

# Postgraduate Certificate

## Orthopedic Surgery and Traumatology of the Spine





## Postgraduate Certificate Orthopedic Surgery and Traumatology of the Spine

- » Modality: online
- » Duration: 10 weeks
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/in/medicine/postgraduate-certificate/orthopedic-surgery-traumatology-spine](http://www.techtitute.com/in/medicine/postgraduate-certificate/orthopedic-surgery-traumatology-spine)

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# 01 Introduction

Surgical techniques continue to evolve, and each time they manage to improve the results of surgery and the patient's rehabilitation process. This Postgraduate Certificate is designed to facilitate the surgeon's update in the advances of spine surgery in a practical way and adapted to their needs, so that they can perform a surgical practice with quality and safety, improving the prognosis of their patients.





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*Update your knowledge in orthopedic surgery and traumatology through this program, where you will find the best didactic material, with real clinical cases and high resolution images. Learn here about the latest advances in spine pathology to be able to perform a quality surgical praxis"*

Orthopedic surgery and traumatology have undergone a spectacular development in recent years. Advances in molecular biology, biomaterials of cell cultures, imaging diagnostic and minimally invasive techniques have come together to offer new possibilities in the management of patients.

The volume of information increases exponentially every year and it is impossible to be up to date in all areas of the traumatology unless you have a team of experts to do this work for you: an intelligent discrimination of information. In addition, the current tendency to subspecialize in one anatomical region or surgical technique makes it more difficult to keep up to date in those areas that are not routinely treated.

This Postgraduate Certificate offers a detailed review of the most relevant advances in orthopedic surgery and traumatology of pathology of the spine and from an eminently practical point of view, to update the specialist through the latest educational technology.



*Scientific evidence increases the quality of surgical practice. Staying current is key to providing better care for patients with spinal pathology"*

The **Postgraduate Certificate in Orthopedic Surgery and Traumatology of the Spine** contains the most complete and updated scientific program on the market. The most important features of the Postgraduate Certificate are:

- Contains Clinical cases presented by experts. Its graphic, schematic and eminently practical contents, with which they are conceived, gather scientific and assistance information on those medical disciplines that are essential for professional practice.
- Diagnostic and therapeutic novelties on the care of patients with spinal co-spinal pathology.
- Presentation of practical workshops on surgical procedures, diagnostic and therapeutic techniques for the main vertebral pathologies.
- Video lessons on different pathologies and how to approach them.
- Algorithm-based interactive learning system for decision-making in the presented clinical situations.
- It includes theoretical lessons, questions to the expert, discussion forums on controversial topics and individual reflection papers.
- Content that is accessible from any fixed or portable device with an Internet connection.

“ *This Postgraduate Certificate may be the best investment you can make in the selection of an updated program for two reasons: in addition to updating your knowledge in Orthopedic Surgery and Traumatology of the Spine, you will obtain certificate issued TECH - Technological University*”

Its teaching staff includes leading specialists in orthopedic surgery, who bring to this training the experience of their work, in addition to other specialists belonging to prestigious scientific societies.

The multimedia content developed with the latest educational technology will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training program to train in real situations.

This program is designed around Problem Based Learning, whereby the Doctor must try to solve the different professional practice situations that arise during the course university. This will be done with the help of an innovative interactive video system developed by renowned experts in orthopedic surgery, with extensive teaching experience.

*Don't miss the opportunity to update your knowledge in the care of patients with spinal pathology*

*This program offers training in simulated environments, which provides an immersive learning experience designed to train for real-life situations*



# 02 Objectives

This program is oriented towards a review of the main aspects of the approach to spine surgery, based on scientific evidence and the experience of renowned professionals in the surgical field.





