MODULE 3
SPINAL DEFORMITIES
12-13 January 2021
PRELIMINARY PROGRAMME
QUICK FACTS

WHEN: 12-13 January 2021
WHERE: IRCAD
Hôpitaux Universitaires
1, place de l’Hôpital
67091 Strasbourg, France
www.ircad.fr
+ 33 (0)3 88 11 90 00

MAXIMUM ATTENDEES: 40 delegates

REGISTRATION FEE:
EUROSPINE Member: €800
Non-member: €1000

CME CREDITS:
Accreditation by EACCME® (European Accreditation Council for Continuing Medical Education) pending

LANGUAGE: English
DRESS: Casual

IMPORTANT NOTE:
Attendance at every session is mandatory.
This will be a paperless course and not printed programme will be provided.
A wireless Internet device (mobile phone/Ipad/computer) will be necessary to access on-line resources during the course and for completing the course evaluation. Please bring one with you.
The course evaluation is mandatory to obtain the CME certificate.

TARGET AUDIENCE
Senior trainees and trained surgeons, who are planning a career in spinal surgery.

LEARNING OUTCOMES: SESSION 1 - PRINCIPLES OF SPINAL DEFORMITY

Spinal alignment and balance
- Goals of surgery in the spinal deformity continuum
- Understand the concepts of alignment vs balance
- Know key spino-pelvic parameters and their limitations
- Understand the concept of spinal harmony
- Know compensation mechanisms

Casting, bracing and the role of rehabilitation
- Justify the role of casting today
- Explain the pros and cons of different types of brace treatment
- Formulate principles of rehabilitation for patients with spine deformity, paediatric and adult
• Define the role of halo traction as definitive or interim treatment

Preoperative assessment and positioning
• Record a comprehensive preoperative assessment
• Consider special issues including pulmonary, cardiac, hematological, nutritional and metabolic
• Position patients safely
• Explain the rationale to other team members
• Compare the purpose of prone, lateral and supine positions

Intraoperative monitoring
• Select appropriate types of monitoring
• Differentiate between SEP and MEP
• Perform a safe and reliable wake up test
• Recognise when a wake up test is required
• Respond appropriately when monitoring indicates intervention required

Blood saving
• Anticipate the factors affecting blood loss
• Recognize trigger points for transfusion
• Minimise the risks of homologous transfusion
• Outline the role of erythropoietin
• Compare the pros and cons of autologous transfusion, haemodilution, hypotensive anaesthesia, anti-fibrinolytic agents, intraoperative blood salvage

LEARNING OUTCOMES: SESSION 2 – ADOLESCENT IDIOPATHIC SCOLIOSIS

Pathogenesis and natural history of AIS
• Know concepts of development of AIS and subsequent implications for surgical treatment
• Describe the natural history of AIS

Classification and surgical indications
• Know the pertinent classification systems and their limitations
• Understand and formulate surgical indications
• Goals of surgery for AIS

Selection of fusion levels
• Use classification to determine the end limits of fusion (Lenke)
• Understand factors which may determine fusion levels such as curve flexibility, adding on etc.
• Define the lower and upper limit of instrumentation
Surgical strategy: Posterior approach
- Formulate principles of surgical correction of AIS
- Understand the role of the sagittal plane in AIS and for surgical correction
- Evaluate strategic surgical options
- Recognise indications for a posterior or combined approach

Surgical strategy: Anterior approach
- Differentiate between anterior release, anterior fusion and anterior instrumentation
- Select appropriate approach for procedure
- Recognise indications for
  - anterior approach
- anterior instrumentation

LEARNING OUTCOMES: SESSION 3 – SCOLIOSIS AND KYPHOSIS

Neuromuscular scoliosis
- Describe the aetiology and prognostic factors associated with neuromuscular scoliosis
- Identify factors indicating progression or risk to neurological structures
- Evaluate management options
- Assess associated pulmonary and cardiac problems

Congenital and early onset scoliosis (including growing rods)
- Relate the stages of development to deformities of the spinal cord
- Select appropriate investigations
- Evaluate treatment options

Hyperkyphosis (Congenital, Scheuermann, Ankylosing spondylitis...)
- Differentiate between the aetiology and prognostic factors associated with regular and angular kyphosis
- Evaluate management options
LEARNING OUTCOMES: SESSION 4 - SPONDYLOLISTHESIS

Pathogenesis and classification
- Describe the pathogenesis and causes of developmental spondylolisthesis
- Differentiate between high- and low-grade spondylolisthesis
- Know current classification systems

Spondylolysis, low-grade olisthesis
- Understand patho-anatomic features
- Know surgical indications
- Select appropriate surgical technique

High-grade spondylolisthesis
- Describe the patho-anatomy of high-grade spondylolisthesis
- Differentiate between balance and unbalanced olisthesis
- Know different surgical technique
- Understand the pros and cons of reduction vs. in situ fusion

LEARNING OUTCOMES: SESSION 5 – CAD LAB PREPARATION

Pedicle Screw Guidance in Deformity
- Assess appropriate placement
- Minimise the risk of misplacement
- Balance the pros and cons of spinal navigation
- Assess the advantages and disadvantages of freehand probing

