improving outcomes in lumbar surgery
- Is interbody fusion really relevant? News, tips and tricks
- Indications for stand-alone anterolateral surgery in degen spondy
- Debate: Transforaminal Lumbar Interbody Fusion (TLIF) versus lateral approach
- Presentation: participants’ adult spine deformity cases and/or adult spine deformity research

Week 6:
Complications in adult deformity surgery: prevention and management

Faculty: Emiliano Vialle, Asdrubal Falavigna, Luiz Gustavo, Cris Ames
- Ten cases on complications
- Literature: chapter 11 MS
- Lecture: reducing infection rates in adult spine deformity
- Lecture: Proximal failure happened
- Debate: strategies for managing postoperative infections
- Presentation: participants’ adult spine deformity cases and/or adult spine deformity research

Live synchronous event
December 3–5, 2020

General structure
- Case presentation: 5 minutes
- Case discussion: 30 minutes
- Report from tables: three key learning points, 15 minutes
- Case solution and tips and tricks: 10 minutes
- Questions: 10 minutes
- Each case session will take 70 minutes.
### Module 1
Degenerative Scoliosis

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<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speakers</th>
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<tbody>
<tr>
<td>70 min</td>
<td><strong>Case 1:</strong> Lumbar degenerative scoliosis without sagittal imbalance</td>
<td>Emiliano Vialle, Asdrubal Falavigna, Luiz Gustavo, Munish Gupta</td>
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<tr>
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<td>• Case presentation</td>
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<td>• Case discussion</td>
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<td>• Report from tables</td>
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<td></td>
<td>• Case solution</td>
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<td></td>
<td>• Tips and tricks: dos and don’t in deformity MIS</td>
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<td>10 min</td>
<td>Break</td>
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<td>70 min</td>
<td><strong>Case 2:</strong> Lumbar degenerative scoliosis with mild sagittal imbalance</td>
<td>Emiliano Vialle, Asdrubal Falavigna, Luiz Gustavo, Munish Gupta</td>
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<td>• Case presentation</td>
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<td>• Case discussion</td>
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<td>• Report from tables</td>
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<td></td>
<td>• Case solution</td>
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<td></td>
<td>• Tips and tricks: How do I plan my cases?</td>
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<tr>
<td>10 min</td>
<td>Break</td>
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<tr>
<td>70 min</td>
<td><strong>Case 3:</strong> Lumbar degenerative scoliosis with severe sagittal imbalance</td>
<td>Emiliano Vialle, Asdrubal Falavigna, Luiz Gustavo, Munish Gupta, Marcelo Valacco</td>
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<td>• Case presentation</td>
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<td>• Case discussion</td>
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<td>• Report from tables</td>
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<td></td>
<td>• Case solution</td>
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<td>• Tips and tricks: anterior column realignment (ACR) or pedicle subtraction osteotomy (PSO)</td>
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## Friday
**December 4, 2020**

### Module 2
**Degenerative spondylolisthesis**

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<th>Time</th>
<th>Session</th>
<th>Speakers</th>
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</thead>
<tbody>
<tr>
<td>70 minutes</td>
<td><strong>Case 4:</strong> Degenerative spondylolisthesis without sagittal imbalance</td>
<td>Emiliano Vialle, Asdrubal Falavigna, Luiz Gustavo, Cris Ames</td>
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<tr>
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<td>• Case presentation</td>
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<td>• Case discussion</td>
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<td>• Report from tables</td>
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<td></td>
<td>• Case solution</td>
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<td>• Tips and tricks: How do I choose my interbody device?</td>
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<td>10 minutes</td>
<td><strong>Break</strong></td>
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<tr>
<td>70 minutes</td>
<td><strong>Case 5:</strong> Degenerative spondylolisthesis with sagittal imbalance</td>
<td>Emiliano Vialle, Asdrubal Falavigna, Luiz Gustavo, Munish Gupta, Mark Kleinschmidt</td>
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<td>• Case presentation</td>
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<td>• Report from tables</td>
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<td>• Case solution</td>
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<td>• Tips and tricks: decision-making in lumbar spondylolisthesis</td>
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<td>10 minutes</td>
<td><strong>Break</strong></td>
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<td>70 minutes</td>
<td><strong>Case 6:</strong> Degenerative spondylolisthesis above previous fusion</td>
<td>Emiliano Vialle, Asdrubal Falavigna, Luiz Gustavo, Munish Gupta, Cris Ames, Mark Kleinschmidt</td>
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<td>• Tips and tricks</td>
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# Module 3
## Complications

