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SOCIEDADE
PORTUGUESA
DE PATOLOGIA
DA COLUNA
VERTEBRAL

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Spanish & Portuguese Spine Societies COURSE DIPLOMA 2021 Module 2

Module 2:

—
Degenerative Diseases of
the Spine

When:

—
13-14 // October // 2021

Where:

—
Lisbon - Portugal

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Scientific Content

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Dra. Carla Reizinho

Quick Facts

When	13-14 October 2021
Where	Lisbon / Portugal Course: Lusíadas Hospital Rua Abílio Mendes, 12 Cad Lab Workshops: Nova Medical School Lisbon Nova University Campo dos Mártires da Pátria, 130
Maximum Attendees	30 delegates
Registration Fee	Discount fee for SPPCV/GEER members Module 2: 800€ for Members / 1000€ for Non Members
CME Credits	An application has been made to the UEMS EACCME® for CME accreditation of this event
Language	English
Dress	Casual
Important Note	Attendance at every session is mandatory; A final exam will be performed; The course evaluation is mandatory to obtain the CME certificate; This will be a paperless course and no printed programme will be provided.

Target Audience

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

Learning Outcomes:

Module 2

Degenerative Diseases of the Spine

- 1. Cervical & Lumbar: Herniated Discs, Diagnosis & Treatment of Radicular Pain**
- 2. Cervical & Thoracic Myelopathy**
- 3. Lumbar Spinal Stenosis & Degenerative Spondylolisthesis**
- 4. Spondylolysis & Low-Grade Isthmic Spondylolisthesis, Axial Back Pain, Degenerative Deformity**
- 5. Skills Workshop**

Learning Outcomes:

Cervical & Lumbar: Herniated Discs, Diagnosis & Treatment of Radicular Pain

1. Epidemiology, Natural History and Imaging of Radicular Pain
2. Effective Non-Surgical Interventions for Radicular Pain
3. Surgery for Radicular Pain in the Lumbar Spine
4. Surgery for Radicular Pain in the Cervical Spine

1. Epidemiology, Natural History and Imaging of Radicular Pain

- Use common epidemiological terms to define and outline prevalence of radicular pain
- Understand the natural history of radicular pain
- Identify the contributory factors
- Diagnose causes of radicular pain
- Explain how disc herniation occurs
- Differentiate between the roles of MRI and CT in radicular pain imaging
- Interpret images using correct nomenclature

2. Effective Non-Surgical Interventions for Radicular Pain

- Evaluate non-surgical options for radicular pain
- Explain these options to patients
- Identify suitable patients for non-operative management
- Differentiate between the 3 types of analgesics
- Summarise the roles of physiotherapy and injection therapy.

3. Surgery for Radicular Pain in the Lumbar Spine

- Differentiate between absolute and relative indications for surgery
- Identify appropriate timing for surgery
- Evaluate common surgical techniques with supporting evidence
- Compare surgical and non-surgical options
- Formulate a surgical plan
- Anticipate complications and plans for return to work and activity

4. Surgery for Radicular Pain in the Cervical Spine

- Outline the causes and incidence of radicular pain in the cervical spine
- Justify indications for surgery
- Identify factors influencing regression of symptoms from cervical disc herniation
- Select appropriate surgical approach
- Evaluate surgical options
- Anticipate complications and plans for return to work and activity
- Formulate a plan when an adjacent level problem emerges

Learning Outcomes:

Cervical & Thoracic Myelopathy

- 1. Presentation, Causes, and Natural History of Myelopathy**
- 2. Imaging Myelopathy: Techniques & Prognostic Indicators**
- 3. Clinical & Surgical Decision Making in Cervical Myelopathy**
- 4. Clinical & Surgical Decision Making in Thoracic Myelopathy**

1. Presentation, Causes, and Natural History of Myelopathy

- Compare functional and clinical presentation of cervical spondylotic myelopathic syndromes
- Grade the disease using validated instruments
- Anticipate clinical traps in diagnosis and consider differentials
- Describe the natural history
- Identify the distinctive clinical presentation of craniocervical and thoracic myelopathy

2. Imaging Myelopathy: Techniques & Prognostic Indicators

- Interpret MRI and CT findings in spondylotic myelopathy
- Recognize signal changes in different MRI sequences and their significance
- Consider differential diagnoses in spinal cord non tumoral pathology
- Understand the current place of myelography and CT myelography in imaging myelopathy

