

# Postgraduate Diploma

Orthopedic Surgery of Major Species  
and Rehabilitation in the Sport Horse



## Postgraduate Diploma Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/pk/veterinary-medicine/postgraduate-diploma/orthopedic-surgery-major-species-rehabilitation-sport-horse](http://www.techtute.com/pk/veterinary-medicine/postgraduate-diploma/orthopedic-surgery-major-species-rehabilitation-sport-horse)

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# 01

# Introduction

Musculoskeletal diseases are very common in large animals: ruminants (cattle, sheep), camelids (camels, alpacas, llamas), swine (pigs, wild boars) and equidae (horses, donkeys and mules).

This program presents an in-depth study of the most common surgical techniques related to the resolution of fractures and muscle-tendon pathologies, complications, postoperative management and prognosis of distal carpal and tarsal limb pathologies, as well as common tendon and muscle injuries in forelimbs and hind limbs. This will allow students to develop specialized knowledge which will help them to opt for the best treatment according to the case, logistics, economic possibilities and the owner's decision.





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*With this intensive program you will learn to examine the most appropriate surgical methodology for the resolution of musculoskeletal problems in Major Species”*

Veterinarians face new challenges every day in treating their patients. The Postgraduate Diploma in Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse comprises a complete and up-to-date educational program including the latest advances in traumatology and orthopedic surgery in ruminants (cattle, sheep), camelids (camels, alpacas and llamas), swine (pigs, wild boars) and equidae (horses, donkeys and mules).

The theoretical and practical content has been chosen taking into account its potential practical application in daily clinical practice. Furthermore, the audiovisual material collects scientific and practical information on the essential disciplines for professional practice.

In each topic, practical cases presented by experts in Traumatology and Orthopedic Surgery in Large Animals have been developed, with the objective of the practical application of the knowledge acquired. In addition, students will participate in a self-evaluation process to improve their learning and knowledge during their practical activities.

The teaching team of the Postgraduate Diploma in Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse has programmed a careful selection of techniques used in the diagnosis and treatment of lameness in ruminants (cattle, sheep), camelids (camels, alpacas, llamas), swine (pigs, wild boars) and equidae (horses, donkeys and mules), including the description of musculoskeletal surgery and rehabilitation in those species to which they are applied.

The teaching surgeons of this Postgraduate Diploma are Graduates of the European or American College of Veterinary Surgeons and have extensive experience both in the university field and in private practice. In both areas, they are responsible for large animal surgery services in leading veterinary centers and most of them direct residency programs, master's degree programs and research projects.

As a result of the training of the faculty of this Postgraduate Diploma in North America and Europe, the techniques developed have been widely contrasted and are internationally recognized.

This **Postgraduate Diploma in Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ The development of practical cases presented by experts in Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse
- ♦ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ♦ Novelties about Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse
- ♦ Practical exercises where self-assessment can be used to improve learning
- ♦ Its special emphasis on innovative methodologies in Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse
- ♦ 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



*Don't miss the opportunity to study this Postgraduate Diploma with TECH. It's the perfect opportunity to advance in your veterinary career"*



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*This Postgraduate Diploma is the best investment you can make in selecting an upgrade program to update your veterinary knowledge in Major Species"*

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 education programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise throughout the program. For this, the professional will have the help of an innovative interactive video system made by recognized experts in Orthopedic Surgery in Large Animals, Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse and with great experience.

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

*Examine each surgical technique in detail for each commonly occurring forelimb and hind limb bone pathology and for each commonly occurring axial skeletal bone pathology.*



# 02 Objectives

This Postgraduate Certificate in Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse is aimed at facilitating the performance of the veterinary professional with the latest advances and newest treatments in the sector.







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*This is the best option to know the latest advances in Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse”*



## General Objectives

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- ◆ Develop the fundamentals of bone physiology and bone healing
- ◆ Systematically approach the care of an animal with a fracture
- ◆ Present the implants and materials used for fracture fixation
- ◆ Present the different fracture reduction and fixation techniques
- ◆ Establish surgical methodology for the resolution of musculoskeletal problems in large animals
- ◆ Examine each surgical technique in detail for each commonly occurring muscle and tendon pathology
- ◆ Determine each surgical technique in detail for each commonly occurring bone pathology
- ◆ Establish survival, sports and productive prognoses for the pathologies described
- ◆ Establish the most appropriate surgical methodology for the resolution of musculoskeletal problems in large animals
- ◆ Examine each surgical technique in detail for each commonly occurring forelimb and hind limb bone pathology and for each commonly occurring axial skeletal bone pathology
- ◆ Establish survival, sports and productive prognoses for the pathologies described
- ◆ Examine the importance of musculoskeletal injury rehabilitation in horses
- ◆ Establish the basis of the techniques used in rehabilitation
- ◆ Analyze the main musculoskeletal rehabilitation techniques in sport horses
- ◆ Present rehabilitation plans based on the location of the injury





## Specific Objectives

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### Module 1. Reparation of Fractures in Large Animals Ruminants, Swine and Equidae

- ♦ Gather the necessary information in order to develop knowledge of the physiology of bone metabolism and its healing
- ♦ Analyze the biomechanics of the bone and classify the fractures
- ♦ Stabilize a patient with a fracture
- ♦ Generate specialized knowledge on how to reduce fractures
- ♦ Specify the most common materials for the manufacturing of implants
- ♦ Establish the instruments and implants used to fix fractures
- ♦ Determine the use of screws and the use of plates and screws
- ♦ Analyze the technical complications in the use of implants

### Module 2. Common Orthopedic Surgery Procedures of the Musculoskeletal System in Large Animals: Ruminants, Swine and Equidae Part I

