

# Postgraduate Diploma

## Fracture Fixation Methods





## Postgraduate Diploma Fracture Fixation Methods

Course Modality: **Online**

Duration: **6 months**.

Certificate: **TECH - Technological University**

**18 ECTS Credits**

Teaching Hours: **450 hours**.

Website: [www.techitute.com/us/veterinary/postgraduate-diploma/postgraduate-diploma-fracture-fixation-methods](http://www.techitute.com/us/veterinary/postgraduate-diploma/postgraduate-diploma-fracture-fixation-methods)

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01

# Introduction

Fracture Fixation Methods in animals have improved in recent years. There are several ways to perform this practice, so it is important that veterinary professionals update their knowledge with the latest developments in the field.

*Veterinarians must continue their specialization to adapt to new developments in this field.*



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*This training is the best option you can find to specialize in Fracture Fixation Methods”.*

The teaching team of this Fracture Fixation Methods Expert has made a careful selection of the different state-of-the-art techniques for experienced professionals working in the veterinary field. Specifically, this specialization focuses on the study of skeletal external fixators and circular fixators, intramedullary nailing, and bone plates and screws.

External fixation of fractures is the use of a rigid support placed outside the body and connected to the bone by means of needles through the skin (transcutaneous). The placement technique with respect to other methods of internal osteosynthesis shows that external fixation improves the biological environment preserves soft tissue and irrigation, accelerates healing, decreases the risk of infection and reduces surgical time.

The external fixator provides stable fixation of the bony ends without the need for implants in the fracture line or immobilization of neighboring joints, and is therefore particularly suitable for open, exposed or infected fractures. It allows to compress, neutralize or distract the bony ends depending on the need of the pathology.

Fracture fixation with intramedullary (IM) pins in dogs and cats began in the 1940s. Its popularity increased due to advances in anesthesia, aseptic techniques, antibiotics and the awareness on the part of veterinarians and animal owners that, in most cases treated, there was a satisfactory repair.

Thus, the intramedullary nail, for a long time, has been the most widely used implant in veterinary medicine because it is placed in the medullary cavity and becomes resistant to bending in all directions. Its strength is related to its diameter and its ability to restrict the movement of the fractured bone fragments. It is the most commonly used fastening system for dogs and cats.

In the last 20 years, the fixation of fractures with the use of rigid internal fixation implants, such as plates, has evolved enormously. One could speak of eight or nine different systems of fixation, more recognized, of fractures by means of plates. In this case, the specialization will focus on the most widely used worldwide.

The teachers in this training are university professors with between 10 and 50 years of classroom and hospital experience. They are professors from schools on different continents, with different ways of doing surgery and with world-renowned surgical techniques. This makes this Postgraduate Diploma a unique specialization program, different from any other that may be offered at this moment in the rest of the universities.

This **Postgraduate Diploma in Fracture Fixation Methods** contains the most complete and up to date educational program on the market. The most important features of the program include:

- ♦ The development of case studies presented by experts in Fracture Fixation Methods.
- ♦ The graphic, schematic, and eminently practical contents with which they are created provide scientific and practical information on the disciplines that are essential for professional practice.
- ♦ Developments on Fracture Fixation Methods.
- ♦ Practical exercises where the self-assessment process can be carried out to improve learning.
- ♦ Special emphasis on innovative methodologies in the control of Fracture Fixation Methods.
- ♦ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments.
- ♦ Content that is accessible from any fixed or portable device with an Internet connection.



*Do not miss the opportunity to take this Postgraduate Diploma in Fracture Fixation Methods with us. It's the perfect opportunity to advance your career."*

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*This Postgraduate Diploma is the best investment you can make in selecting a refresher program to update your knowledge in Fracture Fixation Methods."*