3. Clinical & Surgical Decision Making in Cervical Myelopathy

- Define a treatment plan for patients with cervical myelopathy
- Identify absolute and relative indications for surgery in cervical spondylotic myelopathy
- Compare different surgical approaches to cervical myelopathy and define a rationale for the surgical plan
- Discuss the place of intraoperative neuromonitoring in cervical myelopathy

4. Clinical & Surgical Decision Making in Thoracic Myelopathy

- Assess the risk-benefit balance for surgery in patients with thoracic myelopathy
- Compare different surgical approaches to thoracic myelopathy

Learning Outcomes:

Lumbar Spinal Stenosis & Degenerative Spondylolisthesis

1. Presentation, Natural History and Non-Surgical Treatment of Spinal Stenosis
2. Imaging of Spinal Stenosis and Degenerative Spondylolisthesis
3. Surgical Treatment of Lumbar Stenosis
4. Surgical Treatment of Degenerative Spondylolisthesis

1. Presentation, Natural History and Non-Surgical Treatment of Spinal Stenosis

- Outline the signs & symptoms of lumbar spine stenosis (LSS)
- Understand the clinical features and natural history of neurogenic claudication
- Classify LSS
- Evaluate surgical and non-surgical options
- Appraise rehabilitation alternatives

2. Imaging of Spinal Stenosis and Degenerative Spondylolisthesis

- Describe the different imaging techniques to identify lumbar stenosis and degenerative spondylolisthesis
- Classify and grade lumbar stenosis
- Appraise the role of full spine and functional X-rays in the assessment of patients with lumbar spinal stenosis and degenerative spondylolisthesis

3. Surgical Treatment of Lumbar Stenosis

- Formulate principles for stenosis surgery
- Tailor the surgical technique to the individual patient
- Recognize indications for fusion in patients with lumbar stenosis

4. Surgical Treatment of Degenerative Spondylolisthesis

- Evaluate surgical and non-surgical options for degenerative spondylolisthesis
- Summarise controversies in the choice of treatment for degenerative spondylolisthesis

Learning Outcomes:

Spondylolysis & Low-Grade Isthmic Spondylolisthesis, Axial Back Pain, Degenerative Deformity

1. Spondylolysis & Low-Grade Spondylolisthesis
2. Natural history, Obstacles to Recovery and Non-Surgical Treatment of Axial pain
3. How to investigate a Patient with Axial Pain
4. Surgery for Axial Back Pain
5. Degenerative Lumbar Deformity

1. Spondylolysis & Low-Grade Spondylolisthesis

- Outline the epidemiology and natural history
- Describe the signs & symptoms of spondylolysis & low-grade spondylolisthesis
- Formulate principles of management
- Evaluate surgical options
- Anticipate complications of instrumentation and repositioning
- Appraise rehabilitation alternatives

2. Natural history, Obstacles to Recovery and Non-Surgical Treatment of Axial pain

- Anticipate potential obstacles to recovery
- Explain how flagging can be used
- Plan strategies for managing catastrophizing
- Differentiate between acute and chronic back pain
- Evaluate options for non-surgical management of back pain
- Summarise current evidence pertaining to operative and non-operative management

3. How to investigate a Patient with Axial Pain

- Understand the role of clinical history and physical examination in the assessment of patients with axial pain
- Decide the need for imaging studies
- Select patients with axial pain who need advanced diagnostic techniques
- Review the place of diagnostic blocks and discography in patients with axial pain

4. Surgery for Axial Back Pain

- Provide a rationale for fusion surgery
- Evaluate alternative options
- Select appropriate approach
- Link to current evidence

5. Degenerative Lumbar Deformity

- Describe the pathogenesis and natural history of degenerative lumbar deformity
- Explain the concept of spinal balance and the spinopelvic parameters
- Evaluate the risk-benefit balance for surgery and potential for complications
- Formulate a surgical plan for lumbar degenerative kyphoscoliosis

Learning Outcomes:

Skills Workshop

1. Anterior Cervical Fixation Systems: Cages & Plates

2. Lateral Approach: Lateral Lumbar Interbody Fusion (LLIF)

3. Lumbar Pedicle Screws & Transforaminal Lumbar Interbody Fusion (TLIF) / Posterior Lumbar Interbody Fusion (PLIF)

1. Anterior Cervical Fixation Systems: Cages & Plates

- Describe the surgical steps of the procedure
- Identify surgical differences between cage fusion and disc arthroplasty
- Identify tricks and pitfalls in decompression of the spinal canal and foramen
- Identify tricks and pitfalls in anterior plating

2. Lateral Approach: Lateral Lumbar Interbody Fusion (LLIF)

- Identify the fluoroscopic targets for lateral approach to the lumbar spine
- Perform minimally invasive lateral approach to the discs L2-L3, L3-L4, L4-L5
- Identify key structures and discuss risks related to local vascular neuro anatomy
- Approach the disc using neuromonitoring and tubular system
- Convert the approach to mini-open lumbotomy and access the disc by reclining the psoas muscle
- Perform a discectomy and prepare endplates
- Insert a LLIF cage

3. Lumbar Pedicle Screws & Transforaminal Lumbar Interbody Fusion (TLIF) / Posterior Lumbar Interbody Fusion (PLIF)

- Identify entry points for lumbar pedicle screws insertion
- Prepare lumbar pedicles and insert lumbar pedicle screws
- Learn/revise neural anatomy of the lumbar spine
- Perform facetectomy, prepare the disc space and insert a TLIF/PLIF cage

Learning Outcomes:

Session 1

Cervical & Lumbar: Herniated Discs, Diagnosis & Treatment of Radicular Pain

- **Epidemiology, Natural History and Imaging of Radicular Pain**
- **Effective Non-Surgical Interventions for Radicular Pain**
- **Surgery for Radicular Pain in the Lumbar Spine**
- **Surgery for Radicular Pain in the Cervical Spine**
- **Case Discussion**

• **Epidemiology, Natural History and Imaging of Radicular Pain**

- Use common epidemiological terms to define and outline prevalence of radicular pain
- Understand the natural history of radicular pain
- Identify the contributory factors
- Diagnose causes of radicular pain
- Explain how disc herniation occurs
- Differentiate between the roles of MRI and CT in radicular pain imaging
- Interpret images using correct nomenclature

• **Effective Non-Surgical Interventions for Radicular Pain**

- Evaluate non-surgical options for radicular pain
- Explain these options to patients
- Identify suitable patients for non-operative management
- Differentiate between the 3 types of analgesics
- Summarise the roles of physiotherapy and injection therapy.

• **Surgery for Radicular Pain in the Lumbar Spine**

- Differentiate between absolute and relative indications for surgery
- Identify appropriate timing for surgery
- Evaluate common surgical techniques with supporting evidence
- Compare surgical and non-surgical options
- Formulate a surgical plan
- Anticipate complications and plans for return to work and activity

• **Surgery for Radicular Pain in the Cervical Spine**

- Outline the causes and incidence of radicular pain in the cervical spine
- Justify indications for surgery
- Identify factors influencing regression of symptoms from cervical disc herniation
- Select appropriate surgical approach
- Evaluate surgical options
- Anticipate complications and plans for return to work and activity
- Formulate a plan when an adjacent level problem emerges

• **Case Discussion**

Learning Outcomes:

Session 2

Cervical & Thoracic Myelopathy

- **Presentation, Causes, and Natural History of Myelopathy**
- **Imaging Myelopathy: techniques & prognostic indicators**
- **Clinical & Surgical Decision Making in Cervical Myelopathy**
- **Clinical & Surgical Decision Making in Thoracic Myelopathy**
- **Case Discussion**

• **Presentation, Causes, and Natural History of Myelopathy**

- Compare functional and clinical presentation of cervical spondylotic myelopathic syndromes
- Grade the disease using validated instruments
- Anticipate clinical traps in diagnosis and consider differentials
- Describe the natural history
- Identify the distinctive clinical presentation of craniocervical and thoracic myelopathy

• **Imaging Myelopathy: Techniques & Prognostic Indicators**

- Interpret MRI and CT findings in spondylotic myelopathy
- Recognize signal changes in different MRI sequences and their significance
- Consider differential diagnoses in spinal cord non tumoral pathology
- Understand the current place of myelography and CT myelography in imaging myelopathy

