

# Postgraduate Diploma Cervical Spine Surgery





## Postgraduate Diploma Cervical Spine Surgery

Course Modality: **Online**

Duration: **6 months**.

Certificate: **TECH Technological University**

Official N° of hours: **575 h**.

Website: [www.techtute.com/medicine/postgraduate-diploma/postgraduate-diploma-cervical-spine-surgery](http://www.techtute.com/medicine/postgraduate-diploma/postgraduate-diploma-cervical-spine-surgery)

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# 01

# Introduction

Specialize in a cutting-edge modality such as Cervical Spine Surgery, in which you will learn the latest advances in the sector from renowned experts in cervical surgery. Throughout these months you will learn the different anatomical areas of the cervical spine, as well as its main approaches, in order to reduce possible complications in future surgical procedures.





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*Specialize in Cervical Spine Surgery and be the best in your profession thanks to this multimedia specialization"*

There is an increasing trend towards subspecialization within the medical-surgical specialties. There are so many different areas in the human body, that it is difficult to be up to date in the knowledge of a specialty as broad as Spinal Surgery. Hence, the need for a complete and quality scientific program to help and guide in this specific and exciting field.

With this Postgraduate Diploma, the professional will have a complete vision of the knowledge of Cervical Spine Surgery. The program will highlight advances in surgical practice that directly affect patient's quality of life and improvement of pain. These will be transmitted so that the specialists can have the most up-to-date view possible of the knowledge available in the field. For this purpose, experts in Spinal Surgery from Spain and South America will collaborate with us.

This intensive specialization will teach the surgical techniques that are currently setting trends in the sector, used in Specialized Surgery Centers. This will allow the professional, in addition to expanding his personal knowledge, to be able to apply it with greater skill in his daily clinical practice.

It contains the most complete and up-to-date scientific program on the market.

The most important features:

- Theoretical multimedia content developed with the latest educational technologies, accessible at any time
- Video lessons on the different pathologies, as well as surgeries will be shown.
- Practical workshops in which clinical cases of daily practice are developed, which will help in decision making, through diagnostic and treatment algorithms
- Practical cases that will serve as self-evaluation and will mark the progress of the specialists knowledge
- Online surgical procedures, performed in the daily practice of these advances, live or previously recorded
- Theoretical lessons, via videoconference, with the possibility of participating in a discussion forum to comment and clarify doubts
- Chats for consultation of doubts about clinical cases with the students participating in the Postgraduate Diploma
- Possibility to interact with the professors of the Postgraduate Diploma and to solve in a simulated environment, pathologies that arise in their daily practice
- Review of all the classic techniques that have not changed the way they work, and are the basis of the knowledge to come



*Expand your knowledge through this Postgraduate Diploma in Cervical Spine Surgery that will allow you to specialize until you achieve excellence in this field"*

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*This Postgraduate Diploma is the best investment you can make in selecting a refresher program for two reasons: in addition to updating your knowledge in Cervical Spine Surgery, you will obtain a certificate from the largest online University in Spanish: TECH”*

Its teaching staff includes professionals belonging to the field of surgery, who bring to this specialization the experience of their work, in addition to recognized specialists from leading societies and prestigious universities.

Its Multimedia Content, elaborated with the latest Educational Technology, will allow the Professional a situated and contextual learning, that is to say, a Simulated Environment that will provide an immersive specialization programmed to train in real situations.

The design of this program focuses on problem-based learning, by means of which the specialist must try to solve the different professional practice situations that arise throughout the academic program. For this, the professional will have the help of an innovative interactive video system made by renowned experts in Cervical Spine Surgery and with great experience.

*We offer you the best didactic material and dozens of video case studies that will allow you a contextual study that will facilitate your learning.*

*This 100% online Postgraduate Diploma will allow you to combine your studies with your professional work while increasing your knowledge in this field.*



# 02 Objectives

The Postgraduate Diploma in Cervical Spine Surgery is oriented to facilitate the performance of the professional dedicated to health with the latest advances and newest treatments in the sector. This will allow you to develop the skills that will turn your daily clinical practice into a bastion of the standards of the best available scientific evidence, with a critical, innovative, multidisciplinary and integrative sense.