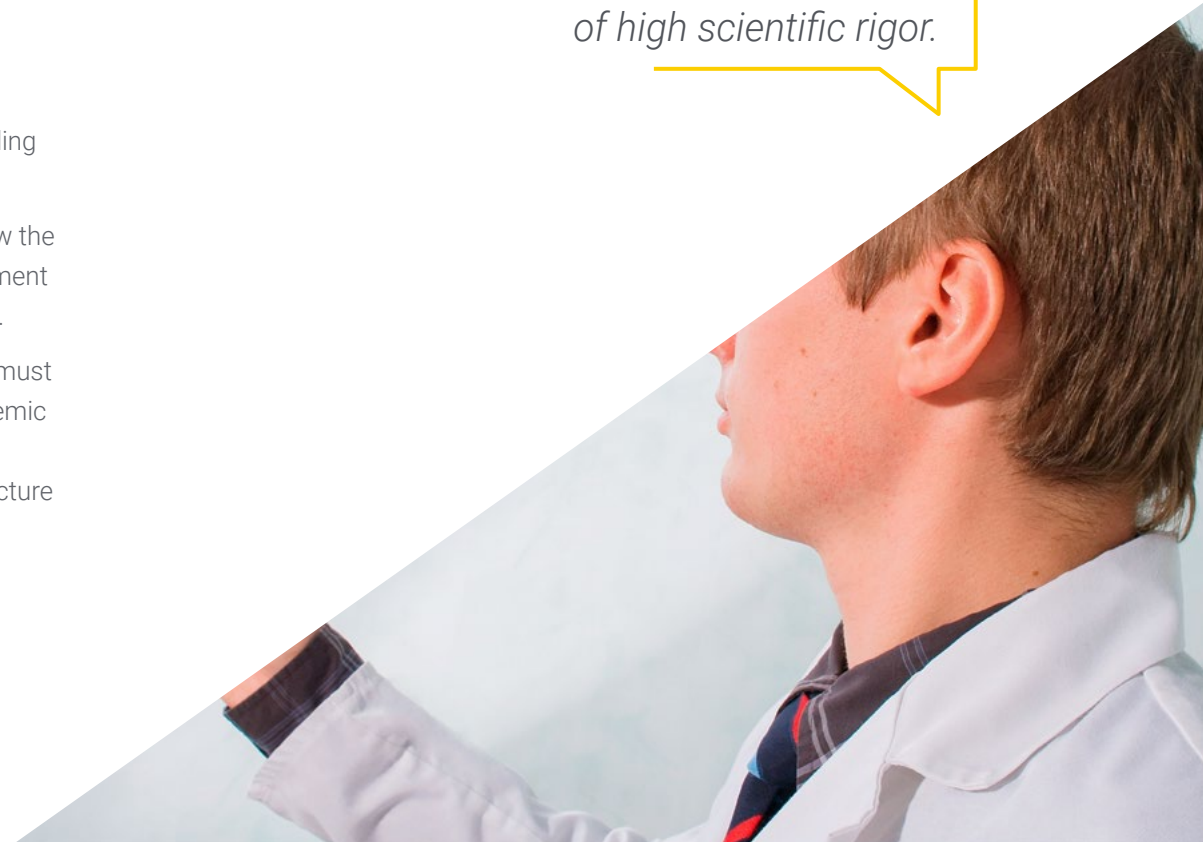
Its teaching staff includes professionals from the veterinary field, who bring the experience of their work to this training, as well as recognised specialists from leading societies and prestigious universities.

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.

This program is designed around Problem Based Learning, whereby the specialist must try to solve the different professional practice situations that arise during the academic year. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced Postgraduate Diplomas in Fracture Fixation Methods.

*This specialisation comes with the best didactic material, providing you with a contextual approach that will facilitate your learning.*

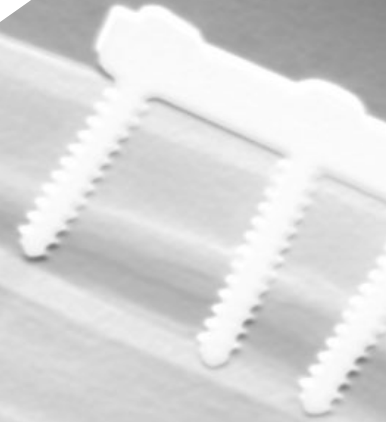
*Incorporate the latest developments in Traumatology and Orthopedic Surgery in your daily practice, with this specialization of high scientific rigor.*