• **Clinical & Surgical Decision Making in Cervical Myelopathy**

- Define a treatment plan for patients with cervical myelopathy
- Identify absolute and relative indications for surgery in cervical spondylotic myelopathy
- Compare different surgical approaches to cervical myelopathy and define a rationale for the surgical plan
- Discuss the place of intraoperative neuromonitoring in cervical myelopathy

• **Clinical & Surgical Decision Making in Thoracic Myelopathy**

- Assess the risk-benefit balance for surgery in patients with thoracic myelopathy
- Compare different surgical approaches to thoracic myelopathy

• **Case Discussion**

Learning Outcomes:

Session 3

Lumbar Spinal Stenosis & Degenerative Spondylolisthesis

- **Presentation, Natural History and Non-Surgical Treatment of Spinal Stenosis**
- **Imaging of Spinal Stenosis and Degenerative Spondylolisthesis**
- **Surgical Treatment of Lumbar Stenosis**
- **Surgical Treatment of Degenerative Spondylolisthesis**
- **Case Discussion**

• **Presentation, Natural History and Non-Surgical Treatment of Spinal Stenosis**

- Outline the signs & symptoms of lumbar spine stenosis (LSS)
- Understand the clinical features and natural history of neurogenic claudication
- Classify LSS
- Evaluate surgical and non-surgical options
- Appraise rehabilitation alternatives

• **Imaging of Spinal Stenosis and Degenerative Spondylolisthesis**

- Describe the different imaging techniques to identify lumbar stenosis and degenerative spondylolisthesis
- Classify and grade lumbar stenosis
- Appraise the role of full spine and functional X-rays in the assessment of patients with lumbar spinal stenosis and degenerative spondylolisthesis

• **Surgical Treatment of Lumbar Stenosis**

- Formulate principles for stenosis surgery
- Tailor the surgical technique to the individual patient
- Recognize indications for fusion in patients with lumbar stenosis

• **Surgical Treatment of Degenerative Spondylolisthesis**

- Evaluate surgical and non-surgical options for degenerative spondylolisthesis
- Summarise controversies in the choice of treatment for degenerative spondylolisthesis

• **Case Discussion**

Learning Outcomes:

Session 4

Spondylolysis & Low Grade Isthmic Spondylolisthesis

- **Spondylolysis & Low Grade Spondylolisthesis**
- **Case Discussion**

• **Imaging of Spinal Stenosis and Degenerative Spondylolisthesis**

- Outline the epidemiology and natural history
- Describe the signs & symptoms of spondylolysis & low-grade spondylolisthesis
- Formulate principles of management
- Evaluate surgical options
- Anticipate complications of instrumentation and repositioning
- Appraise rehabilitation alternatives

• **Case Discussion**

Learning Outcomes:

Session 5

Axial Back Pain

- **Natural history, Obstacles to Recovery and Non-Surgical Treatment of Axial pain**
- **How to Investigate a Patient with Axial Pain**
- **Surgery for Axial Back Pain**
- **Case Discussion**

• **Natural history, Obstacles to Recovery and Non-Surgical Treatment of Axial pain**

- Anticipate potential obstacles to recovery
- Explain how flagging can be used
- Plan strategies for managing catastrophizing
- Differentiate between acute and chronic back pain
- Evaluate options for non-surgical management of back pain
- Summarise current evidence pertaining to operative and non-operative management

• **How to Investigate a Patient with Axial Pain**

- Understand the role of clinical history and physical examination in the assessment of patients with axial pain
- Decide the need for imaging studies
- Select patients with axial pain who need advanced diagnostic techniques
- Review the place of diagnostic blocks and discography in patients with axial pain

• **Surgery for Axial Back Pain**

- Provide a rationale for fusion surgery
- Evaluate alternative options
- Select appropriate approach
- Link to current evidence

• **Case Discussion**

Learning Outcomes:

Session 6

Degenerative Deformity

- **Degenerative Lumbar Deformity**
- **Case Discussion**

- **Degenerative Lumbar Deformity**
 - Describe the pathogenesis and natural history of degenerative lumbar deformity
 - Explain the concept of spinal balance and the spinopelvic parameters
 - Evaluate the risk-benefit balance for surgery and potential for complications
 - Formulate a surgical plan for lumbar degenerative kyphoscoliosis
- **Case Discussion**

Learning Outcomes:

Session 7

Cadaver Labs

- **Anterior Cervical Fixation Systems: Cages & Plates**
 - **Lateral Approach: XLIF**
 - **Lumbar Pedicle Screws & TLIF**
-
- **Anterior Cervical Fixation Systems: Cages & Plates**
 - Describe the surgical steps of the procedure
 - Identify surgical differences between cage fusion and disc arthroplasty
 - Identify tricks and pitfalls in decompression of the spinal canal and foramen
 - Identify tricks and pitfalls in anterior plating
 - **Lateral Approach: XLIF**
 - Identify the fluoroscopic targets for lateral approach to the lumbar spine
 - Perform minimally invasive lateral approach to the discs L2-L3, L3-L4, L4-L5
 - Identify key structures and discuss risks related to local vascular neuro anatomy
 - Approach the disc using neuromonitoring and tubular system
 - Convert the approach to mini-open lumbotomy and access the disc by reclining the psoas muscle
 - Perform a discectomy and prepare endplates
 - Insert a XLIF cage
 - **Lumbar Pedicle Screws & TLIF**
 - Identify entry points for lumbar pedicle screws insertion
 - Prepare lumbar pedicles and insert lumbar pedicle screws
 - Learn/revise neural anatomy of the lumbar spine
 - Perform facetectomy, prepare the disc space and insert a TLIF cage
-

Course Chairperson:

Carla Reizinho PORTUGAL

Antonio Martín Benlloch SPAIN

CAD Lab Chairperson:

Carla Reizinho PORTUGAL

Antonio Martín Benlloch SPAIN

Course Faculty:

Angel Escarnez Pérez SPAIN

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Miguel Casimiro PORTUGAL

Nuno Neves PORTUGAL

Pedro Varanda PORTUGAL

Pedro Vilela PORTUGAL

Susana Nuñez Pereira SPAIN

Scientific Programme

Module 2

Day 1 - Wednesday, 13 October 2021

Time	Topic	Faculty
-	-	-
08:30-09:00	Course Registration and welcome coffee	-
-	-	-
	Cervical & Lumbar	
09:00-09:15	Epidemiology, natural history and imaging of radicular pain	Carla Reizinho
09:15-09:30	Effective non-surgical interventions for radicular pain	Angel Escamez Pérez
09:30-09:45	Surgery for radicular pain in the lumbar spine	Luís Marques
09:45-10:00	Surgery for radicular pain in the cervical spine	Susana Nuñez Pererira
10:00-10:45	Case discussion	
-	-	-
Coffee Break		
-	-	-
	Cervical & Thoracic Myelopathy	
11:15-11:30	Presentation, causes and natural history of myelopathy	Miguel Casimiro
11:30-11:45	Imaging myelopathy: techniques and prognostic indicators	Pedro Vilela
11:45-12:00	Clinical and surgical decision making in cervical myelopathy	Antonio Martin
12:00-12:15	Clinical and surgical decision making in thoracic myelopathy	Luís Marques
12:15-13:00	Case discussion	
-	-	-
Lunch		
-	-	-
	Lumbar Spinal Stenosis & Degenerative Spondylolisthesis	
14:00-14:15	Presentation, natural history and non-surgical treatment of spinal stenosis	Angel Escamez Pérez
14:15-14:30	Imaging of spinal stenosis and degenerative spondylolisthesis	Pedro Vilela
14:30-14:45	Surgical treatment of lumbar stenosis	Miguel Casimiro
14:45-15:00	Surgical treatment of degenerative spondylolisthesis	Luís Barroso
15:00-15:45	Case discussion	
-	-	-
Coffee Break		
-	-	-
	Spondylolysis & Low-grade Isthmic Spondylolisthesis, Axial Back Pain, Degenerative Deformity	
16:15-16:30	Spondylolysis and low-grade isthmic spondylolisthesis	Luís Teixeira
16:30-17:30	Case discussion	
-	-	-
	End of Day 1	
-	-	-