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*This is the best option to learn about the latest advances in Cervical Spine Surgery”*



## General Objectives

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- ♦ Establish biological, biomechanical, indication, procedural and outcome analysis of results in Spinal Fusion
- ♦ Learn the surgical steps of the cervical surgical procedure
- ♦ Assess the patient's spine correctly and effectively
- ♦ Know how to recognize those pathologies that represent a serious and urgent disease, and may compromise the life or functionality of a patient
- ♦ Understand the current options in the management of spinal tumors through decision-making processes, therapeutic planning, surgical techniques and perioperative care
- ♦ Analyze the classifications of primary tumors, as well as the importance of obtaining the correct biopsy
- ♦ Know the management of vertebral metastases
- ♦ Correctly select and interpret the most appropriate radiographic, computed tomography (CT) and magnetic resonance imaging (MRI) for the diagnosis of traumatic spinal injuries
- ♦ Analyze the appropriate plan to prevent complications of spinal cord trauma.
- ♦ Know the main complications that occur in Minimally Invasive Surgery in elderly patients
- ♦ Learn what are the neurological complications in spinal surgery





## Specific Objectives

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- Know the anatomical areas of the cervical, thoracic, lumbar and sacral spine, as well as their surgical approaches
- Know the anatomy of the usual sites of access to the spine by Minimally Invasive Techniques
- Describe the surgical steps of the surgical procedure
- Establish the surgical differences between box fusion and the use of prosthetic discs
- Know the tricks and risks of decompression of the spinal canal and foramina
- Identify tricks and risks in the installation of anterior plates
- Know the techniques of cervical total disc replacement, posterior to lumbar
- Knowledge of vertebral fractures, which in the cervical territory involve great danger to the patient's life, and are sometimes difficult to detect
- Differentiate Posterior Fixation Systems (screws to lateral masses and screws to C1 and C2 or posterior craniocervical fusions)
- Explain the impact of spinal disorders and problems on each individual in particular and on society in general
- Assess the spine of patients in a correct and effective way, for a better understanding of the problems they suffer and to favor their better resolution
- Know how to recognize those pathologies that represent a serious and urgent disease for the patient and may compromise their lives or functionality
- Know how to formulate appropriate action plans for an early and simple management of these serious spinal problems in the emergency department, based on the solid principles of treatment
- Demonstrate solid clinical judgment in the therapeutic management of these patients based on selected cases
- Discuss multidisciplinary approaches and the role of conservative treatment in patients with chronic low back pain
- Know how to evaluate non-surgical treatment options for radicular pain
- Explaining These Options to Patients
- Identify Patients who are Susceptible to Non Surgical Treatment
- Differentiate between types of analgesia
- Know the current options in the management of Spinal Tumors through decision-making processes, therapeutic planning, surgical techniques and perioperative care using evidence-based knowledge
- Know how to carry out a diagnostic imaging and percutaneous biopsy
- Know the principles and approaches to perform biopsies
- Learn the Minimally Invasive Techniques by reviewing all of them, for the treatment of cervical disc herniation
- Know the advances in the use of new instrumentation, in the improvement of manufacturing materials and in the use of new grafts
- Use the advances in antibiotherapies and in the use of vacuum devices

03

# Course Management

The program includes in its teaching staff reference experts in Cervical Spine Surgery, who pour into this specialization the experience of their work. Additionally, other recognized experts have participated in its design and preparation, complementing the program in an interdisciplinary manner.



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*A team of professionals in the field has come together to show you the latest developments in Cervical Spine Surgery”*

## Management



### Dr. Losada Viñas, Jose Isaac

- Coordinator of the Spine Unit of Alcorcón Foundation University Hospital
- PhD in Medicine and Surgery from the University of Navarra.
- Member of the Communication Committee of GEER (Raquis Diseases Study Group).
- National Basic Research Award SECOT 1995
- Numerous national and international articles and books