- ♦ Discuss the surgical techniques for each particular problem
- ♦ Analyze the surgical techniques related to the common muscle-tendon injuries of the forelimb and hind limb
- ♦ Determine the surgical techniques related to common bone injuries of the forelimb and hind limb including hoof, phalanges and metacarpo-metatarsus
- ♦ Justify surgery for each particular problem described
- ♦ Propose surgical alternatives for some procedures
- ♦ Specify the equipment needed for each procedure
- ♦ Examine the prognosis of each procedure

### Module 3. Common Orthopedic Surgery Procedures of the Musculoskeletal System in Large Animals: Ruminants, Swine and Equidae Part II

- ♦ Provide a rationale for the surgical techniques to be described for each particular problem
- ♦ Determine the surgical techniques related to common bone injuries of the forelimb and hind limb including and adjacent to the carpus and tarsus
- ♦ Examine the surgical techniques related to bone injuries of the axial skeleton in large animals
- ♦ Justify surgery for each particular problem described
- ♦ Propose surgical alternatives for some procedures
- ♦ Specify the equipment needed for each procedure
- ♦ Examine the prognosis of each procedure

### Module 4. Rehabilitation of Musculoskeletal Injuries in Sport Horses

- ♦ Analyze the significance of musculoskeletal injuries and the correct recovery needed
- ♦ Gain knowledge of the basic principles of physiotherapeutic examination in horses
- ♦ Evaluate the physical restrictions and physiological adaptations that occur as a consequence of an injury
- ♦ Examine the different physiotherapeutic techniques available to the equine veterinarian
- ♦ Determine the physical properties of each one of the therapies available in veterinary medicine
- ♦ Create prevention plans for equine athletes
- ♦ Propose rehabilitation plans depending on the musculoskeletal injury



03

# Course Management

The program includes in its teaching staff experts of reference in Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse that pour in 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, expert in Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse, will help you achieve success in your profession"*



## Management



### Dr. Muñoz Morán, Juan Alberto

- ♦ PhD in Specialist Veterinary Medicine in Large Animals
- ♦ Degree in Veterinary Medicine from the Complutense University of Madrid
- ♦ Certified by the European College of Veterinary Surgeons
- ♦ Professor in Large Animal surgery at the Veterinary University of Pretoria, South Africa
- ♦ Head of the Equine Surgery residency program at the Veterinary University of Pretoria, South Africa
- ♦ Head of the large animal surgery service and professor at Alfonso X El Sabio University, Madrid
- ♦ Surgeon at the Equine Hospital of Aznalcollar, Seville

## Professors

### Dr. Saitua Penas, Aritz

- ♦ Expert Equine Surgeon
- ♦ Currently studying a PhD in the Department of Animal Medicine and Surgery at the University of Cordoba
- ♦ Degree in Veterinary Medicine from the University of Santiago de Compostela
- ♦ Internship in an Equine Clinic at the Clinical Veterinary Hospital of the University of Córdoba

### Dr. Argüelles Capilla, David

- ♦ PhD in Veterinary Medicine from the Autonomous University of Barcelona (UAB)
- ♦ Degree in Veterinary Medicine, Autonomous University of Barcelona
- ♦ Resident in Sports Medicine and Rehabilitation for the ACVSMR

### Dr. Quinteros, Diego Daniel

- ♦ Specialist Veterinary Surgeon in Comprehensive Equine Veterinary Services
- ♦ Diploma from the American College of Veterinary Surgeons
- ♦ Latin American Board on Equidae AOVET Foundation

### Dr. Sardoy, María Clara

- ♦ Veterinary Doctor
- ♦ Veterinarian, graduated in Veterinary Medicine from the University of Buenos Aires, Argentina
- ♦ Master's Degree in Clinical Sciences from Kansas State University, USA



# 04

# Structure and Content

The structure of the contents has been designed by the best professionals in the sector in Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse, with a wide experience and recognized prestige in the profession, supported by the volume of cases reviewed, studied and diagnosed, and with wide mastery of new technologies applied to veterinary medicine.







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*This Postgraduate Diploma in Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse contains the most complete and up-to-date scientific program on the market”*

**Module 1.** Reparation of Fractures in Large Animals Ruminants, Swine and Equidae

- 1.1. Bone Metabolism and Healing
  - 1.1.1. Anatomy
  - 1.1.2. Histological Structure
  - 1.1.3. Bone Healing
  - 1.1.4. Biomechanics of the Bone
  - 1.1.5. Classification of Fractures
- 1.2. Stabilization of Fractures in an Emergency, Decision Making and Transport
  - 1.2.1. Clinical Examination of a Patient With a Suspected Fracture
  - 1.2.2. Stabilization of a Patient With Fractures
  - 1.2.3. Transport of a Patient With a Fracture
  - 1.2.4. Stabilization of Fractures, Decision-Making and Transport of Ruminants (Cattle, Sheep), Camelids (Camels, Alpacas and Llamas) and Swine (Pigs, Wild Boar)
- 1.3. External Coaptation
  - 1.3.1. Placement of Robert Jones Bandages
  - 1.3.2. Placement of Acrylic Casts
  - 1.3.3. Splints, Bandages With Casts and Combinations
  - 1.3.4. Complications of Acrylic Casts
  - 1.3.5. Removal of Acrylic Casts
- 1.4. Reducing Fractures, Management of Soft Tissue in the Approach
  - 1.4.1. Displacements of Fracture Strands
  - 1.4.2. Objectives of the Fracture Reduction
  - 1.4.3. Reduction Techniques
  - 1.4.4. Evaluation of Reduction
  - 1.4.5. Management of Soft Tissues
  - 1.4.6. Histology and Blood Supply of the Skin
  - 1.4.7. Physical Properties and Biomechanics of the Skin
  - 1.4.8. Planning the Approach
  - 1.4.9. Incisions
  - 1.4.10. Wound Closure





