AO Spine Online Course—Thoracolumbar Trauma

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

Synchronous live event
December 3–5, 2020
14:00–17:40 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
Welcome

Dear AO Spine online course participant,

Welcome to AO Spine Online Course—Thoracolumbar Trauma at the AO Davos Courses 2020.

This course will take online teaching to a completely different level. In the self-directed precourse activities, you will have six weeks of online teaching using various learning materials, interactive discussions, and daily feedback from the faculty. In December, you will be part of a synchronous live event, where international faculty will lead you in small group discussions on a number of compelling thoracolumbar (TL) trauma topics.

This course is your opportunity to learn and practice the basic, systematic approach to problem solving that will help enhance the quality of your practice as well as patient outcomes. Based on the AO's remarkable 60-year medical education legacy, this course will provide you with the principles of systematic and algorithmic approach to simple and complex pathologies of the spine.

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

FC Oner
Course chairperson
Event description

AO Spine Online Course—Thoracolumbar Trauma will have two parts. The first part is a six-week, self-directed learning experience, in which you will gain updated knowledge regarding the initial management, diagnosis, and surgical and nonsurgical treatment of thoracolumbar trauma.

The second part of the course is an exciting, three-day, synchronous live online event December 3–5). This portion will include lively case discussions specifically picked to cover diagnostic algorithms, advanced surgical techniques, intraoperative management, and how to deal with complications.

Goals of the course

The goal of this course is to give to the participants the most up-to-date information and surgical techniques so that they feel confident and have all the necessary tools when dealing with patients with thoracolumbar trauma.

Target participants

This course is targeted at fully qualified medical specialists who want to broaden the spectrum of their knowledge of the management of thoracolumbar trauma, from the first steps in the treatment of the patients to the most complex aspects of this pathology.

Learning objectives

- Recognize the advantages and disadvantages of operative intervention for A3/4 fractures.
- Analyze surgical strategies to prevent and treat posttraumatic deformity.
- Choose optimal surgical technique for decompression in spinal injuries.
- Recognize the advantages and disadvantages of operative intervention for osteoporotic thoracolumbar fractures.
- Manage intraoperative and postoperative complications in osteoporotic fractures.
- Identify the advantages and disadvantages of operative intervention for C2 dens axis fractures.
- Recognize the advantages and disadvantages of anterior and posterior intervention for unstable subaxial fractures.
Chairpersons

FC Oner
UMC Utrecht
Netherlands

Juan Emmerich
National University of La Plata
Argentine

Patrick Tropiano
Hospital Timone
France

Educational advisor

International faculty

Henri-Arthur Leroy, France
Laura Marie-Hardy, France
Johan Peltier, France
Ufuk Aydinli, Turkey
Matjaž Voršič, Slovenia
Sander Mujis, Netherlands
Event structure

Week 1:
Introduction

Week 2:
Initial assessment of suspected spine trauma patients

- Examine the patient for a possible spinal cord injury and reexamine serially if a neurological deficit is found.
- Suspect a spinal injury in the unconscious polytrauma patient.
- Recognize that any movement of the patient can result in neurological injury.
- Maintain spinal immobilization until spinal trauma is excluded.
- Arrange appropriate imaging.
- Recognize the radiographic features of instability and cord injury.
- Assess the patient’s motor score.
- Assess the patient’s ASIA/Frankel score.
- Perform a complete neurological assessment.
- Assess the patient for secondary injury.

Week 3:
Classification of TL spine trauma

- Classify the spinal injury using the AO Spine classification systems.
- Classify the injury according to fracture morphology, instability, and neurological status.

Week 4:
TL trauma injury severity scoring and decision-making for treatment

- Identify the history and, where possible, the mechanism of injury.
- Recognize spinal instability.
- Assess the neurological status and identify neural compression/compromise.
- Assess the patient using the injury severity score.