### Dr. González Díaz, Rafael

- Head of the Spinal Surgery Unit at Niño Jesús Hospital (pediatric surgery) and at Rosario Hospital and Sanitas la Moraleja Hospital in Madrid (adult and pediatric surgery)
- Doctor of Medicine and Surgery, Extraordinary Prize. University of Salamanca
- Specialist in Orthopedic and Trauma Surgery. Spine Surgery
- Master's Degree in Medical Management and Clinical Management by the School of Health/UNED
- Former president of the Spanish Spinal Society GEER (Study Group of Spine Diseases)
- Secretary General of SILACO (Ibero-Latin American Spine Society)
- Author of numerous articles and book chapters. Editor of two books on spinal surgery
- Direction of 5 doctoral theses on spine pathology



## Professors

### Dr. Abanco, Josep

- ♦ Traumatology and Orthopedics specialist with teaching experience in this field

### Dr. Cueto-Felgueroso, Paloma de la Dehesa

- ♦ Spine Unit. Marqués de Valdecilla University Hospital Santander

### Dr. Ángel Piñera Parrilla

- ♦ Degree in Medicine and Surgery. University of Oviedo
- ♦ Spine Unit. COT service. Cabueñes Hospital Gijón

### Dr. Bas Hermida, Paloma

- ♦ Spine Unit. La Fe University Hospital (Valencia)

### Dr. Barriga Martin, Andrés

- ♦ Head of the COT department at Paraplegics National Hospital of Toledo

### Dr. Blanco Blanco, Juan

- ♦ Head of COT service, Salamanca University Hospital.

### Dr. Diez Ulloa, Máximo Alberto

- ♦ Head of Rachis Unit, Serv COT. U.C.H. Santiago de Compostela

### Dr. García de Frutos, Ana

- ♦ Spine Unit of the Vall d'Hebron Hospital in Barcelona and in the ICATME Spine Unit at the Quirón-Dexeus Clinic in Barcelona

### Dr. Domínguez, Ignacio

- ♦ Spine Unit. COT service. Clinical University Hospital. Madrid

### Dr. Fabregat, Gustavo

- ♦ Pain Unit. Department of Anesthesiology and Resuscitation. General Hospital of Valencia

**Dr. González Díaz, Rafael**

- ♦ Head of Section, Spine Unit. COT Service. Niño Jesús Pediatric University Hospital

**Dr. González Jiménez, Raquel**

- ♦ Medical specialist in the treatment of pain, exercising his usual activity in the Pain Unit of the Alcorcón University Hospital Foundation of Madrid (HUFA)

**Dr. Hernández Fernández, Alberto**

- ♦ Spine Unit, COT Service, Donostia University Hospital

**Dr. Hidalgo Ovejero, Angel**

- ♦ Head the COT Department. Ubarmin Hospital. Pamplona

**Dr. Los Santos, Alvaro**

- ♦ Orthopedic Surgery and Traumatology Department, Cabueñes Hospital (Gijón)

**Dr. Martín Benlloch, J. Antonio**

- ♦ Dr Peset Hospital Valencia. Head of Spine Section, COT Service. Dr Peset University Hospital Valencia

**Dr. Martos, Sara**

- ♦ Spine Unit
- ♦ Alcorcón University Hospital foundation. Madrid
- ♦ COT service

**Dr. Negreira, Javier Mateo**

- ♦ Orthopedic Surgery and Traumatology Department, Cabueñes Hospital (Gijón)

**Dr. Manrique Cuevas, Diego**

- ♦ FEA Traumatology and Orthopedic C. Rachis Unit. Navarra Hospital Complex.

**Dr. Martínez Agüero, José Ángel**

- ♦ Spine Unit. Marqués de Valdecilla University Hospital Santander

**Dr. Menéndez García, Miguel**

- ♦ Physician with extensive experience and trajectory in Traumatology and Orthopedics

**Dr. Ortega García, Francisco Javier**

- ♦ Degree in Medicine and Surgery from the Autonomous University of Madrid.
- ♦ Spine Unit. COT service. 12 de Octubre Hospital. Madrid