- 1.5. Materials for Implants in Large Animals
  - 1.5.1. Material Properties
  - 1.5.2. Stainless Steel
  - 1.5.3. Titanium
  - 1.5.4. Material Fatigue
- 1.6. External Fixators
  - 1.6.1. Transfixion Casts
  - 1.6.2. External Fixators
  - 1.6.3. External Fixators of Ruminants (Cattle, Sheep), Camelids (Camels, Alpacas and Llamas) and Swine (Pigs, Wild Boar)
- 1.7. Instruments for Inserting an Implant
  - 1.7.1. Plate Contouring Instruments
  - 1.7.2. Instruments for Inserting Screws
  - 1.7.3. Instruments for Inserting Plates
- 1.8. Implants
  - 1.8.1. Screws
  - 1.8.2. Plates
  - 1.8.3. Placement Techniques
  - 1.8.4. Functions of Each Implant
  - 1.8.5. Tension Band
- 1.9. Bone Grafts
  - 1.9.1. Indications
  - 1.9.2. Removal Sites
  - 1.9.3. Complications
  - 1.9.4. Synthetic Bone Grafts
- 1.10. Complications of Inserting an Implant
  - 1.10.1. Lack of Reduction
  - 1.10.2. Incorrect Number and Size of Implants
  - 1.10.3. Incorrect Position of the Implant
  - 1.10.4. Complications Related to the Compression Screw
  - 1.10.5. Complications Related to Plates

## Module 2. Common Orthopedic Surgery Procedures of the Musculoskeletal System in Large Animals: Ruminants, Swine and Equidae Part I

- 2.1. Fractures of Distal Phalanx and Navicular Bone
  - 2.1.1. Distal Phalanx
    - 2.1.1.1. Causes
    - 2.1.1.2. Classification
    - 2.1.1.3. Clinical Signs
    - 2.1.1.4. Treatment
  - 2.1.2. Navicular Bone Fracture
    - 2.1.2.1. Causes
    - 2.1.2.2. Clinical Signs and Diagnosis
    - 2.1.2.3. Treatment
  - 2.1.3. Digital Neurectomy
  - 2.1.4. Bovine Distal Phalanx Fracture
  - 2.1.5. Bovine Pedal Osteitis
  - 2.1.6. Sepsis of the Common Digital Flexor Tendon Sheath in Ruminants
    - 2.1.6.1. Tenosynoviotomy With Resection of Affected Tissue
- 2.2. Middle Phalanx Fracture
  - 2.2.1. Etiology
  - 2.2.2. Clinical Signs
  - 2.2.3. Diagnosis
  - 2.2.4. Settings
    - 2.2.4.1. Palmar/Plantar Eminence Fractures
      - 2.2.4.1.1. Uni- and Biaxial Fractures
    - 2.2.4.2. Axial Fractures
    - 2.2.4.3. Comminuted Fractures
- 2.3. Proximal Phalangeal and Proximal Interphalangeal Joints
  - 2.3.1. Osteoarthritis
  - 2.3.2. Subchondral Cystic Lesions
  - 2.3.3. Dislocations and Subluxations

- 2.3.4. Fracture Configurations
- 2.3.5. Clinical Signs
- 2.3.6. Diaphyseal Fractures
- 2.3.7. Incomplete Sagittal Fractures
- 2.3.8. Non-Displaced Long Incomplete Sagittal Incomplete Fractures
- 2.3.9. Displaced Complete Sagittal Fractures
- 2.3.10. Frontal Fractures
- 2.3.11. Comminuted Fractures
- 2.4. Metacarpal- Metatarsal Falangeal Joint
  - 2.4.1. Proximal Sesamoid Bone Fractures
    - 2.4.1.1. Mid-Body
    - 2.4.1.2. Basal
    - 2.4.1.3. Abaxial
    - 2.4.1.4. Sagittal
    - 2.4.1.5. Biaxial
  - 2.4.2. Osteoarthritis
  - 2.4.3. Subchondral Cystic Lesions
  - 2.4.4. Dislocation
  - 2.4.5. Tenosynovitis/Desmitis/Constriction of the Annular Ligament
    - 2.4.5.1. Mass Removal
    - 2.4.5.2. Section of the Annular Ligament
    - 2.4.5.3. Tendon Debridement
- 2.5. Metacarpal/Metatarsal Bones
  - 2.5.1. Lateral Condylar Fractures
    - 2.5.1.1. Signs
    - 2.5.1.2. Diagnosis
    - 2.5.1.3. Emergency Treatment
    - 2.5.1.4. Surgery of Displaced Fractures
    - 2.5.1.5. Surgery of Non-Displaced Fractures
  - 2.5.2. Medial Condylar Fractures
    - 2.5.2.1. Open Approach Surgery
    - 2.5.2.2. Minimally Invasive Surgery
    - 2.5.2.3. Postoperative Care
    - 2.5.2.4. Prognosis
  - 2.5.3. Transverse Fractures of the Distal Diaphysis of the Third Metacarpal Bone
    - 2.5.3.1. Non-Surgical Treatment
    - 2.5.3.2. Surgical Treatment
    - 2.5.3.3. Prognosis
  - 2.5.4. Diaphyseal Fractures
    - 2.5.4.1. Non-Surgical Treatment
    - 2.5.4.2. Surgical Treatment
    - 2.5.4.3. Prognosis
  - 2.5.5. Distal Physial Fractures
  - 2.5.6. Proximal Articular Fractures
  - 2.5.7. Dorsal Cortical Fractures
    - 2.5.7.1. Non-Surgical Treatment
    - 2.5.7.2. Surgical Treatment
    - 2.5.7.3. Prognosis
  - 2.5.8. Metacarpal/Metatarsal Bone Fractures in Ruminants (Cattle, Sheep) and Camelids (Camels, Alpacas and Llamas)
- 2.6. Rudimentary Metacarpal/Metatarsal Bones
  - 2.6.1. Fractures
  - 2.6.2. Clinical Examination
  - 2.6.3. Diagnosis
  - 2.6.4. Proximal Fractures
    - 2.6.4.1. Debridement
    - 2.6.4.2. Internal Fixation
    - 2.6.4.3. Ostectomy
    - 2.6.4.4. Complete Removal
    - 2.6.4.5. Prognosis
    - 2.6.4.6. Complications