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*This program will provide you with a sense of confidence in surgical praxis, which will help you grow personally and professionally”*



## General Objective

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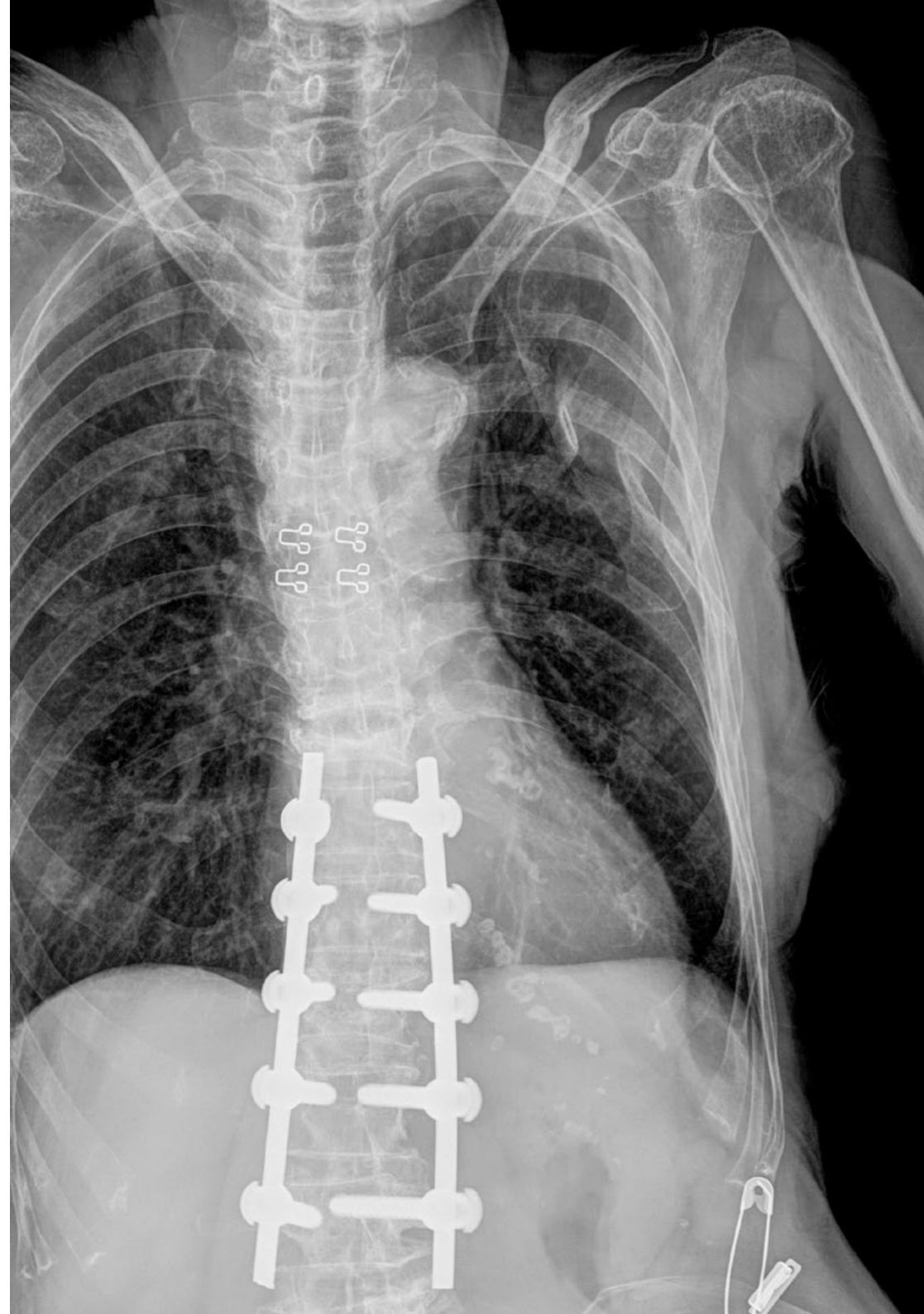
- Update the knowledge of the orthopedic surgeon in orthopedic surgery and spinal traumatology, to identify the main signs and symptoms of spinal pathology and to establish the appropriate therapeutic indication based on the latest scientific evidence.



## Specific Objectives


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- Define the ethical aspects of orthopedic surgery and traumatology
- Apply the criteria of Evidence Based Medicine when choosing the correct treatment in orthopedic surgery and traumatology.
- Update knowledge in antibiotic prophylaxis in orthopedic surgery and traumatology.
- Correctly apply the thromboprophylaxis guidelines in orthopedic and traumatologic surgery.
- Update knowledge of blood-saving policies used in orthopedic and traumatologic surgery.
- Distinguish the different applications of cell cultures in Orthopedics and Traumatology.
- Explain in which cases it is correct to use BMPs in Orthopedics and Traumatology.
- Interpret the clinical evidence on platelet-rich plasma in tendon and joint pathology.
- Recognize the biopsychosocial model in musculoskeletal pathology.
- Classify and update performance measurement systems in Orthopedic Surgery and Traumatology.