Course Attendance is Mandatory

Scientific Programme

Module 2

Day 2 - Thursday, 14 October 2021

Time	Topic	Faculty
-	-	-
07:45-08:00	Welcome	-
-	-	-
08:00-08:15	Spondylolysis & Low-grade Isthmic Spondylolisthesis, Axial Back Pain, Degenerative Deformity Natural history, obstacles to recovery and non-surgical treatment of axial pain	Pedro Varanda
08:15-08:30	How to investigate a patient with axial pain	Angel Piñeira Parrilla
08:30-08:45	Surgical treatment for axial back pain	Luís Teixeira
08:45-09:45	Case discussion	-
-	-	-
Coffee Break	-	-
-	-	-
10:15-10:30	Degenerative deformity of the lumbar spine	Susana Nuñez Pereira
10:30-11:15	Case discussion	-
11:15-11:45	Course Summary	Carla Reizinho. António Martín Benlloch
11:45-12:15	Conclusions, Diploma and Mandatory Course Evaluation	-
-	-	-
Lunch	-	-
-	-	-
13:30-14:00	Cad Lab Discussion and Introduction	Carla Reizinho
-	-	-
	Cad Lab Workshops	
14:00-15:45	Group A: Lombosacroiliac fixation ,TLIF, Lateral approach: LLIF	
14:00-15:45	Group B: Cervical instrumentation including cervical pedicle fixation, Thoracic pedicle screw fixation and hybrid solutions	
-	-	-
Coffee Break	-	-
-	-	-
16:15-18:00	Group A: Cervical instrumentation including cervical pedicle fixation, Thoracic pedicle screw fixation and hybrid solutions	
16:15-18:00	Group B: Lombosacroiliac fixation ,TLIF, Lateral approach: LLIF	
-	-	-
-	End of Module	-
-	-	-

Course Attendance is Mandatory

Recommended Reading

Part II Basic Module 2:

• **Surgical Treatment of Degenerative Cervical, Thoracic and Lumbar Spinal Pathologies.**

B. Meyer and M. Rauschmann (Eds.)

• **Spine Surgery A Case-Based Approach.** **Switzerland: Springer.**

• **F. Ringel and S. Kantelhardt. (2019).**

Anterior Cervical Subaxial Treatment (Fusion).

B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 19-24).

Switzerland: Springer.

• **F. Ringel and E. Archavlis. (2019). Cervical Motion Preserving Procedures (TDR).**

B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 25-32).

Switzerland: Springer.

• **F. Ringel and A. Gutenberg. (2019). Cervical Motion Preserving Procedures (Frykholm). B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 33-38).**

Switzerland: Springer.

• **M. Czabanka and P. Vajkoczy. (2019). Cervical Myelopathy: Indication and Operative Procedure. B.**

Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 39-50).

Switzerland: Springer.

• **L. Bobinski. (2019). Cervical Posterior Long Construct Stabilization. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 51-58).**

Switzerland: Springer.

- B. Meyer and S. Krieg. (2019). Thoracic Disc Herniation and Myelopathy. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 59-64). Switzerland: Springer.
- N.A. van der Gaag and W. Moojen. (2019). Lumbar Disc Herniation, Nucleo- and Sequesterectomy. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case- Based Approach (pp. 65-70). Switzerland: Springer.
- I. Magras, A. Athanasiou and V. Magra. (2019). Lumbar Spinal Stenosis Requiring Decompression and Fusion. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 71-76). Switzerland: Springer.
- I. Magras, A. Athanasiou and V. Magra. (2019). Lumbar Spinal Stenosis. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp.77-80). Switzerland: Springer.
- J. Patino and J. Lafuente. (2019). Degenerative Spondylolisthesis. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 81-86). Switzerland: Springer.
- S. Hartmann, A. Tschugg and C. Thomé. (2019). Basic Degenerative Lumbar Scoliosis. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 87-94). Switzerland: Springer.
- S.K, Tschoeke. (2019). Thoracolumbar Instrumentation and Fusion for Degenerative Disc Disease. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 95-108). Switzerland: Springer.
- M. Stoffel. (2019). Lumbar Non-Fusion Techniques. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 109-116). Switzerland: Springer.
- E. Shibhan and B. Meyer. (2019). Management of Failed Back Surgery Syndrome. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 117-122). Switzerland: Springer.
- H. Meyer and Y. Ryang. (2019). Navigation of the Cervical, Thoracic and Lumbar Spine. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 129-137). Switzerland: Springer.

Contacts

Course Organisation

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Scientific Content

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Dra. Carla Reizinho

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Portuguese Spine Society

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Thank you for your participation.

**Spanish & Portuguese Spine Societies
COURSE DIPLOMA**

**Module 2: Degenerative Diseases of the Spine
2021**

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