**Dr. Otero Fernández, María**

- ♦ Rachis Unit. Santiago de Compostela University Hospital Complex

**Dr. Pescador, David**

- ♦ Spine Unit. COT service. Salamanca University Hospital

**Dr. Puente Sánchez, Luís**

- ♦ Santiago de Compostela University Hospital Complex

**Dr. Pernal Duran, Carlos**

- ♦ COT service. Alvaro Cunqueiro Vigo University Hospital

**Dr. Pipa, Iván**

- ♦ Orthopedic Surgery and Traumatology Department, Cabueñes Hospital (Gijón)

**Dr. Rodríguez Gimillo, Pablo**

- ♦ Specialist in Traumatology and Orthopedics with extensive teaching experience

**Dr. Selga Jorba, Nuria**

- ♦ Spine Unit. COT service. Manresa Hospital. Barcelona

**Dr. Sanfeliu Giner, Miguel**

- ♦ Head of the Spine Unit Section. COT service. General Hospital of Valencia

**Dr. Verdú, Francisco**

- ♦ Specialist in Neurosurgery at the General Hospital of Valencia





# 04

## Structure and Content

The structure of the content has been designed by the best professionals in the sector, with extensive experience and recognized prestige in the profession, backed by the volume of cases reviewed, studied, and diagnosed, and with extensive knowledge of new technologies applied to teaching.



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*This Postgraduate Diploma contains the most complete and up-to-date scientific program on the market”*

## Module 1. Surgical Approaches to the Spine

- 1.1. Cervical Column Approaches
  - 1.1.1. Cervical Anatomy
  - 1.1.2. Muscles and Anatomical Limits
  - 1.1.3. Neurological Structures and Their Location
  - 1.1.5. Anterior Approaches to the Cervical Spine
  - 1.1.6. C1-C2 Transoral Approach
  - 1.1.7. Lateral Approaches to the Cervical Spine
  - 1.1.8. Which Approach to Perform: Right or Left
  - 1.1.9. Approaches to the Cervico-Thoracic Union
  - 1.1.10. Posterior Approaches to the Cervical Spine
  - 1.1.11. Posterior Approach to the C1-C2 Joints
  - 1.1.12. Posterior Cervical Foraminotomy
  - 1.1.13. Complications of Cervical Spine Surgery
  - 1.1.14. Bleeding
  - 1.1.15. Durable Lesions
  - 1.1.16. Alterations of Pharynx
  - 1.1.17. Esophageal Injuries
  - 1.1.18. Postoperative Management of Cervical Surgery Patients
- 1.2. Thoracic Column Approaches
  - 1.2.1. General Indications
  - 1.2.2. Absolute and Relative Contraindications
  - 1.2.3. Preoperative Planning
  - 1.2.4. Anterior Approaches to Thoracic Spine
  - 1.2.5. DIV-DXI Transthoracic Approach
  - 1.2.6. Transpleural Anterior Approach DIII-DXI. Louis
  - 1.2.7. Thoracolumbar Junction Approaches
  - 1.2.8. Transpleural-Retroperitoneal Approach
  - 1.2.9. Extrapleural Approaches
  - 1.2.10. Video-endoscopic Approach to the Thoracic Spine.
  - 1.2.11. Posterior and Posterolateral Approaches to the Thoracic Spine. Thoracic Disc Access
  - 1.2.12. Costotransversectomy
  - 1.2.13. Postoperative Management





- 1.3. Lumbar Spine Approaches
  - 1.3.1. Anterior Approach
  - 1.3.2. L2-L5 Retroperitoneal Anterior Approaches
  - 1.3.3. Extraperitoneal Anterior Approach with Median Incision for L2-L5 Levels
  - 1.3.4. Anterior Pararectal Approach Retroperitoneal to L5-S1
  - 1.3.5. Laparoscopic Transperitoneal Approach to L5-S1
  - 1.3.6. Lateral Oblique Approach of the Lumbar Spine to L2-L5
  - 1.3.7. En Bloc Sacrectomy
- 1.4. Lateral Approaches
  - 1.4.1. Lateral Approach for Discectomies, Foraminotomies or XLIF Lateral Fusions
  - 1.4.2. Microscopic or Minimally Invasive Lumbar Discectomy
- 1.5. Posterior Approach
  - 1.5.1. Posterior Approaches to the Cervical Spine
  - 1.5.2. Lumbar Paraspinal Spinal Cord Approaches
  - 1.5.3. Foraminal Approach to the Lumbar Disc
- 1.6. Complications of Thoracolumbar and Lumbar Spine Approaches