- ♦ Correctly interpret results in interventional radiology of musculoskeletal pathology.
- ♦ Recognize the current concepts of Neurophysiology in Orthopedic Surgery.
- ♦ Confirm that the information we have on the treatment of herniated discs is up to date.
- ♦ Identify and recognize cervical myelopathy.
- ♦ Explain the steps to be followed in an anterior cervical corporectomy.
- ♦ List the steps to be followed for posterior fixation with pedicle screws and lateral masses.
- ♦ Compare the different types of cervical disc prostheses.
- ♦ Classify fractures of the cervical column.
- ♦ Recognize and classify a lumbar disc hernia and lumbar spinal stenosis.
- ♦ Examine the anterior access to the thoracic spine by thoracoscopy.
- ♦ Evaluate extraforaminal lumbar disc herniation with paravertebral access.
- ♦ Examine the posterior approach for a thoracolumbar corporectomy.
- ♦ Confirm that the knowledge we have on scoliosis is up to date.
- ♦ Distinguish between ponte osteotomies and arthrodesis in Scheuermann's disease.
- ♦ Classification of sagittal spinal alterations.
- ♦ Recognize the different degrees of spondylolisthesis.
- ♦ Review the steps to be followed in a minimally invasive TLIF lumbar arthrodesis.
- ♦ Recognize and classify the different degrees of disc degeneration.
- ♦ Review and update knowledge on the management of vertebral tumors.
- ♦ Recognize spondylodiscitis and vertebral infections.
- ♦ Apply percutaneous treatment of thoracolumbar vertebral according to the latest recommendations.

*Take advantage of the opportunity and take the step to get up to date in the most important aspects of Orthopedic Surgery and Traumatology of the Spine*



# 03 Course Management

The program includes in its teaching staff leading orthopedic surgeons in the care of patients with spinal pathology, who bring to this training the experience of their work. Additionally, other recognized specialists participate in its design and preparation, which means that the program is developed in an interdisciplinary manner.





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*Learn from leading professionals the latest advances  
in Orthopedic Surgery and Traumatology of the Spine”*

## International Guest Director

Dr. Michael Gardner is a leading international leader in the field of **Orthopedic Traumatology**, with an exceptional track record in both **practice** and **clinical research**. He is recognized for his expertise in the treatment of **fractures of the upper and lower limbs**, as well as the **pelvis**, the management of **pseudarthrosis** and **malunions**.

Of particular note is his work as **co-founder** and **CEO** of the **National Scoliosis Clinic**, a center that leverages **Artificial Intelligence** and **Telehealth** to transform the way **Scoliosis** is detected and managed. In addition, he has worked as an **Orthopedic Trauma surgeon** at the University of Washington and, since joining the staff at Stanford University, has held key roles, including **Head** of the **Orthopedic Trauma Service** and **Deputy Chairman** of the **Department of Orthopedic Surgery**.

He has also been internationally recognized for his **innovative research** and leadership in the development of **advanced surgical techniques**. In this way, he has patented **Systems and Methods for the Detection of Musculoskeletal Anomalies and Fractures; Bone Stabilizing Implants and Methods of Placement through the Joints; and Grafts for the Repair of Segmental Bone Defects**.

He has also been invited to participate in numerous national and international activities and has played important roles in various organizations, such as the **Orthopedic Trauma Association**. In addition, he has been honored with multiple **awards** and **recognitions** for his **excellence in research** and **service to the medical community**. In this regard, his research program has been recognized for its efficient and productive approach, with more than 100 published scientific articles, 38 book chapters and the edition of 5 textbooks.