Sacro-pelvic fixation
- Choose different options of sacro-pelvic fixation
- Describe surgical technique for CadLab

LEARNING OUTCOMES: SESSION 6 - CADAVER LABS

Cad Lab 1: Illio-sacral Fixation: illio-sacral screw placement
- Identify key structures of the lumbo-sacral anatomy
- Identify the S1 screw entry points
- Relate anterior vascular structures and screw placement
- Prepare iliac screw holes
- Integrate safety measures and assess risks
- Place iliac instrumentation and connect to the lumbo-sacral construct
Cad Lab 2: Thoracic Pedicle Screw Fixation & Hybrid Solutions

- Approach the posterior thoracic spine
- Identify anatomical screw entry points
- Anticipate the risks and pitfalls
- Perform free hand technique to prepare a screw hole
- Check integrity of screw hole by pedicle probe
- Place pedicle screw
- Prepare facet joint and place pedicle hook
- Place transverse process and lamina hooks

**LEARNING OUTCOMES: SESSION 7 – ADULT SPINAL DEFORMITY**

**From the degenerative spine to adult deformity**
- Evaluate the lumbar spine in the context of spinal deformity
- Classify the continuum from the degenerative spine to deformity

**Adult idiopathic and degenerative deformities**
- Identify common problems associated with adult deformity
- Differentiate between idiopathic and degenerative (de novo) deformity
- Use spino-pelvic parameters to assess degenerative deformities
- Evaluate operative and non-operative options for different age groups
- Consider comorbidities associated with age
- Define surgical indications
- Assess patient expectation

**Planning of surgical correction**
- Formulate principles of surgical correction
- Plan surgical correction of adult spinal deformity
- Know current software planning tools
- Evaluate the appropriate techniques

**Spinal osteotomies**
- Justify the aim of osteotomy
- Differentiate between the different types of osteotomy (focus on posterior column and pedicle subtraction osteotomies, VCR and en bloc for advanced course)
- Technique of spinal osteotomies
- Outcomes and complications of spinal osteotomies

**Anterior-posterior techniques**
- Recognise indications for an anterior/lateral or combined with posterior approach
- Describe the amount of correction that can be achieved with each technique
- Know outcomes and complications of the different techniques/approach
### COURSE CHAIRMEN:

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOMINIQUE ROTHENFLUH</td>
<td>OXFORD, UNITED KINGDOM</td>
</tr>
<tr>
<td>MARTIN GEHRCHEN</td>
<td>COPENHAGEN, DENMARK</td>
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### COURSE FACULTY:

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
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<tbody>
<tr>
<td>CEDRIC BARREY</td>
<td>LYON, FRANCE</td>
</tr>
<tr>
<td>RENÉ CASTELEIN</td>
<td>UTRECHT, NETHERLANDS</td>
</tr>
<tr>
<td>ANTONIO FAUNDEZ</td>
<td>GENEVA, SWITZERLAND</td>
</tr>
<tr>
<td>ILKKA HELENUIS</td>
<td>TURKU, FINLAND</td>
</tr>
<tr>
<td>COLIN NNADI</td>
<td>OXFORD, UNITED KINGDOM</td>
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## SCIENTIFIC PROGRAMME, MODULE 3