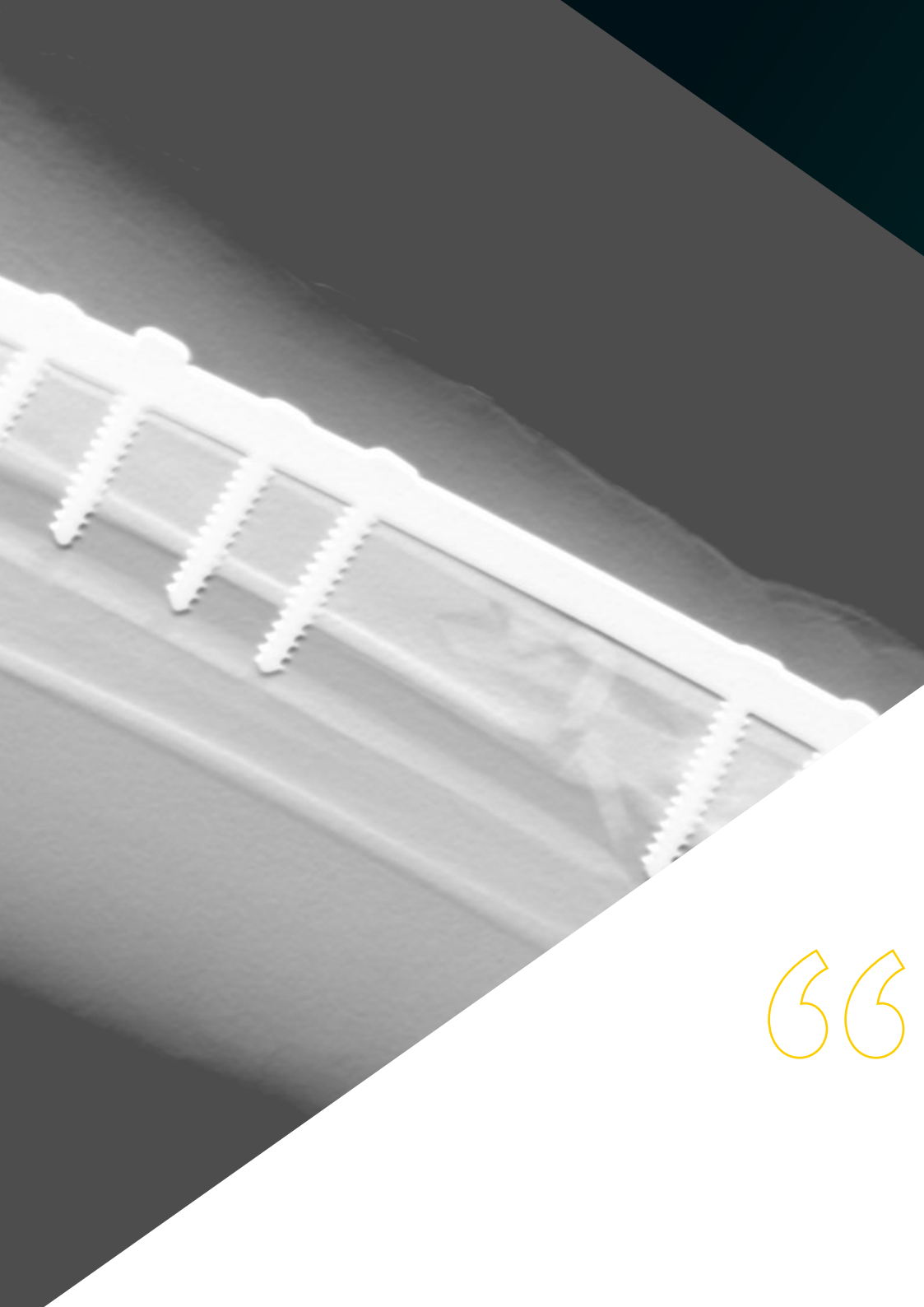
02

# Objectives

The Postgraduate Diploma in Fracture Fixation Methods is oriented to facilitate the performance of the veterinary professional with the latest advances and newest treatments in the sector.







