

**Madrid, Spain**  
13-14 November 2024



**SPPCV**  
SOCIEDADE  
PORTUGUESA  
DE PATOLOGIA  
DA COLUNA  
VERTEBRAL

# Spanish & Portuguese Spine Societies Course Diploma

## Module 3

# Spinal Deformities

**PROGRAMME**

**Application for  
accreditation of  
continuing medical  
education**

**Technical Secretariat:**

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## QUICK FACTS

### WHEN:

13-14 November 2024

### WHERE:

**Madrid. Spain**

#### Course Venue:

Hotel AC La Finca  
Pº del Club Deportivo, 1. Ed. 17  
Parque empresarial La Finca  
Pozuelo de Alarcón  
28223 Madrid

#### Cad-Lab Workshops:

Universidad Francisco de Vitoria  
Carretera Pozuelo a Majadahonda, Km 1.800  
Pozuelo de Alarcón  
28223 Madrid

### REGISTRATION FEE:

**1500 € for Members\***

**1800 € for Non Members**

\*Discounts for GEER and SPPCV members are available

### MAXIMUM ATTENDEES:

30 delegates

### CME CREDITS:

Application for accreditation of continuing medical education

### LANGUAGE:

English, Spanish and Portuguese (*The speaking is in Spanish or Portugues, but the slides are in English, live discussions are also in Spanish-Portuguese without translation available*)

### DRESS:

Casual

### IMPORTANT NOTE:

- Attendance at every session is mandatory.

## COURSE CHAIRMEN

- **Felisa Sánchez-Mariscal Díaz.** Spain
- **Nelson Carvalho.** Portugal

## CAD LAB CHAIRMEN

- **Felisa Sánchez-Mariscal Díaz.** Spain
- **Nelson Carvalho.** Portugal

## COURSE FACULTY

- Luis Álvarez Galovich
- Teresa Bas Hermida
- Nelson Carvalho
- Vitor Castro
- Rosa Mª Egea Gámez
- Manuel Fernández González
- Nicomedes Fernández-Baillo Gallego de la Sacristana
- Azucena García Martín
- Rafael González Díaz
- Sleiman Haddad
- Carmen Martínez González
- Antonio L. Pérez Abela
- Pedro Rubio Belmar
- Felisa Sánchez-Mariscal Díaz
- José Miguel Sánchez Márquez
- Francisco Serdoura
- Francisco J. Serrano Escalante
- Inmaculada Vilalta Vidal

## TARGET AUDIENCE

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

## LEARNING OUTCOMES

### LEARNING OUTCOMES SESSION 1

#### PRINCIPLES OF SPINAL DEFORMITY & SURGICAL TREATMENT

##### 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, both 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 IN SPINAL DEFORMITY SURGERY

- 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 SPINAL DEFORMITIES

- 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

### CORRECTING HYPERKYPHOSIS

- Review the spinal osteotomy options
- Explain how to correct Scheuermann kyphosis versus congenital kyphosis

## LEARNING OUTCOMES SESSION 4 SPONDYLOLISTHESIS

### 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 techniques
- 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 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

### ADULT DEFORMITY 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)
- Technique of spinal osteotomies
- Outcomes and complications of spinal osteotomies

### ANTERIOR-POSTERIOR TECHNIQUES TO TREAT SAGITTAL BALANCE DISORDERS

- 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



## LEARNING OUTCOMES SESSION 7

### 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

# Module 3: Spinal Deformities

## Scientific Programme

Chairmen: **Felisa Sánchez-Mariscal Díaz & Nelson Carvalho**  
 Chairmen CAD LAB: **Felisa Sánchez-Mariscal Díaz & Nelson Carvalho**

*Course attendance is mandatory*

### DAY 1. WEDNESDAY, 13 NOVEMBER

TIME	TOPIC	FACULTY
08:00-08:20	Course Registration	
08:20-08:35	Introduction	Felisa Sánchez-Mariscal Díaz
<b>SESSION 1: PRINCIPLES OF SPINAL DEFORMITY &amp; SURGICAL TREATMENT</b>		
08:35-08:50	Spinal Alignment and Balance	Felisa Sánchez-Mariscal Díaz
08:50-09:10	Casting, Bracing and Role of Rehabilitation	José Miguel Sánchez Márquez
09:10-09:25	Preoperative Assessment and Positioning	Francisco Serdoura
09:25-09:40	Intraoperative Monitoring	Vitor Castro
09:40-09:50	Blood Saving in Spinal Deformity Surgery	Francisco Serdoura
09:50-10:00	Discussion	All Faculty
10:00-10:30	<b>Coffee Break</b>	
<b>SESSION 2: ADOLESCENT IDIOPATHIC SCOLIOSIS</b>		
10:30-10:45	Pathogenesis and Natural History of AIS	Nelson Carvalho
10:45-10:55	AIS: Classification and Surgical Indications	Inmaculada Vilalta Vidal
10:55-11:05	Selection of AIS Fusion Levels	Inmaculada Vilalta Vidal
11:05-11:20	Surgical Strategy: Posterior Approach	Azucena García Martín
11:20-11:35	Surgical Strategy: Anterior Approach	Pedro Rubio Belmar
11:35-11:45	Discussion	All Faculty
11:45-12:30	Case-Based Discussion	
12:30-13:30	<b>Lunch</b>	
<b>SESSION 3: SCOLIOSIS AND KYPHOSIS</b>		
13:30-13:50	Neuromuscular Scoliosis	Antonio L. Pérez Abela
13:50-14:10	Congenital Spinal Deformities	José Miguel Sánchez Márquez
14:10-14:25	Hyperkyphosis (Congenital, Scheuermann, Ankylosing Spondylitis)	Carmen Martínez González
14:25-14:40	Surgical Strategy for Correcting Hyperkyphosis	Rosa M <sup>a</sup> Egea Gámez
14:40-14:50	Discussion	All Faculty
14:50-15:20	Case-Based Discussion	Nelson Carvalho
15:20-15:50	<b>Coffee Break</b>	
<b>SESSION 4: SPONDYLOLISTHESIS</b>		
15:50-16:05	Spondylolisthesis: Pathogenesis and Classification	Vitor Castro
16:05-16:20	Spondylolysis and Low-Grade Olisthesis	Teresa Bas Hermida
16:20-16:35	High-Grade Spondylolisthesis	Rafael González Díaz
16:35-16:45	Discussion	All Faculty
16:45-17:30	Case-Based Discussion	Rosa M <sup>a</sup> Egea Gámez
<b>SESSION 5: CAD LAB PREPARATION</b>		
17:30-17:45	Pedicle Screw Guidance in Deformity	Pedro Rubio Belmar
17:45-18:00	Sacro-Pelvic Fixation	Luis Álvarez Galovich