## Module 2. Cervical Spine Pathology

- 2.1. General Aspects. Cervical Pain Diagnosis
  - 2.1.1. Anatomy and Biomechanics of the Cervical Spine, Applied to the New Surgical Techniques
  - 2.1.2. Biochemical and Cellular Bases of Intervertebral Disc Degeneration
  - 2.1.3. Advances in Diagnostic Imaging of Cervical Spine Diseases
  - 2.1.4. Assessment of Neurological Compromise. Clinical and Neurophysiology
  - 2.1.5. Posterior Access to the Craniovertebral Junction: Importance of Developing a Very Meticulous Technique
- 2.2. Therapeutic Overview Cervical Pain
  - 2.2.1. Cervical Pain, Radiculopathy and Cervical Myelopathy. Pathophysiology and Natural History
  - 2.2.2. Outcome Measurement Scales in Cervical Pathology
  - 2.2.3. Semi-Invasive Treatment of Cervical Pain and Cervico-Brachialgia
  - 2.2.4. Role of Rehabilitation in the Treatment of Cervical Degenerative Processes Different Protocols

- 2.3. Cervical Radicular Pain Surgery
  - 2.3.1. Analyze the Causes and Incidence of Radicular Pain in the Cervical Spine
  - 2.3.2. Justify the Different Indications for Surgery
  - 2.3.3. Role of Posterior Approach and Microsurgery in Cervical Radiculopathy
  - 2.3.4. Evidence on Conservative versus Surgical Treatment of Cervical Radiculopathy. Literature Review
  - 2.3.5. Herniated Cervical Disc. Anterior or Posterior Approach
  - 2.3.6. Fusion Techniques or Disc Prosthesis
  - 2.3.7. Identify Factors Influencing the Regression of Cervical Hernia Symptoms
  - 2.3.8. Evaluate the Surgical Options
  - 2.3.9. Anticipate Possible Complications and Find a Return to Work Plan and Activity
  - 2.3.10. Formulate a Plan for When Problems Arise at the Adjacent Level
- 2.4. Whiplash Syndrome. Whiplash
  - 2.4.1. Pathophysiology, Anatomopathologic Alterations
  - 2.4.2. Initial Assessment of the Patient. Prognostic Factors
  - 2.4.3. Acute Phase Treatment. Treatment in the Sequelae Phase
  - 2.4.4. Socioeconomic Impacts of Whiplash Syndrome
- 2.5. Cervical Degenerative Pathology
  - 2.5.1. Multilevel Cervical Spondylosis
  - 2.5.2. Anterior Approach
  - 2.5.3. Posterior Approach
  - 2.5.4. Adjacent Segment Degeneration. How To Act
  - 2.5.5. Cervical Spine Deformities
- 2.6. Cervical Myelopathy.
  - 2.6.1. Manifestations, Causes and Natural History of Myelopathy.
    - 2.6.1.1. Compare the Clinical and Functional Presentation of Spondylotic Myelopathic Syndromes
    - 2.6.1.2. Degrees of Disease Using Validated Scales
    - 2.6.1.3. Anticipate Appearance of Clinical Signs and Consider Differential Diagnoses
    - 2.6.1.4. Describe the Natural History of the Disease
    - 2.6.1.5. Identify the Particular Clinical Presentation of Cervico-Cranial Myelopathy
  - 2.6.2. Clinical and Surgical Decision Making in Myelopathy
    - 2.6.2.1. Define a Treatment Plan for Patients with Myelopathy
    - 2.6.2.2. Identify the Absolute and Relative Indications for Surgery in Spondylotic Myelopathy
    - 2.6.2.3. Compare the Different Surgical Approaches in Myelopathy and Define a Rational Treatment Plan
    - 2.6.2.3. Justification of the Anterior Route.
    - 2.6.2.4. Discuss the Role of Intraoperative Neuro-Monitoring in Cervical Myelopathy
    - 2.6.2.5. Cervical spondylotic Myelopathy. Updating and Therapeutic Guidance
    - 2.6.2.6. Management of Cervical Myelopathy Anterior Route. Multilevel Pathology
    - 2.6.2.7. Use of Corpectomy or Boxes
    - 2.6.2.8. Management of Cervical Myelopathy Posterior Route. Multilevel Pathology
    - 2.6.2.9. Thoracic Scalene Gorge Syndrome
- 2.7. Cervical Spine Trauma
  - 2.7.1. Imaging in Cervical Trauma
    - 2.7.1.1. Selection of Appropriate Imaging to Detect Cervical Fracture
    - 2.7.1.2. Evaluate Radiological Imaging Options
    - 2.7.1.3. Select Appropriate CT or MRI Images
    - 2.7.1.4. Differentiate Between Major and Minor Trauma of the Upper Cervical Spine
  - 2.7.2. Occipito-Cervical Instability
    - 2.7.2.1. Anatomy and Biomechanics of the Upper Cervical Spine
    - 2.7.2.2. Types of Instabilities
    - 2.7.2.3. Post-traumatic
    - 2.7.2.4. Congenital
  - 2.7.3. Fractures of the Upper C0-C2 Region: Classification and Management
    - 2.7.3.1. Define the Role of Ligaments in the Stability of the Cervical Spine
    - 2.7.3.2. Classify in Relation to Subsequent Treatment
    - 2.7.3.3. Occipital Condyle Fractures
    - 2.7.3.4. Occipito-Cervical Dislocation, Occipito-Atlas Dislocation, or Atlanto-Axoid Instability. Atlas or C1 Fractures
    - 2.7.3.5. Atlas or C2 Fractures
    - 2.7.3.5. Traumatic Spondylolisthesis of C2