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*You will learn to analyze the biomechanics and forces that control the intramedullary nail in long bone fractures in dogs and cats, from professionals in the sector.”*



## General Objectives

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- ◆ Compile the different configurations of the Kirschner-Ehmer external tutor.
- ◆ Analyse the advantages and disadvantages of using external fixators.
- ◆ Establish post-surgical care for external tutors.
- ◆ Develop a discussion regarding nailing technique.
- ◆ Identify and apply the basic principles in the use of the intramedullary and locked nails used in fractures in dogs and cats.
- ◆ Analyse the biomechanics and forces controlling the intramedullary nail in long bone fractures in dogs and cats.
- ◆ Establish the methods of insertion, types and sizes of intramedullary nails used in fractures in dogs and cats.
- ◆ Identify the advantages, disadvantages and complications of the use of the intramedullary nail in fractures in dogs and cats.
- ◆ Analyse and understand the principles and uses of the locking nail in long bone fractures in dogs and cats.
- ◆ Identify other uses of the intramedullary nail and ancillary methods applied to bone fractures in dogs and cats.
- ◆ Examine the evolution of internal fixation with plates over the last 50 years.
- ◆ Determine the characteristics of each of the most important systems used in the world.
- ◆ Classify the different plate fixation systems for osteosynthesis in dogs and cats, in terms of form, size and function.





## Specific Objectives

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### Module 1.

- ♦ Analyse the behaviour of different configurations of linear, hybrid and circular stakes.
- ♦ Compile the use of external tutors in cases of non-unions.
- ♦ Propose the use of external fixation as the first option for tibia and radius fractures.
- ♦ Concretise the use of tutors as a first option for open or infected fractures.
- ♦ Demonstrate that external tutors can be used in felines.
- ♦ Establish guidelines for the choice of use of each of the configurations.
- ♦ Assess the importance of the quality of materials.
- ♦ Examine the behaviour of the use of acrylic for long bone fractures.
- ♦ Justify the advantages of the use of circular arthrodesis tutors.
- ♦ Generate in the student the curiosity about the use of external tutors.

### Module 2.

- ♦ Establish the uses of intramedullary and locking nail applications in fractures of the femur, tibia and humerus.
- ♦ Define the biomechanics and rotational stability of the intramedullary nail applied to the long bones of the dog and cat.
- ♦ Identify the normotherograde and retrograde insertion forms for intramedullary nail placement in the long bones of dogs and cats.
- ♦ Identify the use of intramedullary nailing and auxiliary fixation as cerclages and external fixators in fractures in dogs and cats.
- ♦ Establish fracture repair times, radiographic follow-up and removal of intramedullary nails and ancillary methods used in fractures in dogs and cats.
- ♦ Identify the use of the tension band applied to avulsion fractures in dogs and cats.
- ♦ Evaluate the use of cross pins in metaphyseal, supracondylar and physial fractures of the long bones of dogs and cats.

### Module 3.

- ♦ Develop specialist judgement in the use of any of the systems covered in this module to decide which is the optimal fracture verification system for daily practice in dogs and cats.
- ♦ Identify the main advantages and disadvantages of each of the plate fixation methods.
- ♦ Evaluate the rope or conical locking systems in each of the plate fastening systems.
- ♦ Determine the instrumentation required for the application of each implant.
- ♦ Make the best decision for each of the most common fractures on the best plate fixation system.
- ♦ Decide on the optimal system to be used for different developmental conditions that cause angulations or abnormalities of bones and joints.



03

# Course Management

The program includes in its teaching staff, experts of reference in Fracture Fixation Methods who bring to this training the experience of their work. They are world-renowned doctors from different countries with proven theoretical and practical professional experience.