**DAY 1 - TUESDAY, 12 JANUARY 2021**

Venue: IRCAD, Strasbourg, France

**COURSE ATTENDANCE IS MANDATORY**

<table>
<thead>
<tr>
<th>TIME</th>
<th>TOPIC</th>
<th>FACULTY</th>
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</thead>
<tbody>
<tr>
<td>08:00-08:20</td>
<td>Participants’ check-in and welcome</td>
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<tr>
<td>08:20-08:35</td>
<td>Course introduction</td>
<td>Dominique Rothenfluh</td>
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<tr>
<td></td>
<td><strong>SESSION 1: Principles of Spinal Deformity and Surgical Treatment</strong></td>
<td></td>
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<tr>
<td>08:35-08:50</td>
<td>Spinal alignment and balance</td>
<td>Dominique Rothenfluh</td>
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<tr>
<td>08:50-09:10</td>
<td>Casting, Bracing and Role of Rehabilitation</td>
<td>René Castelein</td>
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<tr>
<td>09:10-09:25</td>
<td>Preoperative Assessment and Positioning</td>
<td>Antonio Faundez</td>
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<tr>
<td>09:25-09:40</td>
<td>Intraoperative monitoring</td>
<td>Colin Nnadi</td>
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<tr>
<td>09:40-09:50</td>
<td>Blood Saving</td>
<td>Cedric Barrey</td>
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<tr>
<td>09:50-10:00</td>
<td>Discussion</td>
<td>All Faculty</td>
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<tr>
<td></td>
<td><strong>Coffee Break 30 min</strong></td>
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<tr>
<td>10:30-10:45</td>
<td>Pathogenesis and natural history of AIS</td>
<td>René Castelein</td>
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<tr>
<td>10:45-10:55</td>
<td>Classification and surgical indications</td>
<td>Martin Gehrchen</td>
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<tr>
<td>10:55-11:05</td>
<td>Selection of fusion levels</td>
<td>Ilkka Helenius</td>
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<tr>
<td>11:05-11:20</td>
<td>Surgical strategy: Posterior approach</td>
<td>Martin Gehrchen</td>
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<tr>
<td>11:20-11:35</td>
<td>Surgical strategy: Anterior approach</td>
<td>Dominique Rothenfluh</td>
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<tr>
<td>11:35-11:45</td>
<td>Discussion</td>
<td>All Faculty</td>
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<tr>
<td>11:45-12:30</td>
<td>Case-based discussion</td>
<td>René Castelein</td>
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<td></td>
<td><strong>Lunch 60 min</strong></td>
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<tr>
<td>13:30-13:50</td>
<td>Neuromuscular scoliosis</td>
<td>René Castelein</td>
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<tr>
<td>13:50-14:10</td>
<td>Congenital and early onset scoliosis (incl growing rods)</td>
<td>Colin Nnadi</td>
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<tr>
<td>14:10-14:25</td>
<td>Hyperkyphosis (Congenital, Scheuermann, Ankylosing Spondylitis)</td>
<td>Cedric Barrey</td>
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<tr>
<td>14:25-14:40</td>
<td>Surgical strategy for correcting hyperkyphosis</td>
<td>Ilkka Helenius</td>
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<tr>
<td>14:40-14:50</td>
<td>Discussion</td>
<td>All Faculty</td>
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<tr>
<td>14:50-15:20</td>
<td>Case-based discussion</td>
<td>Martin Gehrchen</td>
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<td></td>
<td><strong>Coffee Break 30 min</strong></td>
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<tr>
<td>15:50-16:05</td>
<td>Pathogenesis and classification</td>
<td>Colin Nnadi</td>
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<tr>
<td>16:05-16:20</td>
<td>Spondylolysis and low-grade olisthesis</td>
<td>Cedric Barrey</td>
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<tr>
<td>16:20-16:35</td>
<td>High-grade spondylolisthesis</td>
<td>Ilkka Helenius</td>
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<tr>
<td>16:35-16:45</td>
<td>Discussion</td>
<td>All Faculty</td>
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<td>16:45-17:30</td>
<td>Case-based discussion</td>
<td>Ilkka Helenius</td>
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<td></td>
<td><strong>SESSION 5: Cad Lab Preparation</strong></td>
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<tr>
<td>17:30-17:45</td>
<td>Sacro-pelvic fixation</td>
<td>Martin Gehrchen</td>
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<td>17:45</td>
<td>End of Day 1</td>
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### SCIENTIFIC PROGRAMME, MODULE 3
#### DAY 2 - WEDNESDAY, 13 JANUARY 2021
Venue: IRCAD, Strasbourg, France
**COURSE ATTENDANCE IS MANDATORY**

<table>
<thead>
<tr>
<th>TIME</th>
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<tbody>
<tr>
<td>07:30-07:45</td>
<td>Participants’ check-in and welcome</td>
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<tr>
<td>07:45-08:00</td>
<td>Change in scrubs and go to CadLab</td>
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**SESSION 6: Cadaver Labs**

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<th>TIME</th>
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<tbody>
<tr>
<td>08:00-09:45</td>
<td>Group A: Pedicle screw guidance in deformity</td>
<td>All Faculty</td>
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<tr>
<td>08:00-09:45</td>
<td>Group B: Sacro-pelvic fixation</td>
<td>All Faculty</td>
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Coffee Break 30 min

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<tbody>
<tr>
<td>10:15-12:00</td>
<td>Group A: Sacro-pelvic fixation</td>
<td>All Faculty</td>
</tr>
<tr>
<td>10:15-12:00</td>
<td>Group B: Pedicle screw guidance in deformity</td>
<td>All Faculty</td>
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Lunch Break 60 min

**SESSION 7: Adult spinal deformity**

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<tbody>
<tr>
<td>13:00-13:20</td>
<td>From degenerative to adult deformity</td>
<td>Dominique Rothenfluh</td>
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<tr>
<td>13:20-13:40</td>
<td>Adult idiopathic and degenerative deformities</td>
<td>Antonio Faundez</td>
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<tr>
<td>13:40-14:00</td>
<td>Planning of surgical correction</td>
<td>Martin Gehrchen</td>
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<tr>
<td>14:00-14:20</td>
<td>Spinal osteotomies</td>
<td>Dominique Rothenfluh</td>
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Coffee Break 30 min

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<tbody>
<tr>
<td>14:50-15:10</td>
<td>Anterior-posterior techniques</td>
<td>Cedric Barrey</td>
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<tr>
<td>15:10-15:30</td>
<td>Discussion</td>
<td>All Faculty</td>
</tr>
<tr>
<td>15:30-16:00</td>
<td>Closing Remarks, diploma and mandatory course evaluation</td>
<td>Dominique Rothenfluh</td>
</tr>
<tr>
<td>16:00</td>
<td>END OF MODULE</td>
<td>All participants</td>
</tr>
</tbody>
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CONTACTS

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COURSE ORGANISATION

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SCIENTIFIC CONTENT

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Chairman, Education Committee of EUROSPINE