## Dr. Gardner, Michael J.

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- Co-founder and CEO of National Scoliosis Clinic
- Orthopedic Traumatology Physician
- Deputy Chairman of the Department of Orthopedic Surgery at Stanford University
- Head of the Orthopedic Trauma Service at Stanford University
- Director of the Orthopedic Traumatology Research Program at Stanford University
- Surgeon of Orthopedic Traumatology at Washington University
- M.D., Drexel University
- B.S. in Chemistry from Williams College
- Member of: Association of Orthopedic Traumatology , AO Trauma ,American Orthopedic Association , Orthopedic Trauma Foundation ,Orthopedic Research Society , Western Orthopedic Association , California Orthopedic Association

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*Thanks to TECH you will be able to learn with the best professionals in the world”*

## Management



### Dr. Doménech Fernández, Julio

- Degree in Medicine from the University of Navarra
- PhD in Medicine from the University of Valencia
- Specialist in Orthopedic Surgery and Traumatology at the Ramón y Cajal Hospital, Madrid
- Professor in the Faculty of Medicine at Cardenal Herrera University CEU, Valencia
- Master's Degree in Healthcare from the University of Valencia
- Head of Service of the Arnau de Vilanova Hospital in Valencia and Liria Hospital
- Pro Academia Award of the European Society of NMR
- Two-time winner of the Best Paper Award from the Spine Society of Europe Two-time winner of the Spanish Spine Society Award (GEER)
- 2nd Prize Ángel Herrera Research Award from the San Pablo CEU Foundation, member of the Board of Directors of the Spanish Society for Research in Orthopedic Surgery (INVESCOT)
- Head researcher in several research projects with competitive funding from public agencies.

## Coordinator

### Dr. Martín Benlloch, Juan Antonio

- Head of the Spine Surgery Unit at Doctor Peset Hospital. Valencia

## Professors

### Dr. Aguirre García, Rafael

- Assistant physician of the orthopedic surgery and traumatology service. Spine Unit. Doctor Peset University Hospital

### Dr. Álvarez Galovich, Luís

- Head of the Spinal Pathology Unit. Jiménez Díaz Foundation Hospital and Villalba General University Hospital

### Dr. Díaz Ulloa, Máximo Alberto

- Head of the Orthopedic Surgery and Traumatology Department. Santiago de Compostela University Hospital Complex, A Coruña



**Dr. Doménech Fernández, Julio**

- ♦ Head of Service of the Arnau de Vilanova Hospital in Valencia and Liria Hospital

**Dr. Duart Clemente, Javier Melchor**

- ♦ Assistant physician of Neurosurgery service. Spine Unit. Jiménez Díaz Foundation. Madrid

**Dr. Garreta Catalá, Iago**

- ♦ Assistant physician of the orthopedic surgery and traumatology service. Bellvitge Hospital. Barcelona

**Dr. González Cañas, Lluís**

- ♦ Assistant physician of the orthopedic surgery and traumatology service. Bellvitge Hospital. Barcelona

**Dr. Hevia Sierra, Eduardo**

- ♦ Head of the Orthopedic Surgery and Traumatology La Fraternidad Hospital Madrid

**Dr. Martín Benlloch, Juan Antonio**

- ♦ Specialist in Orthopedic Surgery and Traumatology. Head of the Spine Surgery Unit at Doctor Peset Hospital. Valencia

**Dr. Dr. Sánchez Mariscal, Felisa**

- ♦ Assistant physician of the orthopedic surgery and traumatology service. University Hospital of Getafe, (Madrid)



04

# Structure and Content

The structure of the contents has been designed by a team of professionals knowledgeable about the implications of training in the practice of trauma surgery, aware of the relevance of current training in specialization able to act before the patient with osteoarticular problems and committed to quality teaching through new educational technologies.