- 2.6.5. Mid-Body Fractures
  - 2.6.5.1. Non-Surgical Treatment
  - 2.6.5.2. Surgical Treatment
  - 2.6.5.3. Prognosis
- 2.6.6. Distal Fractures
  - 2.6.6.1. Non-Surgical Treatment
  - 2.6.6.2. Surgical Treatment
  - 2.6.6.3. Prognosis
- 2.6.7. Exostosis
  - 2.6.7.1. Pathophysiology
  - 2.6.7.2. Clinical Examination
  - 2.6.7.3. Diagnosis
    - 2.6.7.3.1. Treatment
    - 2.6.7.3.2. Non-Surgical Treatment
    - 2.6.7.3.3. Surgical Treatment
  - 2.6.7.4. Prognosis
- 2.6.8. Polydactyly in Ruminants and Equidae
- 2.6.9. Neoplasty
- 2.7. Tendon and Ligament Pathologies That Can Be Resolved Surgically
  - 2.7.1. Carporadic Extensor Carpi Radialis Tendon Rupture
    - 2.7.1.1. Pathophysiology
    - 2.7.1.2. Diagnosis
    - 2.7.1.3. Treatment
    - 2.7.1.4. Prognosis
  - 2.7.2. Biceps Brachii Tendon and Infraspinatus Tendon Pathologies
    - 2.7.2.1. Treatment
      - 2.7.2.1.1. Biceps Tendon Transection
    - 2.7.2.2. Prognosis
  - 2.7.3. Surgery for Suspensory Ligament Desmopathy in the Forelimb
  - 2.7.4. Surgery of Suspensory Ligament Branches
  - 2.7.5. Suspensory Ligament Damage in Ruminants
  - 2.7.6. Tenectomy of the Medial Head of the Deep Digital Flexor Tendon
  - 2.7.7. Surgery for Suspensory Ligament Dismopathy of the Hind Limb
  - 2.7.8. Intermittent Patella Fixation in Equidae
  - 2.7.9. Patella Fixation in Ruminants
  - 2.7.10. Tears or Avulsions of Collateral Ligaments in Ruminants
  - 2.7.11. Cranial Cruciate Ligament Rupture in Ruminants
    - 2.7.11.1. Peri-Surgical Planning
    - 2.7.11.2. Imbrication of Stifle Joint
    - 2.7.11.3. Cranial Cruciate Ligament Replacement
      - 2.7.11.3.1. With Gluteobiceps Tendon
      - 2.7.11.3.2. With Synthetic Material
      - 2.7.11.3.3. Post-Surgery and Prognosis
  - 2.7.12. Damage to Collateral Ligaments of the Stifle
    - 2.7.12.1. Surgery
    - 2.7.12.2. Prognosis
  - 2.7.13. Superficial Digital Flexor Tendon Dislocation
- 2.8. Muscle Pathologies That Can Be Resolved Surgically
  - 2.8.1. Fibrotic Myopathy
    - 2.8.1.1. Pathophysiology
    - 2.8.1.2. Diagnosis
    - 2.8.1.3. Treatment
    - 2.8.1.4. Prognosis
  - 2.8.2. Arpeo (Equine Reflex Hypertonia)
    - 2.8.2.1. Pathophysiology
    - 2.8.2.2. Diagnosis
    - 2.8.2.3. Treatment
    - 2.8.2.4. Prognosis
  - 2.8.3. Third Peroneal
    - 2.8.3.1. Pathophysiology
    - 2.8.3.2. Diagnosis
    - 2.8.3.3. Treatment
    - 2.8.3.4. Prognosis

- 2.8.4. Rupture and Avulsion of the Gastrocnemius Muscles
  - 2.8.4.1. Pathophysiology
  - 2.8.4.2. Diagnosis
  - 2.8.4.3. Treatment
  - 2.8.4.4. Prognosis
- 2.8.5. Aerophagia
  - 2.8.5.1. Pathophysiology
  - 2.8.5.2. Diagnosis
  - 2.8.5.3. Treatment
  - 2.8.5.4. Prognosis
- 2.8.6. Spastic Paresis
- 2.9. Arthrodesis
  - 2.9.1. Equine Distal Interphalangeal Joint
  - 2.9.2. Arthrodesis of the Distal Bovine Interphalangeal Joint
  - 2.9.3. Proximal Interphalangeal Joint
  - 2.9.4. Metacarpal/Metatarsophalangeal Joint
  - 2.9.5. Of the Carpus
  - 2.9.6. Of the Shoulder
  - 2.9.7. Of Distal Tarsal Joints
  - 2.9.8. Talocalcaneal
- 2.10. Laminitis and Amputations in Ruminants, Swine and Equidae
  - 2.10.1. Laminitis
    - 2.10.1.1. Deep Digital Flexor Tendon Tenotomy
      - 2.10.1.1.1. At Pastern Level
      - 2.10.1.1.2. At Mid Metacarpal-Metatarsal Level
    - 2.10.1.2. Prognosis
  - 2.10.2. Amputations in Ruminants, Swine and Equidae
    - 2.10.2.1. Bovine Digit Amputation
    - 2.10.2.2. Bovine Extra Digit Amputation
    - 2.10.2.3. Tail Amputation
    - 2.10.2.4. Limb Amputation
    - 2.10.2.5. Specifics in Swine