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*Our teaching team, experts in Fracture Fixation Methods, will help you achieve success in your profession.”*



## Director



### Graduate. Soutullo Esperón, Ángel

- ◆ Degree in Veterinary Medicine from the Complutense University of Madrid, 1994.
- ◆ Diploma of Advanced Studies in Veterinary Medicine from the Complutense University of Madrid 2010.
- ◆ Member of the Scientific Committee of GEVO and AVEPA 2014.
- ◆ Master's Degree in Surgery and Traumatology Complutense University of Madrid 1996.
- ◆ Lecturer at the Alfonso X el Sabio University 2005-2010 in the subjects of Radiology, Surgical Pathology and Surgery.
- ◆ Responsible for the surgical section in the 2011 AEVA Master's Degree in small animal emergencies.
- ◆ Owner of the veterinary clinic ITECA 1996-2011.
- ◆ Head of the surgery service at the University Hospital of the Alfonso X el Sabio University 2005-2010.
- ◆ Study of the clinical repercussions of corrective osteotomies in tplo (TFG Meskal Ugatz 2018).
- ◆ Study of the clinical repercussions of corrective osteotomies in tplo (TFG Ana Gandia 2020).
- ◆ Studies of biomaterials and xenografts for orthopaedic surgery 2010-2018.

## Professors



### Dr. Borja Vega, Alonso

- ◆ Attendance of postgraduate Veterinary Ophthalmology UAB 2014/2015.
- ◆ SETOV 2016 practical course on initiation to osteosynthesis.
- ◆ Advanced Elbow Course 2018.
- ◆ GPCert Advanced in small Animal Orthopedics 2019 (GPCert Advanced in small Animal Orthopedics).



### Dr. García Montero, Javier

- ◆ Member of the Official College of Veterinarians of Ciudad Real. Veterinary Hospital Cruz Verde (Alcazar de San Juan).
- ◆ In Charge of Trauma and Orthopedics, Surgery and Anesthesia. Currently as of March 2019.
- ◆ El Pinar Veterinary Clinic, (Madrid), as a veterinarian (2015 -2019).



### Dr. Guerrero Campuzano, María Luisa

- ◆ Director, exotic and small animal veterinarian. Petiberia Veterinary Clinic.
- ◆ Zoo Veterinarian.
- ◆ Veterinarian- Official College of Veterinarians of Madrid.



04

# Structure and Content

The structure of the contents has been designed by the best professionals in the field of Veterinary Traumatology and Orthopedic Surgery, 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 veterinary medicine.





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*This Postgraduate Diploma in Fracture Fixation Methods contains the most complete and up to date scientific program on the market".*

## Module 1. Skeletal External Fixators and Circular Fixators

- 1.1. External Fixators.
  - 1.1.1. History of the External Skeletal Fixator.
  - 1.1.2. Description of the External Fixator.
- 1.2. Parts Constituting the Kirschner-Ehmer Apparatus.
  - 1.2.1. Key
    - 3.2.1.1. Fasteners.
  - 1.2.2. Connector bar.
- 1.3. Settings of the External Skeletal Fixator.
  - 1.3.1. Half Skeletal Fixation Device.
  - 1.3.2. Standard Kirschner-Ehmer Apparatus.
  - 1.3.3. Modified Kirschner-Ehmer Apparatus.
  - 1.3.4. Bilateral External Fixator Model.
- 1.4. Mixed Skeletal Fixator Apparatus.
- 1.5. Methods of Application of the Kirschner-Ehmer Apparatus.
  - 1.5.1. Standard Method
  - 1.5.2. Modified Method.
- 1.6. External Fixators with Dental Acrylic.
  - 1.6.1. The Use of Epoxy Resin.
  - 1.6.2. The Use of Dental Acrylics.
    - 1.6.2.1. Preparation of Acrylics.
    - 1.6.2.2. Application and Setting Time.
    - 1.6.2.3. Post-Surgery Care.
    - 1.6.2.4. Removal of the Acrylic.
  - 1.6.3. Bone Cement for Use in Fractures of the Spine.
- 1.7. Indications and Uses of External Fixatives.
  - 1.7.1. Femur.
  - 1.7.2. Tibia.
  - 1.7.3. Tarsus.
  - 1.7.4. Humerus.
  - 1.7.5. Radio and Ulna.
  - 1.7.6. Carpus.
  - 1.7.7. Jaw.
  - 1.7.8. Pelvis.
  - 1.7.9. Spinal Column

## 1.8 Advantages and Disadvantages of Using External Fixators.

- 1.8.1. Acquisition of Acrylic Material.
- 1.8.2. Care in the Application of Acrylics.
- 1.8.3. Toxicity of Acrylic.