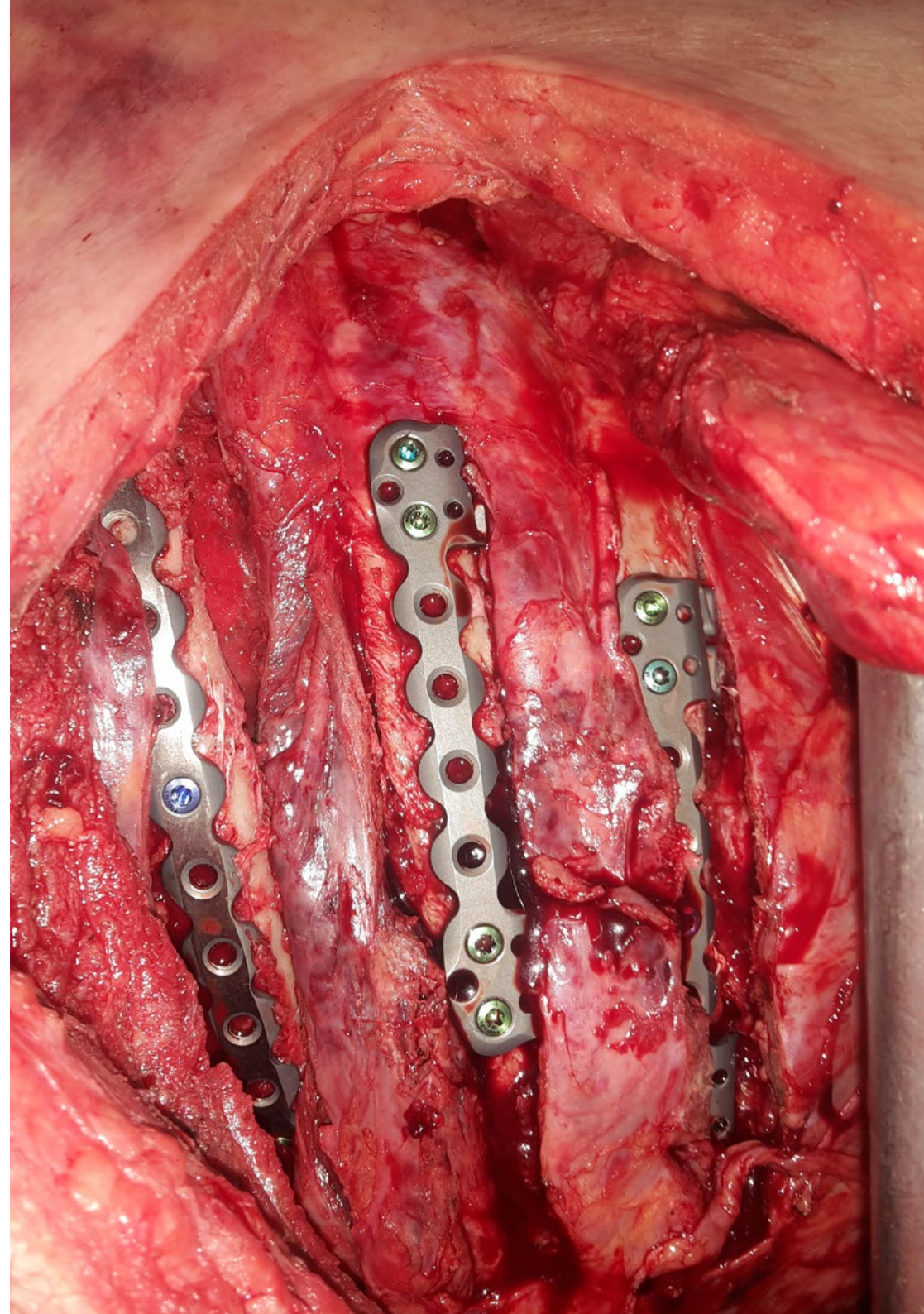


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## Module 1. General aspects

- 1.1. Evidence-Based Medicine For Choosing the Correct Treatment in Orthopedic Surgery and Traumatology.
- 1.2. Bone Bank
- 1.3. Update on Antibiotic Prophylaxis in Orthopedic Surgery and Traumatology
- 1.4. Thromboprophylaxis in Orthopedic Surgery and Traumatology
- 1.5. Update on Blood-Saving Policies Used
- 1.6. Applications of Cell Cultures in Orthopedics and Traumatology
- 1.7. Use of BMP in Orthopedics and Traumatology
- 1.8. Clinical Evidence on Plateletrich Plasma in Tendon and Joint Pathology
- 1.9. Update in the Management of a Polytraumatized Patient
- 1.10. Biopsychosocial Model in Musculoskeletal Pathology
- 1.11. Update on Results Measurement in Orthopedic Surgery and Traumatology
- 1.12. Interventional Radiology in Musculoskeletal Pathology
- 1.13. Current Concepts of Neurophysiology in Orthopedic Surgery