### Module 3. Common Orthopedic Surgery Procedures of the Musculoskeletal System in Large Animals: Ruminants, Swine and Equidae Part II

- 3.1. Carpus
  - 3.1.1. Pathophysiology
  - 3.1.2. Multifragmentary Fractures
    - 3.1.2.1. Pathogenesis
    - 3.1.2.2. Diagnosis
    - 3.1.2.3. Treatment
  - 3.1.3. Accessory Bone Fracture
    - 3.1.3.1. Pathogenesis
    - 3.1.3.2. Diagnosis
    - 3.1.3.3. Treatment
    - 3.1.3.4. Non-Surgical Treatment
    - 3.1.3.5. Surgical Treatment
    - 3.1.3.6. Prognosis
  - 3.1.4. Carpal Hygroma
  - 3.1.5. Radial Distal Exostosis
    - 3.1.5.1. Clinical Examination
    - 3.1.5.2. Diagnosis
    - 3.1.5.3. Treatment
      - 3.1.5.3.1. Non-Surgical Treatment
      - 3.1.5.3.2. Surgical Treatment
    - 3.1.5.4. Prognosis
  - 3.1.6. Dislocation
    - 3.1.6.1. Pathogenesis
    - 3.1.6.2. Diagnosis
    - 3.1.6.3. Treatment
      - 3.1.6.3.1. Non-Surgical Treatment
      - 3.1.6.3.2. Surgical Treatment
    - 3.1.6.4. Prognosis

- 3.1.7. Coronation
  - 3.1.7.1. Pathogenesis
  - 3.1.7.2. Diagnosis
  - 3.1.7.3. Treatment
- 3.1.8. Synovial Osteochondromatosis
- 3.1.9. Circumscribed Calcinosis
  - 3.1.9.1. Pathophysiology
  - 3.1.9.2. Diagnosis
  - 3.1.9.3. Treatment
  - 3.1.9.4. Prognosis
- 3.2. Radio and Ulna
  - 3.2.1. Ulna Fracture
    - 3.2.1.1. Anatomy
    - 3.2.1.2. Pathogenesis
    - 3.2.1.3. Diagnosis
    - 3.2.1.4. Treatment
      - 3.2.1.4.1. Emergency Stabilization
      - 3.2.1.4.2. Non-Surgical Treatment
      - 3.2.1.4.3. Surgical Treatment
    - 3.2.1.5. Prognosis
    - 3.2.1.6. Complications
  - 3.2.2. Radius Fractures
    - 3.2.2.1. Anatomy
    - 3.2.2.2. Pathogenesis
    - 3.2.2.3. Diagnosis
    - 3.2.2.4. Treatment
      - 3.2.2.4.1. Emergency Stabilization
      - 3.2.2.4.2. Non-Surgical Treatment
      - 3.2.2.4.3. Surgical Treatment
    - 3.2.2.5. Prognosis
    - 3.2.2.6. Complications
- 3.2.3. Radial Osteochondroma
  - 3.2.3.1. Pathogenesis
  - 3.2.3.2. Diagnosis
  - 3.2.3.3. Treatment
  - 3.2.3.4. Prognosis
- 3.2.4. Subchondral Cystic Lesions
- 3.2.5. Enostosis-Like Lesions
- 3.3. Humerus Fractures
  - 3.3.1. Anatomy
  - 3.3.2. Greater Tubercle Fracture
    - 3.3.2.1. Diagnosis
    - 3.3.2.2. Treatment
      - 3.3.2.2.1. Non-Surgical Treatment
      - 3.3.2.2.2. Surgical Treatment
    - 3.3.2.3. Prognosis
  - 3.3.3. Fracture of the Deltoid Tuberosity
    - 3.3.3.1. Diagnosis
    - 3.3.3.2. Tratamiento
    - 3.3.3.3. Prognosis
  - 3.3.4. Stress Fractures
    - 3.3.4.1. Diagnosis
    - 3.3.4.2. Treatment
    - 3.3.4.3. Prognosis
  - 3.3.5. Physiological Fractures
  - 3.3.6. Diaphyseal Fractures
    - 3.3.6.1. Diagnosis
    - 3.3.6.2. Treatment
      - 3.3.6.2.1. Non-Surgical Treatment
      - 3.3.6.2.2. Surgical Treatment
    - 3.3.6.3. Prognosis