## 1.9. Post-surgical care.

- 1.9.1. Cleaning of the Fixative with Acrylic.
- 1.9.2. Post-Operative Radiographic Studies.
- 1.9.3. Gradual Removal of the Acrylic.
- 1.9.4. Care when Removing the Fixative.
- 1.9.5. Repositioning of the Acrylic Fixative.

## 1.10 Circular fasteners.

- 1.10.1. History
- 1.10.2. Components.
- 1.10.3. Structure.
- 1.10.4. Applications.
- 1.10.5. Advantages and Disadvantages.

## Module 2. Intramedullary Enclave

### 2.1. History

- 2.1.2. Kuntcher's Nail.
- 2.1.3. The First Canine Patient with an Intramedullary Nail.
- 2.1.4. The Use of the Steinmann Nail in the 1970s.
- 2.1.5. The Use of the Steinmann Nail Today.

### 2.2. Principles of Intramedullary Nail Application.

- 2.2.1. Type of Fractures in Which it Can Be Exclusively Placed.
- 2.2.2. Rotational Instability.
- 2.2.3. Length, Tip and Rope.
- 2.2.4 Normograde and Retrograde Application. Nail Diameter to Medullary Canal Ratio.
- 2.2.5 Principle of the 3 Points of the Cortex.
- 2.2.6. Behaviour of the Bone and its Irrigation after Intramedullary Nail Fixation.
  - 2.2.6.1. The Steinmann Nail and Radium.

### 2.3. The Use of Locks with the Steinmann Intramedullary Nail.

- 2.3.1. Principles of Application of Fastenings and Lashings.
  - 2.3.1.1. Barrel Principle.
  - 2.3.1.2. Type of Fracture Line.





- 2.4. Principles of Application of the Tension Band.
  - 2.4.1. Pawel's Principle.
  - 2.4.2. Application of Engineering to Orthopedics.
  - 2.4.3. Bone Structures where the Tension Band is to Be Applied.
- 2.5. Normograde and Retrograde Application Method of the Steinmann Nail.
  - 2.5.1. Proximal Normograde.
  - 2.5.2. Normograde distal.
  - 2.5.3. Proximal Retrograde.
  - 2.5.4. Retrograde Distal.
- 2.6. Femur.
  - 2.6.1. Proximal Femoral Fractures.
  - 2.6.2. Fractures of the Distal Third of the Femur.
  - 2.6.3. Supracondylar Fractures or Fracture-Separation of the Distal Epiphysis.
  - 2.6.4. Intercondylar Femoral Fracture.
  - 2.6.5. The Steinmann Intramedullary Nail and Half Kirschner Device.
  - 2.6.6. The Steinmann Intramedullary Nail with Locks or Screws.
- 2.7 Tibia.
  - 2.7.1. Avulsion of the Tibial Tubercle.
  - 2.7.2. Fractures of the Proximal Third.
  - 2.7.3. Fractures of the Middle Third of the Tibia.
  - 2.7.4. Fractures of the Distal Third of the Tibia.
  - 2.7.5. Fractures of the Tibial Malleoli.
  - 2.7.6. The Steinmann Intramedullary Nail and Half Kirschner Device.
  - 2.7.7. The Steinmann Intramedullary Nail with Locks or Screws.
- 2.8. Humerus.
  - 2.8.1. Steinmann Intramedullary Nail in the Humerus.
  - 2.8.2. Fractures of the Proximal Fragment.
  - 2.8.3. Fractures of the Middle Third or Body of the Humerus.
  - 2.8.4. Steinmann Intramedullary Nail Fixation.
  - 2.8.5. Clavo intramedular de Steinmann y fijación auxiliar
  - 2.8.6. Supracondylar Fractures.
  - 2.8.7. Fractures of the Medial or Lateral Epicondyle.
  - 2.8.8. Intercondylar T- or Y-Fractures. .

- 2.9. Ulna.
  - 2.9.1. Acromion.
- 2.10. The Extraction of the Steinmann Intramedullary Nail.
  - 2.10.1. Radiographic Follow-up.
  - 2.10.2. Callus Formation in Steinmann Nail Fractures.
  - 2.10.3. Clinical Union.
  - 2.10.4. How to Remove the Implant.