<table>
<thead>
<tr>
<th>Duration</th>
<th>Session Details</th>
<th>Presenter(s)</th>
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</table>
| 70 minutes | **Case 7:** Proximal junctional failure  
- Case presentation  
- Case discussion  
- Report from tables  
- Case solution  
- Tips and tricks: strategies for cranial fixation | Emiliano Vialle, Asdrubal Falavigna, Luiz Gustavo, Marcelo Valacco |
| 10 minutes | Break |  |
| 70 minutes | **Case 8:** Postsurgical flatback  
- Case presentation  
- Case discussion  
- Report from tables  
- Case solution  
| 10 minutes | Break |  |
| 70 minutes | **Case 9:** Postoperative infection  
- Case presentation  
- Case discussion  
- Report from tables  
- Case solution  
- Tips and tricks: early management of postoperative infections | Emiliano Vialle, Asdrubal Falavigna, Luiz Gustavo |
Event organization

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AO funding sources
Unrestricted educational grants from different sources are collected and pooled together centrally by the AO. All events are planned and scheduled by local and regional AO surgeon groups based on local needs assessments. We rely on industrial commercial partners for in-kind support to run simulations and/or skills training if educationally necessary.

Event information and logistics

Event organization compliance
In certain countries where the AO has no office but offers educational events, the AO cooperates with third-party companies to conduct local organization and logistics, as well as to communicate with participants in the local language. In these cases, the AO has put rules and guidelines in place to ensure that this cooperation has no impact on the curricula, scientific program, or faculty selection.
General information

Event fee
AO Spine nonmember: CHF 1,110
AO Spine member: CHF 965.70

European CME Accreditation
An application has been made to the UEMS-EACCME® in Brussels for CME accreditation of this event.

Disclosures and conflicts of interest
Disclosure information and potential conflicts of interest (COI) can be viewed at the event webpage.

Evaluation guidelines
All AO Spine events apply the same evaluation process, which includes pre- and post-event online evaluation and on-site written questionnaires. These evaluation tools help ensure that AO Spine continues to meet your training needs.

Intellectual property
Event materials, presentations, and case studies are the intellectual property of the event faculty. All rights are reserved. For more information, please see: www.aofoundation.org/legal.

Recording, photographing, or copying lectures, practical exercises, case discussions, or any event materials is strictly forbidden. Participants violating intellectual property will be dismissed.

The AO reserves the right to film, photograph, and audio record during its events. Participants must understand that in this context they may appear in these recorded materials. The AO assumes participants agree that these recorded materials may be used for the AO’s marketing and other purposes, and that they may be made available to the public.

Event language
English
Sponsors

We thank our major industry partners, DePuy Synthes and Siemens, for contributing key in-kind support (materials and logistics), without which this event would not be possible, as well as an unrestricted educational grants for this event.
Principles of AO educational events

1. Academic independence
Development of all curricula, design of scientific event programs, and selection of faculty are the sole responsibilities of volunteer AO network surgeons. All education is planned based on needs assessment data, designed and evaluated using concepts and evidence from the most current medical education research, and reflects the expertise of the AO Education Institute (www.aofoundation.org). Industry participation is not allowed during the entire curriculum development and planning process to ensure academic independence and to keep content free from bias.