## Module 2. Spinal Column

- 2.1. Disc Herniation and Cervical Disc Degeneration. Anterior and Posterior Cervical Microdiscectomy Anterior and Posterior Release-Arthrodesis Techniques
- 2.2. Degenerative Disc Disease Cervical and Lumbar Disc Prosthesis
- 2.3. Cervical Column Fractures Reconstruction and Osteosynthesis Techniques
- 2.4. Osteoporotic Fractures Vertebroplasty and Kyphoplasty
- 2.5. Lumbar Disc Hernia and Lumbar Spinal Stenosis Minimally Invasive and Endoscopic Release Techniques
- 2.6. Scoliosis Update in Surgical Techniques
- 2.7. Scheuermann Disease Indications and Correction Techniques
- 2.8. Alterations of the Sagittal Balance of the Spine Pedicular Subtraction Osteotomies, Smith Pedersen, Burgos y Ponte
- 2.9. Spondylolisthesis Current Concepts in Indications and Treatment
- 2.10. Update on the Management of Vertebral Tumors
- 2.11. Thoracolumbar Vertebral Fractures Reconstruction and Osteosynthesis Techniques



*A unique, key, and decisive training experience to boost your professional development"*

05

# Methodology

This training program provides you with a different way of learning. Our methodology uses a cyclical learning approach: *Re-learning*.

This teaching system is used in the most prestigious medical schools in the world, and major publications such as the *New England Journal of Medicine* have considered it to be one of the most effective.



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*Discover Re-learning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## At TECH we use the Case Method

In a given situation, what would you do? Throughout the program, you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, resolve the situation. There is abundant scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH you can experience a way of learning that is shaking the foundations of traditional universities around the world*



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching potential or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions in professional medical practice.



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*Did you know that this method was developed in 1912 at Harvard for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method”*

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only grasp concepts, but also develop their mental capacity by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



## Re-Learning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Re-learning.

Our University is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, which represent a real revolution with respect to simply studying and analyzing cases.



*The physician will learn through real cases and by solving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning*

At the forefront of world teaching, the Re-learning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best Spanish-speaking online university (Columbia University).

With this methodology we have trained more than 250,000 physicians with unprecedented success, in all clinical specialties regardless of the surgical load. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

*Re-learning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success*

In our program, learning is not a linear process, but rather a spiral (we learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by our learning system is 8.01, according to the highest international standards.



In this program you will have access to the best educational material, prepared with you in mind:



#### Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



#### Latest Techniques and Procedures on Video

We introduce you to the latest techniques, to the latest educational advances, to the forefront of current medical techniques. All this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



#### Interactive Summaries

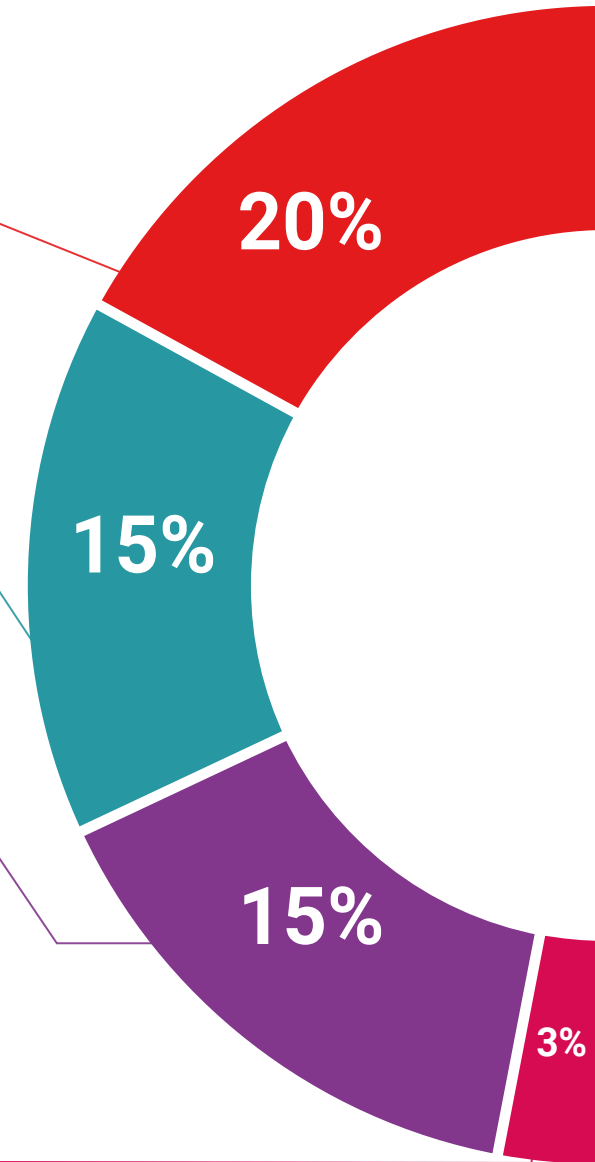
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