### Module 3. Bone Plates and Screws

- 3.1. History of Metal Plates in Internal Fixing.
  - 3.1.1. The Initiation of Plates for Fracture Fixation.
  - 3.1.2. The World Association of Orthopedic Manufacturers (AO/ASIF).
    - 3.1.2.1. Sherman and Lane plates.
    - 3.1.2.2. Steel Plates.
    - 3.1.2.3. Titanium Plates.
    - 3.1.2.4. Plates of Other Materials.
    - 3.1.2.5. Combination of Metals for New Plate Systems.
- 3.2. Different Fixing Systems with Plate 8 (AO/ASIF, ALPS, FIXIN).
  - 3.2.1 AO/ASIF Plates.
  - 3.2.2. Advanced Locked Plate System. (ALPS).
    - 3.2.2.1. FIXIN and its Conical Block.
- 3.3. Instrument Care.
  - 3.3.1. Disinfection
  - 3.3.2. Cleaning.
  - 3.3.3. Rinse.
  - 3.3.4. Drying.
  - 3.3.5. Lubrication.
- 3.4. Instruments Used for the Fixation of Plates and Screws.
  - 3.4.1. Self-Tapping Screws and Tap Removal.
  - 3.4.2. Depth Gauges.
  - 3.4.3. Drilling Guides.
  - 3.4.4. Plate Benders and Plate Twisters.
  - 3.4.5. Screw Heads.
  - 3.4.6. Screws / Bolts.
- 3.5. Use and Classification of Screws.
  - 3.5.1. Cancellous Bone Screws.
  - 3.5.2. Cortical Bone Screws.
  - 3.5.3. Locked Screws/Bolts.
  - 3.5.4. Fastening of Screws.
    - 3.5.4.1. Use of the Drill.
    - 3.5.4.2. Use of the Countersink.
    - 3.5.4.3. Borehole Depth Measurement.
    - 3.5.4.4. Use of the Tap.
    - 3.5.4.5. Introduction to Screws.
- 3.6. Technical Classification of Screws.
  - 3.6.1. Big Screws.
  - 3.6.2. Small Screws.
  - 3.6.3. Mini Screws.
- 3.7. Classification of Screws According to their Function.
  - 3.7.1. Screw with Interfragmentary Compression Effect.
  - 3.7.2. The Cortical Bone Screw with Interfragmentary Compression Effect.
  - 3.7.3. Reduction Techniques and Screw Fixation with Compression Effect. Interfragmentary.
  - 3.7.4. Locked Bolts.
- 3.8. Bone Plates.
  - 3.8.1. Bases for Fixing with Plates.
    - 3.8.1.1. Classification of Plates According to Their Shape.
    - 3.8.1.2. Dynamic Compression Plates.
      - 3.8.1.2.1. Way of Action.
      - 3.8.1.2.2. Fixing Technique.
      - 3.8.1.2.3. Advantages Provided by Dynamic Compression Plates (DPC)
      - 3.8.1.2.4. Disadvantages of Dynamic Compression Plates (DPC)







- 3.8.3. Locked Plates.
  - 3.8.3.1. Advantages and Disadvantages.
  - 3.8.3.2. Types of Locks.
  - 3.8.3.3. Way of Action.
  - 3.8.3.4. Fixing Techniques.
  - 3.8.3.5. Instruments.
- 3.8.4. Minimum Contact Plates
- 3.8.5. Mini Plates.
- 3.8.6. Special Plates.
- 3.8.7. Classification of Plates According to Their Function.
  - 3.8.7.1. Compression Plate.
  - 3.8.7.2. Neutralization Plate.
  - 3.8.7.3. Bridge Plate.
- 3.9. Guidance for Proper Selection of Implants.
  - 3.9.1. Biological Factors.
  - 3.9.2. Physical Factors.
  - 3.9.3. Collaboration of the Owner in the Treatment.
  - 3.9.4. Table of Implant Size According to Patient's Weight.
- 3.10. Guide to the Removal of Bone Plates.
  - 3.10.1. It Fulfilled its Clinical Function.
  - 3.10.2. The Implant Breaks.
  - 3.10.3. The Implant Folds.
  - 3.10.4. The Implant Migrates,
  - 3.10.5. Rejection.
  - 3.10.6. Infection.
  - 3.10.7. Thermal Interference.