- 2.7.4. Subaxial Cervical Spine Traumas
  - 2.7.4.1. Subaxial Cervical Spine Trauma. Classification and Management
  - 2.7.4.2. Estimate Incidence and Classify using AO Classification
  - 2.7.4.3. Use Other Classifications to Determine Treatment
  - 2.7.4.4. Anticipate Errors in Diagnosis
  - 2.7.4.5. Evaluate Non-Surgical Treatment Options and When They Are Appropriate
  - 2.7.4.6. Recognize the Indications for Surgical Treatment
  - 2.7.4.7. Recognize those Fractures that Require Urgent Treatment
  - 2.7.4.8. Justify the Different Fracture Approaches, Anterior or Posterior Approach or Combined Anterior and Posterior Approaches
- 2.8. Inflammatory and Infectious Pathology in Cervical Spine
  - 2.8.1. Current Treatment of Cervical Spine Infections
  - 2.8.2. Rheumatoid Arthritis of the Cervical Spine
  - 2.8.3. Cervical Instability in Down Syndrome
  - 2.8.4. Pathology of the Craniocervical Region. Anterior Surgical Treatment

### Module 3. Herniated Discs, Diagnosis and Treatment of Radicular Pain. Emerging Technologies for the Treatment of Low Back Pain

- 3.1. Epidemiology, Natural History and Imaging Findings in Radicular Pain
  - 3.1.1. Use of the Usual Epidemiological Terms to Define and Prevalence Factors of Radicular Pain
  - 3.1.2. Knowledge of the Natural History of Radicular Pain
  - 3.1.3. Identify Contributing Fractures
  - 3.1.4. Diagnosis of the Causes of Radicular Pain
  - 3.1.5. Evaluate Why Disc Herniations Occur
  - 3.1.6. Differentiate the Role of Diagnostic Imaging between Computerized Axial Tomography (CT) and Magnetic Resonance Imaging (MRI) for Radicular Pain
  - 3.1.7. Interpretation of Images Using the Correct Nomenclature
- 3.2. Non Surgical Action in the Treatment of Radicular Pain
  - 3.2.1. Evaluate Non Surgical Treatment Options for Radicular Pain
  - 3.2.2. Explaining These Options to Patients
  - 3.2.3. Identify Patients who are Susceptible to Non Surgical Treatment
  - 3.2.4. Differentiate Between Types of Analgesia. Analgesic Scale
  - 3.2.5. Summarize the Roles of Rehabilitation and Physiotherapy
- 3.3. Surgery of Radicular Pain in the Lumbar Spine
  - 3.3.1. Differences Between the Various Absolute and Relative Indications for Surgery
  - 3.3.2. Identify Appropriate Timing for Surgery
  - 3.3.3. Evaluate the Usual Surgical Techniques with Evidence Support