2. Compliance to accreditation and industry codes
All planning, organization, and execution of educational activities follow existing codes for accreditation of high-quality education:
- Accreditation Criteria of the Accreditation Council for Continuing Medical Education, US (www.accme.org)
- ACCME Standards for Commercial Support: Standards to Ensure Independence in CME Activities (www.accme.org)
- Criteria for Accreditation of Live Educational Events of the European Accreditation Council for Continuing Medical Education (www.uems.eu)

Events that receive direct or indirect unrestricted educational grants or in-kind support from industry also follow the ethical codes of the medical industry, such as:
- Eucomed Guidelines on Interactions with Healthcare Professionals (www.medtecheurope.org)
- AdvaMed Code of Ethics on Interactions with Health Care Professionals (www.advamed.org)
- Mecomed Guidelines on Interactions with Healthcare Professionals (www.mecomed.com)

3. Branding and advertising
No industry logos or advertising (apart from the AO Foundation and its clinical divisions) are permitted in the area where educational activities take place.

Sponsors providing financial or in-kind support are allowed to have a promotional booth or run activities outside the educational area with approval from the event chairperson.

4. Use of technologies and products in practical sessions
In case practical sessions are chosen as an educational method to educate skills, the technologies and products used have been approved or reviewed by the AO Technical Commission—a large independent group of volunteer surgeons developing and peer-reviewing new technology on behalf of the AO Foundation. Any technology and/or products used in the practical sessions of this event have been found suitable to serve the defined educational purposes. This does not imply any statement about its use and performance in actual clinical scenarios.

More information on the AO Technical Commission can be found on the AO’s website: www.aofoundation.org/tc.

5. Personnel
Industry staff members are not permitted to interfere with the educational content or engage in educational activities during the event.
AO Research Institute Davos (ARI)

Mission
The AO mission is promoting excellence in patient care and outcomes in trauma and musculoskeletal disorders.

AO Research Institute Davos (ARI)
In its work to further the AO mission, ARI’s purpose is to advance patient care through innovative orthopedic research and development.
Orthopedics concerns musculoskeletal, spine and craniomaxillofacial trauma, degenerative musculoskeletal diseases, infections, and congenital disorders.

Goals
- Contribute high-quality, applied preclinical research and development focused toward clinical applications/solutions.
- Investigate and improve the performance of surgical procedures, devices and substances.
- Foster a close relationship with the AO medical community, academic societies, and universities.
- Provide research environment/support/training for AO clinicians.

Meet with our team including our ARI Medical Research Fellows, establish contacts, freely discuss your clinical problems and ideas, and learn about the latest results from ARI.

Collaborative research programs
- Annulus fibrosus rupture
- Acute cartilage injury
- Osteochondral defect

Craniomaxillofacial
- Imaging and planning of surgery, computer aided preoperative planning
- Medication-related osteonecrosis of the jaw
- Bone regeneration and 3D printing

Spine
- Degeneration and regeneration of the intervertebral disc
- Biomarkers and patient outcomes

Trauma
- Bone infection, including the development and testing of active anti-infective interventions
- Sensing implants for objective monitoring of fracture healing
- Development of smart surgical tools
- New implant concepts for optimized bone healing
- Prediction of subject-specific risk of proximal humeral fixation failure via computational tools
- Development of generic Asian pelvic bone model
- Patient outcomes and biomarkers

Veterinary medicine
- Improving osteosynthesis for small and large animals

Multidisciplinary
- 3R principles: refinement of preclinical studies
- Bioreactor culture systems and mechanobiology
- Development, standardization, optimization, and improvement of preclinical models and methods
- Ex vivo testing using advanced biomechanical models
- Gene transfer: non-viral and viral
- Implant design using the finite element methods
- Implant positioning assistance, C-arm guided implant placement
- In-vivo and in-vitro quantification of bone turnover and scaffold degradation
- Medical additive manufacturing and biofabrication
- Medical computed tomography (CT) image processing and analysis
- Polymers to deliver cells and biological factors, create potential space for tissue development, and guide the process of tissue regeneration
- Prototype development and production
- Stem cell therapies for the treatment of bone, intervertebral disc, and cartilage defects

For the AO Research Institute Davos Activity Report 2019 and recent publications, go to www.aofoundation.org/ari/publications.
AO Spine membership
Join our global spine care community

Gain access to numerous privileges, including the most advanced educational programs, a worldwide network of professionals, and the highest quality of research carried out by experts and key opinion leaders in spine care.

www.aospine.org