05

# Methodology

This training 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 clinical 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 an abundance of 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 be based on current professional life, trying to recreate the real conditions in the Veterinarian'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. Veterinarians who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity through exercises to evaluate real situations and the application of 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. The feeling that the effort invested is effective becomes a very important motivation for veterinarians, which translates into a greater interest in learning and an increase in the 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.



*Veterinarians 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 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 65,000 veterinarians 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 training, 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 really 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 bring you closer to the latest Techniques, to the latest Educational Advances, to the forefront of current Veterinary Techniques and Procedures. 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".

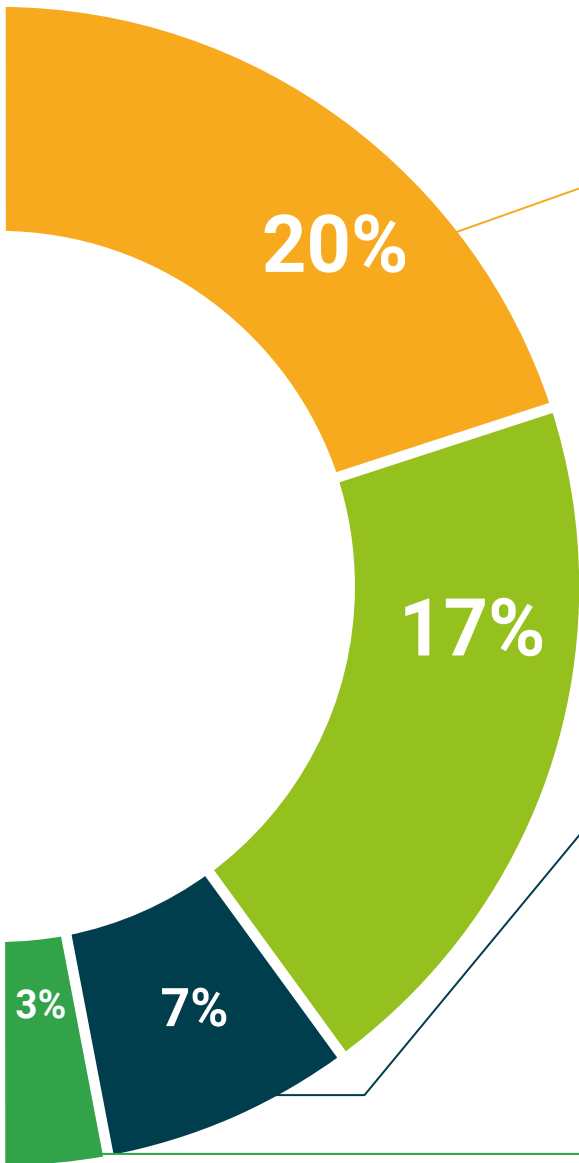


### Additional Reading

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







#### Analysis of cases developed and guided by Experts

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



#### Testing & Retesting

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 difficult future 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 Diploma in Fracture Fixation Methods guarantees you, in addition to the most rigorous and up to date training, access to a Postgraduate Diploma issued by TECH- Technological University. TECH - Technological University.





*Successfully complete this training and receive your Postgraduate Diploma without travel or laborious paperwork".*



This **Postgraduate Diploma in Fracture Fixation Methods** contains the most complete and up to date scientific program on the market.

After the student has passed the evaluations, they will receive their corresponding Postgraduate Diploma issued by

**TECH - Technological University.**

The diploma issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Diploma, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional from career evaluation committees.

Title: **Postgraduate Diploma in Fracture Fixation Methods**

ECTS: **18**

Official Number of Hours: **450**



\*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.

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education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
development languages  
classroom



Postgraduate Diploma  
Fracture Fixation  
Methods

Course Modality: Online

Duration: 6 months.

Certificate: TECH - Technological University

18 ECTS Credits

Teaching Hours: 450 hours.

# Postgraduate Diploma

## Fracture Fixation Methods