- 3.3.7. Supraglenoid Tubercle Fractures
  - 3.3.7.1. Treatment
    - 3.3.7.1.1. Fragment Removal
    - 3.3.7.1.2. Internal Fixation
  - 3.3.7.2. Prognosis
- 3.4. Tarsus
  - 3.4.1. Osteoarthritis of the Distal Intertarsal Joints
    - 3.4.1.1. Surgical Treatment
    - 3.4.1.2. Postoperative Care
    - 3.4.1.3. Prognosis
  - 3.4.2. Osteoarthritis of Talocalcaneal Joint
  - 3.4.3. Fractures of the Distal Tibia
  - 3.4.4. Talus Bone
    - 3.4.4.1. Trochlear Ridges
    - 3.4.4.2. Sagittal Fractures
  - 3.4.5. Calcaneus
    - 3.4.5.1. Chip Fractures of the Heel Pad
  - 3.4.6. Small Tarsal Bone Fractures
  - 3.4.7. Tarsal Hygroma in Ruminants
- 3.5. Tibia and Femorotibiorotullary Joint
  - 3.5.1. Enostosis-Like Lesions
  - 3.5.2. Stress Fractures
    - 3.5.2.1. Etiology
    - 3.5.2.2. Signs
    - 3.5.2.3. Diagnosis
    - 3.5.2.4. Treatment
  - 3.5.3. Tibial Fissures
    - 3.5.3.1. Clinical Signs and Diagnosis
    - 3.5.3.2. Treatment
  - 3.5.4. Proximal Physeal Fractures
    - 3.5.4.1. Clinical Signs and Diagnosis
    - 3.5.4.2. Treatment
    - 3.5.4.3. Postoperative Care
    - 3.5.4.4. Complications
    - 3.5.4.5. Prognosis
  - 3.5.5. Diaphyseal Fractures
    - 3.5.5.1. Clinical Signs and Diagnosis
    - 3.5.5.2. Treatment
    - 3.5.5.3. Postoperative Care
    - 3.5.5.4. Complications
    - 3.5.5.5. Prognosis
  - 3.5.6. Distal Physial Fractures
  - 3.5.7. Tibial Ridge Fractures
  - 3.5.8. Stifle
    - 3.5.8.1. Patella Fractures
    - 3.5.8.2. Subchondral Cystic Lesions
      - 3.5.8.2.1. Transcondylar Screw
- 3.6. Femur and Pelvis
  - 3.6.1. Head and Neck Fractures
  - 3.6.2. Third Trochanter Fractures
  - 3.6.3. Diaphysis Fractures
  - 3.6.4. Distal Fractures
    - 3.6.4.1. Prognosis
  - 3.6.5. Pelvis Fractures
    - 3.6.5.1. Clinical Signs
    - 3.6.5.2. Diagnosis
    - 3.6.5.3. Treatment
    - 3.6.5.4. Of the Coxal Tuberosity
      - 3.6.5.4.1. Clinical Signs
      - 3.6.5.4.2. Diagnosis
      - 3.6.5.4.3. Treatment

- 3.6.5.5. Of the Wing of the Ileum
- 3.6.5.6. Of the Body of the Ileum
- 3.6.5.7. Pubis and Ischium
- 3.6.5.8. Acetabulum
- 3.7. Luxations and Subluxations in Ruminants and Equidae
  - 3.7.1. Distal Interphalangeal Joint
  - 3.7.2. Proximal Interphalangeal Joint
  - 3.7.3. Metacarpal/ Metatarsal Falangeal Joint
  - 3.7.4. Carpus
  - 3.7.5. Scapulohumeral Joint
  - 3.7.6. Coxofemoral Joint
  - 3.7.7. Dorsal Defect of the Patella
  - 3.7.8. Lateral Patella Dislocation in Equidae
  - 3.7.9. Of Patella in Calves and Small Ruminants
    - 3.7.9.1. Lateral Capsule Imbrication
    - 3.7.9.2. Transposition of Tibial Tuberosity
    - 3.7.9.3. Sulcoplasty
  - 3.7.10. Of the Tarsal Joint
- 3.8. Head
  - 3.8.1. Temporomandibular Joint
    - 3.8.1.1. Condylectomy
  - 3.8.2. Craniomaxillofacial Fractures
    - 3.8.2.1. Incisors, Mandible and Premaxillary
      - 3.8.2.1.1. Diagnosis
      - 3.8.2.1.2. Surgical Management
      - 3.8.2.1.3. Post-Operative
  - 3.8.3. Fractures of the Skull and Paranasal Sinuses
    - 3.8.3.1. Clinical Signs and Diagnosis
    - 3.8.3.2. Treatment
    - 3.8.3.3. Postoperative Care
    - 3.8.3.4. Complications
    - 3.8.3.5. Prognosis
  - 3.8.4. Periorbital Fractures
    - 3.8.4.1. Clinical Signs and Diagnosis
    - 3.8.4.2. Treatment
    - 3.8.4.3. Postoperative Care
    - 3.8.4.4. Complications
    - 3.8.4.5. Prognosis
  - 3.8.5. Paranasal Sinus Fistulas
  - 3.8.6. Dehorning
    - 3.8.6.1. Indications
    - 3.8.6.2. Techniques
    - 3.8.6.3. Complications
  - 3.8.7. Frontal Sinus Trepanation in Ruminants
    - 3.8.7.1. Indications
    - 3.8.7.2. Anatomy
    - 3.8.7.3. Clinical Signs
    - 3.8.7.4. Technique
    - 3.8.7.5. Postoperative Care and Complications
  - 3.8.8. Mandibular, Premaxillary and Maxillary Rostral Resection
    - 3.8.8.1. Treatment
    - 3.8.8.2. Postoperative Care
    - 3.8.8.3. Complications
    - 3.8.8.4. Prognosis
  - 3.8.9. Wry Nose
    - 3.8.9.1. Treatment
    - 3.8.9.2. Postoperative Care
    - 3.8.9.3. Complications
    - 3.8.9.4. Prognosis
  - 3.8.10. Upper and Lower Prognathism
    - 3.8.10.1. Treatment
    - 3.8.10.2. Postoperative Care
  - 3.8.11. Suture Periostitis
    - 3.8.11.1. Diagnosis
    - 3.8.11.2. Treatment