**END OF DAY 1**

Course attendance is mandatory

**DAY 2. THURSDAY, 14 NOVEMBER**

TIME	TOPIC	FACULTY
09:10-09:30	Coffee and Attendance Signature	
<b>SESSION 6: ADULT SPINAL DEFORMITY</b>		
09:30-09:50	From Degenerative to Adult Deformity	Manuel Fernández González
09:50-10:10	Assessment of Adult Deformity Patients	Sleiman Haddad
10:10-10:30	Adult Deformity Planning of Surgical Correction	Sleiman Haddad
10:30-10:50	Spinal Osteotomies	Francisco J. Serrano Escalante
10:50-11:10	Anterior-Posterior Techniques to Treat Sagittal Balance Disorders	Nicomedes Fernández-Baillo Gallego de la Sacristana
11:10-11:30	Discussion	All Faculty
11:30-12:00	Closing Remarks, Diploma and Mandatory Course Evaluation	Felisa Sánchez-Mariscal Díaz
12:00-13:00	<b>Lunch</b>	
13:00-13:30	Shuttle bus service to Universidad Francisco de Vitoria	
<b>SESSION 7: CADAVER LABS</b>		
13:30-13:45	Go to the Lab	
13:45-15:30	Pedicle Screw Guidance in Deformity	Nelson Carvalho Vitor Castro Manuel Fernández González Sleiman Haddad Francisco Serdoura Francisco J. Serrano Escalante
15:30-16:00	<b>Coffee Break</b>	
16:00-17:45	Sacro-Pelvic Fixation	Nelson Carvalho Vitor Castro Manuel Fernández González Sleiman Haddad Francisco Serdoura Francisco J. Serrano Escalante

**END OF MODULE**

# Recommended Reading

## **Part III Basic Module 3: Deformity. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach. Switzerland: Springer**

- M. Balsano and S. Negri. (2019). Natural Course and Classification of Idiopathic Scoliosis. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 141-148). Switzerland: Springer.
- M. Balsano and S. Negri. (2019). Diagnosis and Conservative Treatment of Adolescent Idiopathic Scoliosis: Case Presentation. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 149-152). Switzerland: Springer.
- U. Liljenqvist. (2019). Idiopathic Scoliosis: Operative Treatment. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 153-158). Switzerland: Springer.
- A. Senkoylu and E. Acaroglu. (2019). A Congenital Scoliosis Case Characterized with Contralateral Hemivertebrae. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 159-164). Switzerland: Springer.
- S. Nuñez-Pereira and F. Pellisé. (2019). Delayed Neurological Deficit and Surgical Site Infection After Pedicle Subtraction Osteotomy in a Revision Case. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 165-172). Switzerland: Springer.
- D. Jeszenszky and M. Loibl. (2019). Operative Treatment of High-Grade Spondylolisthesis. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 173-184). Switzerland: Springer.
- A. Toquart and C. Barrey. (2019). Parameters of Spino-Pelvic Balance, Etiology and Pathogenesis of Disturbed Spino-Pelvic Balance. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 185-196). Switzerland: Springer.
- M. Arabmotlagh and M. Rauschmann. (2019). Diagnosis, Classification and General Treatment Options for Hyperkyphosis. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 197-202). Switzerland: Springer.
- M. Arabmotlagh and M. Rauschmann. (2019). Scheuermann Kyphosis and Ankylosing Spondylitis. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 203-210). Switzerland: Springer.
- S. Haddad, A. Matamalas, and F. Pellisé. (2019). Surgical Correction and Special Features in Traumatic and Congenital Kyphotic Deformities. B. Meyer and M. Rauschmann (Eds.), Spine Surgery A Case-Based Approach (pp. 211- 221). Switzerland: Springer.



# Notes

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# Notes

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# Sponsors



**Medtronic**



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## Course Organisation



### **Sociedad Española de Columna Vertebral**

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1750-276 Lisboa, Portugal

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