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SPPCV  
SOCIEDADE  
PORTUGUESA  
DE PATOLOGIA  
DA COLUNA  
VERTEBRAL

# Spanish & Portuguese Spine Societies COURSE DIPLOMA 2022 Module 1 BASIC COMPREHENSIVE COURSE

**Module 1:**

—  
Basic Comprehensive  
Course

**When:**

—  
11 // July // 2022

**Where:**

—  
Virtual

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### Scientific Content

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Dr. Álvaro Lima

# Quick Facts

<b>When</b>	11 July 2022
<b>Where</b>	Virtual
<b>Maximum Attendees</b>	40 delegates
<b>Registration Fee</b>	SPPCV/ GEER Members : 300€ Non Members: 400€
<b>CME Credits</b>	CME credits will not be delivered
<b>Language</b>	English
<b>Dress</b>	Smart casual
<b>Important Note</b>	<ul style="list-style-type: none"> <li>• Completion of eLearning modules and attendance to the live session is mandatory.</li> <li>• A computer (Mac/PC) or tablet (Android/Mac) and stable internet connection are required to access the eLearning content</li> </ul>

## Important

- Completion of eLearning modules is mandatory
- Options 1 and 2 deliver the same content. Participants are registered for ONE of the options only!
- Changing option once registered is not possible
- Course attendance is mandatory

## Target Audience

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

**Learning Outcomes:**

# **Module 1**

# **Basic Comprehensive Course**

- 1. Evaluate a patient with low back pain (LBP) in a multidisciplinary approach**
- 2. Discuss appropriate clinical and radiologic tests**
- 3. Evaluate systemic causes of back pain as differential diagnosis (muscle pain, inflammatory diseases)**
- 4. Discuss the role of psychosocial models and rehabilitation**
- 5. Explain the impact of spinal disorders on the individual and society**
- 6. Discuss the application and limitation of biomechanical lumbar spine in vitro and finite element models**
- 7. Explain the principles of intervertebral disc biology and degeneration**
- 8. Be aware of current molecular research on intervertebral disc degeneration**

# Learning Outcomes:

# eLectures

Participants of Module 1 will be asked to build foundation knowledge for the module with the online pre-module work. Learning outcomes have been defined, so participants and faculty are clear about the standards expected. Module 1 will target

multidisciplinary approaches in LBP, principles of spinal biomechanics and intervertebral disc biology. These topics may provide complementary knowledge around spine care, which might differ from clinical surgical practice.

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Upon completion of the eLearning component, participants should be able to:

- 1. Clinical Examination**
- 2. Imaging in low back pain**
- 3. Different perspectives on low back pain**
- 4. Low back pain: Rehabilitation and manual therapy**
- 5. Biomechanics in vitro models**
- 6. Finite element (FE) models**
- 7. Biology of the lumbar intervertebral disc**
- 8. Cellular and molecular research**
- 9. Epidemiology and economics**
- 10. Principles of clinical research**

## 1. Clinical Examination

- Select appropriate clinical tests for a clinical situation
- Perform a safe and effective clinical examination
- Select appropriate communication skills with patients and their families

## 2. Imaging in low back pain

- Select appropriate radiologic exams for a clinical situation
- Discuss advantages and disadvantages of radiologic examination methods
- Be aware of radiation exposure when selecting an exam

## 3. Different perspectives on low back pain

- Discuss differential diagnosis of inflammatory spinal disorders
- Evaluate the role of muscle pain
- Discuss the role of non-surgical approaches (e.g., infiltration)

## 4. Low back pain: Rehabilitation and manual therapy

- Be aware of the principle of the bio-psycho-social model
- Discuss the principles of a rehabilitation program
- Select appropriate patients for manual therapy

## 5. Biomechanics in vitro models

- Outline loading in different positions of the spine
- Explain how loading changes with age and pathology
- Describe the basic principles of an in vitro experiment
- Discuss the interpretation and limitation for evaluation of biomaterials

## 6. Finite element (FE) models

- Discuss applications for FE models
- Explain setup, boundary conditions and validation of FE models
- Interpretation and value of FE studies

## 7. Biology of the lumbar intervertebral disc

- Outline principles of cellular and molecular biology of the nucleus
- Explain the role of nutrition and changes with age
- Discuss the role of genetics in disc degeneration
- Mechanical alteration of microstructures in the annulus

## 8. Cellular and molecular research

- Describe pre-clinical models for the intervertebral disc
- Outline principles of stem cell therapy for disc regeneration
- Explain the role of molecular research for disc regeneration

## 9. Epidemiology and economics

- Be aware of the impact of LBP on the society
- Explain outcome measures for quality of life and economy (QUALY)
- Discuss the impact of direct and indirect medical costs in LBP

## 10. Principles of clinical research

- How to design an appropriate clinical study and select classification criteria
- Discuss the use of study results for own clinical practice
- Define the role of registries

## Learning Outcomes

### LIVE SESSION:

# Case Discussion: Low back pain

- Use clinical information to formulate a diagnosis and treatment plan
- Recognising serious spine disorders: Rule out red flags
- Select appropriate clinical tests
- Perform a safe and effective clinical examination
- Select appropriate communication skills with patients and their families
- Discuss differential diagnosis, clinical, biologic, imaging studies for inflammatory diseases of the spine
- Discuss of pain, muscular component in LBP
- Discuss the principles of the psycho-biosocial model and conservative treatment options in pain management and rehabilitation