- 3.9. Spinal Column Surgery in Equidae
  - 3.9.1. Considerations of the Patient and Operating Room
  - 3.9.2. Approaches
  - 3.9.3. Incisions Sutures
  - 3.9.4. Anesthetic Recovery
  - 3.9.5. Post-Operative Care
  - 3.9.6. Cervical Fractures
    - 3.9.6.1. Atlas and Axis
    - 3.9.6.2. Subluxation and Atlantoaxial Dislocation
    - 3.9.6.3. From C3 to C7
  - 3.9.7. Thoracolumbar Fractures
    - 3.9.7.1. Dorsal Spinal Processes
    - 3.9.7.2. Vertebral Bodies
  - 3.9.8. Traumatic Sacral Injury
  - 3.9.9. Traumatic Coccygeal Injury
  - 3.9.10. Crushed Tail Head Syndrome
  - 3.9.11. Developmental Disorders
    - 3.9.11.1. Cervical Vertebral Stenotic Spinal Myelopathy
      - 3.9.11.1.1. Surgical Treatment
        - 3.9.11.1.1.1 Intervertebral Fusion
        - 3.9.11.1.1.2. Laminectomy
      - 3.9.11.1.2. Complications
    - 3.9.11.2. Occipitoatlantoaxial Malformation
    - 3.9.11.3. Atlantoaxial Subluxation
    - 3.9.11.4. Atlantoaxial Instability
- 3.10. Neurosurgery
  - 3.10.1. Cerebral Trauma Surgery
  - 3.10.2. Peripheral Nerve Surgery
    - 3.10.2.1. General Surgical Repair Techniques
    - 3.10.2.2. Suprascapular and Axillary Nerve Damage
      - 3.10.2.2.1. Treatment
      - 3.10.2.2.2. Non-Surgical Treatment
      - 3.10.2.2.3. Decompression of the Scapular Nerve
      - 3.10.2.2.4. Prognosis

## Module 4. Rehabilitation of Musculoskeletal Injuries in Sport Horses

- 4.1. Significance of Musculoskeletal Injuries in Sport Horses
  - 4.1.1. Introduction
  - 4.1.2. Impact of Musculoskeletal Injuries on the Equine Industry
  - 4.1.3. Most Common Musculoskeletal Injuries According to the Equestrian Discipline
  - 4.1.4. Factors Associated With the Incidence of Injuries in Sport Horses
- 4.2. Physiotherapeutic Assessment of the Horse
  - 4.2.1. Introduction
  - 4.2.2. Clinical Assessment
  - 4.2.3. Body Alignment Assessment
  - 4.2.4. Static Physical Assessment
    - 4.2.4.1. Palpitation
    - 4.2.4.2. Active Mobility Test
    - 4.2.4.3. Passive Mobility Tests
- 4.3. Physiotherapeutic Assessment of the Limbs
  - 4.3.1. Physiotherapeutic Assessment of the Thoracic Limbs
    - 4.3.1.1. Scapula and Scapulohumeral Joint
    - 4.3.1.2. Elbow and Forearm Joint
    - 4.3.1.3. Carpal Joint and Shank
    - 4.3.1.4. Distal Joints: Metacarpal/Tarsal-Phalangeal, Proximal Interphalangeal and Distal Interphalangeal Joints
  - 4.3.2. Physiotherapeutic Assessment of the Pelvic Limbs
    - 4.3.2.1. Coxofemoral and Rump Joints
    - 4.3.2.2. Stifle and Leg Articulation
    - 4.3.2.3. Tarsal Joint
- 4.4. Physiotherapeutic Assessment of the Head of Vertebral Column
  - 4.4.1. Physiotherapeutic Assessment of the Head
    - 4.4.1.1. Head
    - 4.4.1.2. Hyoid Apparatus
    - 4.4.1.3. Temporomandibular Joint

- 4.4.2. Physiotherapeutic Assessment of the Vertebral Column
  - 4.4.2.1. Cervical Region
  - 4.4.2.2. Thoracic Region
  - 4.4.2.3. Lumbar Region
  - 4.4.2.4. Sacroiliac Joint
- 4.5. Neuromuscular Assessment of the Sport Horse
  - 4.5.1. Introduction
  - 4.5.2. Neurological Evaluation
    - 4.5.2.1. Neurological Examination
    - 4.5.2.2. Evaluation of Cranial Nerves
    - 4.5.2.3. Evaluation of Posture and Gait
    - 4.5.2.4. Assessment of Reflexes and Proprioception
  - 4.5.3. Diagnostic Tests
    - 4.5.3.1. Diagnostic Imaging Techniques
    - 4.5.3.2. Electromyography
    - 4.5.3.3. Cerebrospinal Fluid Analysis
  - 4.5.4. Main Neurologic Pathologies
  - 4.5.5. Main Muscular Pathologies
- 4.6. Manual Therapy Techniques
  - 4.6.1. Introduction
  - 4.6.2. Technical Aspects of Manual Therapy
  - 4.6.3. Considerations of Manual Therapy
  - 4.6.4. Main Techniques of Manual Therapy
  - 4.6.5. Manual Therapy in Limbs and Joints
  - 4.6.6. Manual Therapy in the Spine
- 4.7. Electrotherapy
  - 4.7.1. Introduction
  - 4.7.2. Principles of Electrotherapy
  - 4.7.3. Tissue Electrostimulation
    - 4.7.3.1. Activation of Peripheral Nerves
    - 4.7.3.2. Application of Electric Stimulation
  - 4.7.4. Pain Control
    - 4.7.4.1. Mechanism of Action
    - 4.7.4.2. Indications of Its Use in Pain Control
    - 4.7.4.3. Main Applications
  - 4.7.5. Muscular Stimulation
    - 4.7.5.1. Mechanism of Action
    - 4.7.5.2. Indications for Use
    - 4.7.5.3. Main Applications
  - 4.7.6. Laser Therapy
  - 4.7.7. Ultrasound
  - 4.7.8. Radiofrequency
- 4.8. Hydrotherapy
  - 4.8.1. Introduction
  - 4.8.2. Physical Properties of Water
  - 4.8.3. Physiological Response to Exercise
  - 4.8.4. Types of Hydrotherapy
    - 4.8.4.1. Aquatic Therapy in Flotation
    - 4.8.4.2. Aquatic Therapy in Semi-Flotation
  - 4.8.5. Main applications of Hydrotherapy
- 4.9. Controlled Exercise
  - 4.9.1. Introduction
  - 4.9.2. Stretching
  - 4.9.3. *Core Training*
  - 4.9.4. Cavalleti and Proprioceptive Bracelets
- 4.10. Rehabilitation Plans
  - 4.10.1. Introduction
  - 4.10.2. Tendo-Ligament Injuries
  - 4.10.2. Muscle Injuries
  - 4.10.3. Bone and Cartilage Lesions