Week 5:
Nonsurgical treatment options

- Describe the risks and benefits of surgical versus conservative management and consider the patient’s preferences and expectations.
- Choose the best operative and nonoperative treatment option for each patient.
- Select the treatment based on the available evidence.
- Consider the prognosis for neurological deficit.
- Recognize limitations of surgery skills and hospital resources.

Week 6:
Surgical treatment options

- Consider and apply strategies to minimize soft-tissue disruption.
- Perform reduction techniques.
- Perform decompression techniques.
- Perform stabilization techniques.
- Decide the optimal timing for the intervention.
- Recognize regional/junctional differences.
- Recognize spinal osteoporosis, if present.
- Seek to preserve function at uninjured levels.

Synchronous live event

December 3–5, 2020

General structure

There will be a total of nine, 55-minute group discussions (three each day).

- Case presentation: 5 minutes
- Individual group discussions: 15 minutes
- Case resolution: 20 minutes
- Discussion: 10 minutes
Thursday  
December 3, 2020

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<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Chairpersons</th>
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<tbody>
<tr>
<td>10 min</td>
<td>Welcome and introduction</td>
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**Small group discussion 1**  
**Moderator:** FC Oner  
**A3/A4 fracture at TL junction without neurology**

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<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>60 min</td>
<td>Case presentation</td>
<td>Johann Peltier</td>
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<tr>
<td>10 min</td>
<td>Break</td>
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**Small group discussion 2**  
**Moderator:** Sander Muijs  
**TL fracture with incomplete neurology (N3).**

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<tr>
<th>Time</th>
<th>Activity</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>60 min</td>
<td>Case presentation</td>
<td>Ufuk Aydinli</td>
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<td>10 min</td>
<td>Break</td>
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**Small group discussion 3**  
**Moderator:** FC Oner  
**Traumatic fracture in osteoporotic spine**

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<th>Time</th>
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<tbody>
<tr>
<td>60 min</td>
<td>Case presentation</td>
<td>Matjaž Voršič</td>
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<td>Small group discussion 4</td>
<td>Moderator: Juan Emmerich</td>
<td>Multiple TL fractures in polytrauma case</td>
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<tr>
<td>60 minutes</td>
<td>Case presentation</td>
<td>FC Oner</td>
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<td>10 minutes</td>
<td>Break</td>
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<tr>
<th>Small group discussion 5</th>
<th>Moderator: FC Oner</th>
<th>Fracture TLO with unknown neurology (NX)</th>
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<tbody>
<tr>
<td>60 minutes</td>
<td>Case presentation</td>
<td>Sander Muijs</td>
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<td>10 minutes</td>
<td>Break</td>
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<tr>
<th>Small group discussion 6</th>
<th>Moderator: Johann Peltier</th>
<th>TLO fracture with incomplete neurology (N3)</th>
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<tr>
<td>60 minutes</td>
<td>Case presentation</td>
<td>Ufuk Aydinli</td>
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**Saturday**  
**December 5, 2020**

### Small group discussion 7  
**Moderator:** Johann Peltier  
**Conservative treatment of TL fractures**

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<tr>
<td>60 min</td>
<td>Case presentation</td>
<td>Sander Muijs</td>
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<td>10 min</td>
<td>Break</td>
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### Session 8  
**Moderator:** Sander Muijs  
**Interlaminar endoscopic lumbar discectomy (IELD) versus transforaminal endoscopic lumbar discectomy (TELD)**

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<tr>
<td>60 min</td>
<td>Debate</td>
<td>Ufuk Aydinli, Johan Peltier</td>
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<td>10 min</td>
<td>Break</td>
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### Session 9  
**Case presenter:** FC Oner  
**How can we decrease the invasiveness of treatment?**

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<tr>
<td>60 min</td>
<td>Lecture</td>
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This session is followed by a 30-minute discussion and wrap-up.
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 orthopaedic research and development. Orthopaedics 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.

Apply for membership
www.aospine.org