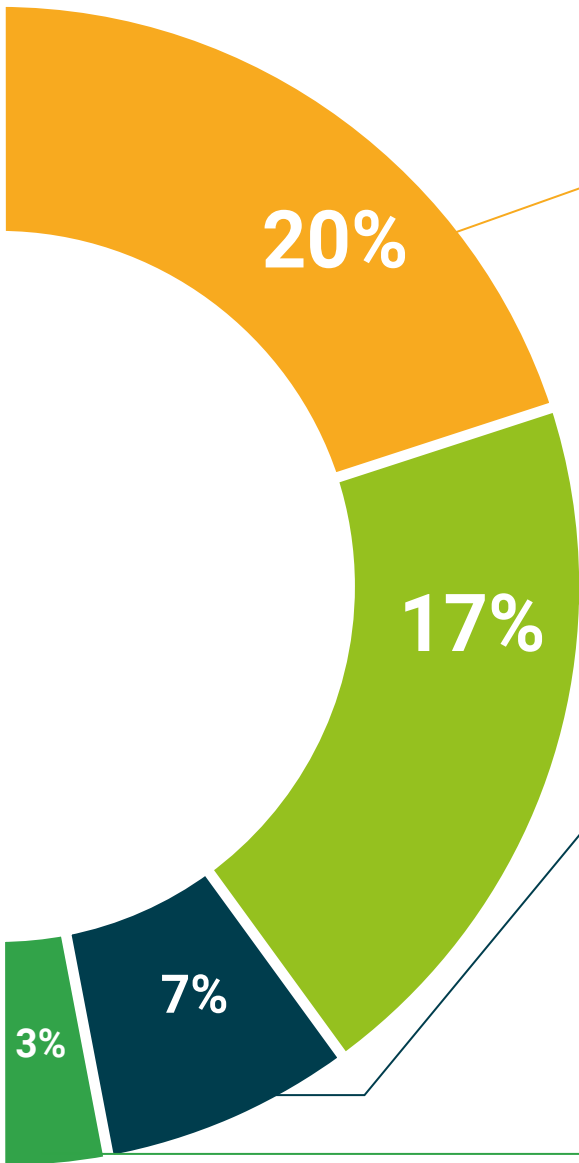
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



#### Additional Reading

Recent articles, consensus documents, international guides. in our virtual library you will have access to everything you need to complete your training.





**Expert-Led Case Studies and Case Analysis**

Effective learning ought to be contextual. Therefore, we will present you with real case developments in which the expert will guide you through focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



**Testing & Re-testing**

We periodically evaluate and re-evaluate your knowledge throughout the program, through assessment and self-assessment activities and exercises: so that you can see how you are achieving your goals.



**Classes**

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an expert strengthens knowledge and memory, and generates confidence in our future difficult decisions.



**Quick Action Guides**

We offer you the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help you progress in your learning.



# 06 Certificate

The Postgraduate Certificate in Orthopedic Surgery and Traumatology of the Spine guarantees you, in addition to the most rigorous and up-to-date training, access to a Postgraduate Certificate issued by TECH - Technological University.



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*Successfully complete this training and receive your diploma without the hassle of travel or paperwork"*

The **Postgraduate Certificate in Orthopedic Surgery and Traumatology of the Spine** contains the most complete and updated scientific program on the market.

**Once the student had passed the evaluations, they will receive their corresponding Postgraduate Certificate issued by TECH - Technological University.**

The certificate issued by **TECH - Technological University** will specify the qualification obtained through the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Certificate in Orthopedic Surgery and Traumatology of the Spine**  
ECTS: **13**

Nº Hours: **325**



\*Apostille Convention. In the event that the student wishes to have their paper certificate issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.



future

health

confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

**tech** technological  
university

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