  - 3.3.4. Compare Both Surgical and Non Surgical Treatment Options
  - 3.3.5. Formulate an Adequate Surgical Plan
  - 3.3.6. Anticipate Possible Complications and Establish a Plan for Return to Work and Activity
- 3.4. Thoracic Myelopathy
  - 3.4.1. Myelopathic Imaging: Techniques and Prognostic Indicators
  - 3.4.2. Interpret MRI and CT Findings in Spondylotic Myelopathy
  - 3.4.3. Recognize the Change of Signs in Different Rmn Sequences and their Significance
  - 3.4.4. Consider the Different Differential Diagnoses in Non Tumorous Pathology of the Spinal Cord
  - 3.4.5. Know the Current Role of Myelography and MyeloTAC in Myelopathy Imaging
    - 3.4.5.1. Clinical and Surgical Decision Making in Thoracic Myelopathy
    - 3.4.5.2. Management of the Risk-Benefit Balance in the Surgery of Patients with Thoracic Myelopathy
    - 3.4.5.3. Compare the Different Approaches to Thoracic Myelopathy
- 3.5. Axial Low Back Pain
  - 3.5.1. Natural History. Obstacles to Recovery and Aspects of Non Surgical Treatment of Axial Pain
    - 3.5.1.1. Anticipate Potential Obstacles to Recovery
    - 3.5.1.2. Explain How Mood Can Be Used
    - 3.5.1.3. How to Handle Catastrophic Ideas
    - 3.5.1.4. Differentiate Between Acute and Chronic Low Back Pain
    - 3.5.1.5. Evaluate the Different Options for the Non Surgical Treatment of Low Back Pain
    - 3.5.1.6. Summarize the Current State of the Evidence Regarding Surgical and Non Operative Management
  - 3.5.2. How to Assess a Patient with Axial Pain
    - 3.5.2.1. Understand the Role of Natural History and Physical Examination in the Assessment of these Patients with Axial Pain
    - 3.5.2.2. Decide on the Need for Imaging Studies
    - 3.5.2.3. Select Patients with Axial Pain in Need of Advanced Diagnostic Techniques

- 3.5.2.4. Review the Role of Diagnostic Blocks and Discography in Patients with Axial Pain
- 3.5.2.5. Conservative Treatment of Low Back Pain
- 3.5.2.6. Opioid Practice and Perspective: Who is at Risk of Addiction?
- 3.5.2.7. Radiofrequency Ablation in Low Back Pain
- 3.5.2.8. Stem Cells and Intradiscal Lumbar Procedures
- 3.5.2.9. Implantable Therapies for Chronic Low Back Pain
- 3.5.3. Axial Lumbar Pain Surgery
  - 3.5.3.1. Promote a Rational Alternative to Surgical Fusion
  - 3.5.3.2. Evaluate Alternative Options
  - 3.5.3.3. Select an Appropriate Approach
  - 3.5.3.4. Review Current Evidence.