# 05 Methodology

This academic program offers students 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.







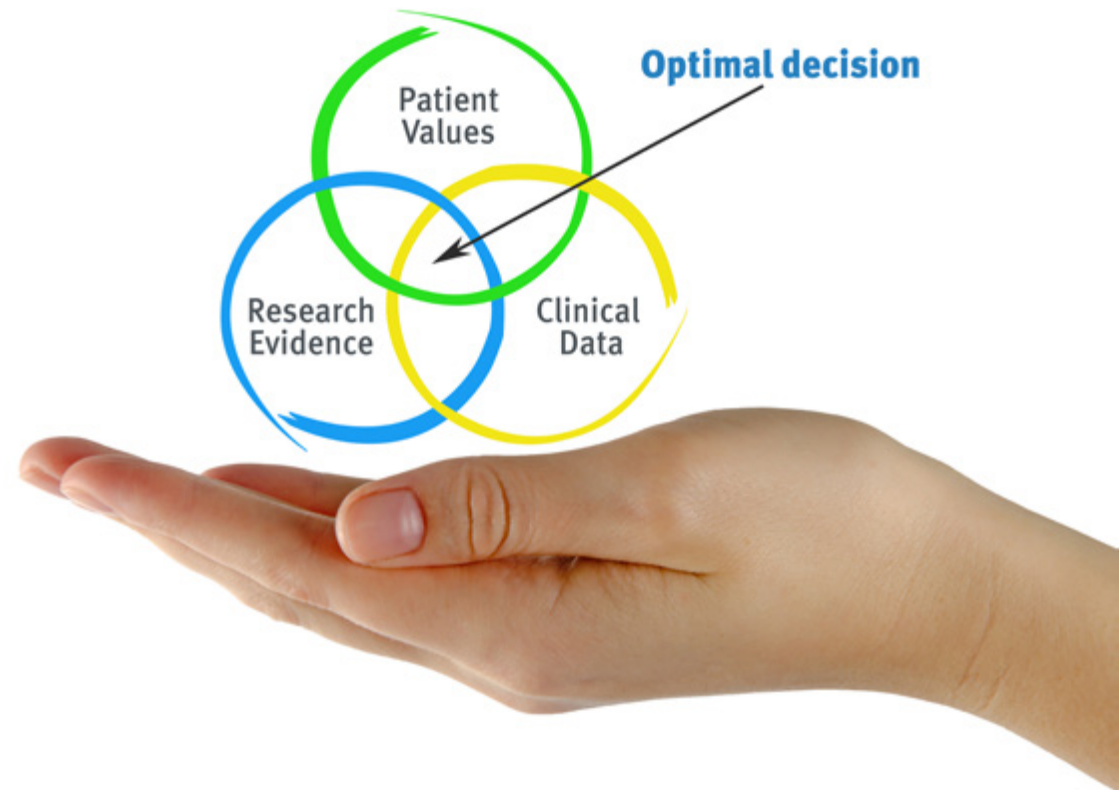
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*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program 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 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, in an attempt to recreate the actual conditions in a 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 manage to assimilate concepts, but also develop their mental capacity through exercises to evaluate real situations and knowledge application
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. 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.



## Relearning Methodology

At TECH we enhance the 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.



*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 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 65,000 veterinarians have been trained with unprecedented success in all clinical specialties, regardless of the surgical load. Our teaching method is developed in a highly demanding environment, where the students have a high socio-economic profile and an average age of 43.5 years.

*Relearning 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 for 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.



### Latest Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current and procedures of veterinary 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 educational system for presenting multimedia content 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 their 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 future difficult decisions.



#### 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 Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.



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*Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork”*



This **Postgraduate Diploma in Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse** contains the most complete and up-to-date scientific on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Diploma**, issued by **TECH Technological University** via tracked delivery\*.

The certificate 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 career evaluation committees.

Title: **Postgraduate Diploma in: Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse**

Official N° of Hours: **600 h.**



\*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.



**Postgraduate Diploma**  
Orthopedic Surgery of Major  
Species and Rehabilitation in  
the Sport Horse

- » Modality: **online**
- » Duration: **6 months**
- » Certificate: **TECH Technological University**
- » Dedication: **16h/week**
- » Schedule: **at your own pace**
- » Exams: **online**

# Postgraduate Diploma

## Orthopedic Surgery of Major Species and Rehabilitation in the Sport Horse