## Interactive Workshops

# Biomechanics:

### • Biomechanics in vitro

- Outline loading in different positions of the spine
- Explain how loading changes with age and pathology
- Describe the basic principles of an in vitro experiment
- Discuss the interpretation and limitation for evaluation of biomaterials

### • Finite element (FE) models

- Discuss applications for FE models
- Explain setup, boundary conditions and validation of FE models
- Interpretation and value of FE studies

## Interactive Workshops

# Disc Biology:

### • Biology of the lumbar intervertebral disc

- Outline principles of cellular and molecular biology of the nucleus
- Explain the role of nutrition and changes with age
- Discuss the role of genetics in disc degeneration
- Mechanical alteration of microstructures in the annulus

### • Cellular and molecular research

- Describe pre-clinical models for the intervertebral disc
- Outline principles of stem cell therapy for disc regeneration
- Explain the role of molecular for disc regeneration

# Course Chairperson:

**Álvaro Lima** PORTUGAL

# Course Faculty:

**Álvaro Lima** PORTUGAL

**Bruno Santiago** PORTUGAL

**João Pinto Coelho** PORTUGAL

**Jorge Alves** PORTUGAL

**Mário Vaz** PORTUGAL

**Pedro Santos Silva** PORTUGAL

**Raquel Gonçalves** PORTUGAL

**Teresa Nunes** PORTUGAL

# Scientific Programme

## Module 1 - Basic Comprehensive Course

Time	Topic	Faculty
-	-	-
<b>E-LEARNING PROGRAMME</b>		
-	-	-
	<b>Low Back Pain</b>	
00:15	Clinical Examination	Bruno Santiago
00:20	Imaging in low back pain	Teresa Nunes
00:25	Different perspectives on low back pain	Jorge Alves
00:20	Low back pain: Rehabilitation and manual therapy	João Pinto Coelho
00:20	Knowledge check questions	
-	-	-
	<b>Fundamentals &amp; Clinical Research</b>	
00:15	Biomechanic - In vitro models	Mário Vaz
00:15	Finite element models	Mário Vaz
00:25	Biology of the lumbar intervertebral disc	Raquel Gonçalves
00:25	Cellular and molecular research	Raquel Gonçalves
00:15	Epidemiology and economics	Jorge Alves
00:25	Principles of clinical research	Pedro Santos Silva
00:20	Knowledge check questions	
-	-	-
<b>Monday, 11 July 2022</b>		
<b>LIVE SESSION PROGRAMME 1</b>		
-	-	-
<b>Time</b>	<b>Topic</b>	<b>Faculty</b>
-	-	-
08:30 - 08:40	Introduction	Álvaro Lima
08:40 - 10:40	Case Based Discussion: Diagnostic algorithms and non-surgical approach to low back pain	Álvaro Lima, Bruno Santiago, Jorge Alves, Teresa Nunes, João Pinto Coelho
-	-	-
Coffee Break 20 mins.		
-	-	-
11:00 - 12:00	Workshop - Biomechanics - in vitro and finite element models	Mário Vaz
12:00 - 13:00	Workshop - Biology of intervertebral disc and cellular and molecular therapy	Raquel Gonçalves
-	-	-
<b>LIVE SESSION PROGRAMME 2</b>		
-	-	-
08:30 - 08:40	Introduction	Álvaro Lima
08:40 - 09:40	Workshop - Biomechanics - in vitro and finite element models	Mário Vaz
09:40 - 10:40	Workshop - Biology of intervertebral disc and cellular and molecular therapy	Raquel Gonçalves
-	-	-
Coffee Break 20 mins.		
-	-	-
11:00 - 13:00	Case Based Discussion: Diagnostic algorithms and non-surgical approach to low back pain	Álvaro Lima, Bruno Santiago, Jorge Alves, Teresa Nunes, João Pinto Coelho
-	-	-
	<b>End of Module 1</b>	
-	-	<b>Course Attendance is Mandatory</b>

# Recommended Reading

## Part I Basic Module 1:

- **Conservative Therapy**

B. Meyer and M. Rauschmann (Eds.)

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

- E. Shiban and B. Meyer. (2019).

Treatment for Acute, Subacute and Chronic Low Back Pain. B. Meyer and M. Rauschmann (Eds.), *Spine Surgery A Case-Based Approach* (pp. 3-8). Switzerland: Springer.

- M. Jägersberg and E. Tessitore. (2019).

Indications for Emergency Surgical Treatment. B. Meyer and M. Rauschmann (Eds.), *Spine Surgery A Case-Based Approach* (pp. 9-15). Switzerland: Springer.

# Contacts

## Course Organisation

### SPPCV Sociedade Portuguesa de Patologia da Coluna Vertebral

Portuguese Spine Society

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### GEER Sociedad Española de Columna Vertebral

Spanish Spine Society

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### SPPCV Sociedade Portuguesa de Patologia da Coluna Vertebral

Portuguese Spine Society

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Portugal

[www.sppcv.org](http://www.sppcv.org)

### GEER Sociedad Española de Columna Vertebral

Spanish Spine Society

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29630 Benalmádena, Málaga

España

[www.geeraquis.org](http://www.geeraquis.org)

### Scientific Content

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Dr. Álvaro Lima

**Thank you**  
**for your participation.**

**Spanish & Portuguese Spine Societies**

**COURSE DIPLOMA**

**Module 1: Basic Comprehensive Course**

**2022**

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