#### Module 4. Complications in Spinal Surgery. Miscellaneous

- 4.1. Neurological Complications in Spinal Surgery
  - 4.1.1. Dura Mater Tears.
    - 4.1.1.1. Conservative Management of Dural Tears.
    - 4.1.1.2. Primary Repair
    - 4.1.1.3. Secondary Actions
  - 4.1.2. Nerve Root Injuries.
    - 4.1.2.1. Direct Injury to Nerves During Surgery
    - 4.1.2.2. Peripheral Neuropathies due to Patient Positioning
  - 4.1.2. Neurological Complications related to Bone Grafts
- 4.2. Vascular Complications
  - 4.2.1. Vascular Injuries in Spinal Surgery
  - 4.2.2. Anterior Cervical Vascular Injuries
  - 4.2.3. Thoracic Vascular Complications
    - 4.2.3.1. Anterior Approach
    - 4.2.3.2. Posterior Approach
  - 4.2.4. Lumbar Vascular Complications
    - 4.2.4.1. Anterior Approach
    - 4.2.4.2. Posterior Approach
  - 4.2.5. Other Vascular Complications
- 4.3. Spine Infections.
  - 4.3.1. Main Pathogens in Spinal Surgery
  - 4.3.2. Causes of the Infections. Risk Factors
  - 4.3.3. Diagnostic and Imaging Tests
  - 4.3.4. Spondylodiscitis
  - 4.3.5. Post Surgical Infections
  - 4.3.6. Treatment Planning
    - 4.3.6.1. Antibiotic Medical Treatment
    - 4.3.6.2. Treatment of Surgical Wounds Vacuum Systems
- 4.4. Complications Derived from the Surgical Procedure
  - 4.4.1. Failed Back Syndrome. Classification
    - 4.4.1.1. Reasons for Failure of Surgical Instrumentation
    - 4.4.1.2. Postoperative Vertebral Instability
    - 4.4.1.3. Postoperative Deformities
    - 4.4.1.4. Pseudarthrosis
  - 4.4.2. Adjacent Level Diseases. Therapeutic Approach
  - 0.4.3. Revision Surgery. Strategies
- 4.5. Evaluation and Treatment of Sacroiliac Pathology
- 4.6. Navigation and Robotics in Thoracolumbar Spinal Surgery
- 4.7. Use of Bone Grafts in Spinal Surgery
  - 4.7.1. Autograft and Allograft
  - 4.7.2. Demineralized Bone Matrix and Osteoconductive Ceramics
  - 4.7.3. Biological Substitutes
  - 4.7.4. Grafts in Revision Surgeries
  - 4.7.5. Stem Cells and Cellular Bone Matrix
- 4.8. Evaluation and Follow-up Tools in Spinal Surgery
  - 4.8.1. Neurological Assessment Scales
  - 4.8.2. SF-36, VAS, Oswestry...





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*This specialization will allow you to advance in your career comfortably”*

# 05

# Methodology

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

This teaching system is used, for example, 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 Relearning, 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

What should a professional do in a given situation? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH you will 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 power 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 the physician's professional 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 achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into 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.



## Relearning Methodology

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

This 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, a real revolution with respect to the mere study and analysis of cases.

*Professionals will learn through real cases and by resolving 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 Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology, more than 250.000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

*Relearning 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 (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

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



This program offers the best educational material, prepared with professionals 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.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.



#### Surgical Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.



#### Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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



#### Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.







#### Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



#### Testing & Retesting

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



#### Classes

There is scientific evidence on the usefulness of learning by observing experts: The system termed Learning from an Expert strengthens knowledge and recall capacity, and generates confidence in the face of difficult decisions in the future.



#### Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.



06

# Certificate

The Postgraduate Diploma in Cervical Spine Surgery guarantees you, in addition to the most accurate and up-to-date training, access to a certificate issued by TECH Technological University.





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*Successfully complete this specialization and receive your certificate without travel or laborious paperwork”*

This **Postgraduate Diploma in Cervical Spine Surgery** contains the most complete and up-to-date scientific program on the market.

After passing the evaluations, the student will receive a **certificate** from **TECH Technological University** via tracked delivery\*.

This Postgraduate certificate contributes to the academic development of the professional and adds a high university curricular value to their training. It is 100% valid in all competitive examinations, labour exchanges and professional career evaluation committees.

Title: **Postgraduate certificate in Cervical Spine Surgery**

Official N° of hours: **575 h.**



\*Apostille Convention. In the event that the student wishes to have their paper diploma 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  
personalized service innovation  
knowledge present  
online training  
development languages  
virtual classroom



**Postgraduate Diploma**  
Cervical Spine Surgery

Course Modality: Online

Duration: 6 months.

Certificate: TECH Technological University

Official N° of hours: 575 h.



# Postgraduate Diploma Cervical Spine Surgery

