# Postgraduate Diploma

## Orthopedic Surgery in Large Animals: Ruminants, Camelids, Swine and Equidae

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# Postgraduate Diploma

## Orthopedic Surgery in Large Animals: Ruminants, Camelids, Swine and Equidae

- Modality: **online**
- Duration: **6 months**
- Certificate: **TECH Global University**
- Credits: **24 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/veterinary-medicine/postgraduate-diploma/postgraduate-diploma-orthopedic-surgery-large-animals-ruminants-camelids-swine-equidae

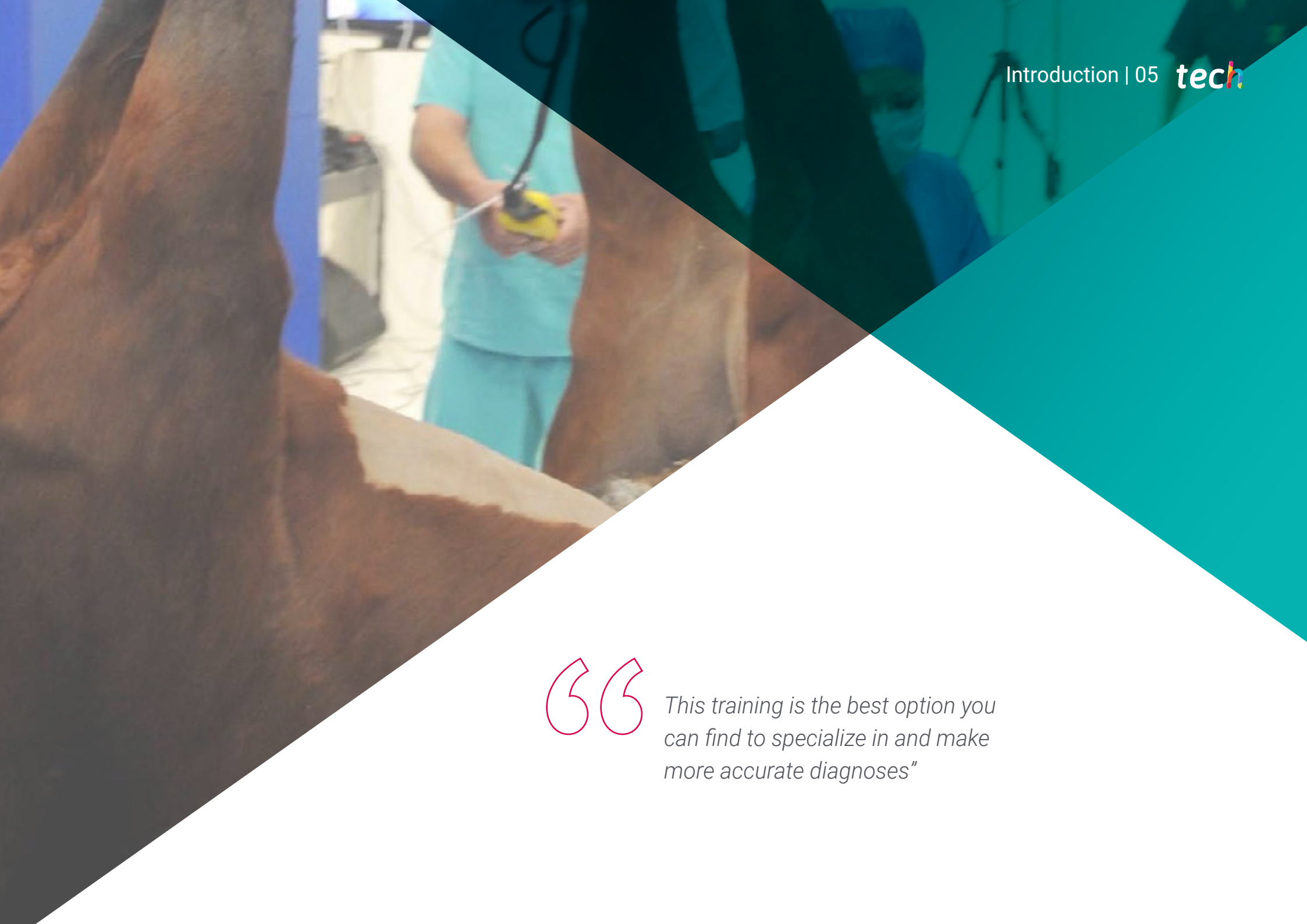
# Index

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.



*This training is the best option you can find to specialize in and make more accurate diagnoses"*

Veterinarians face new challenges every day in treating their patients. The Postgraduate Diploma in Orthopedic Surgery in Large Animals Ruminant, Camelids, Swine and Equidae 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 practically applying 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 in Large Animals: Ruminants, Camelids, Swine and Equidae 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 in Large Animals: Ruminants, Camelids, Swine and Equidae** contains the most complete and up-to-date educational program on the market" The most important features of the program include:

- Practical Cases presented by experts in Orthopedic Surgery in Large Animals: Ruminants, Camelids, Swine and Equidae
- 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
- Latest innovations on Orthopedic Surgery in Large Animals: Ruminants, Camelids, Swine and Equidae
- Practical exercises where self-assessment can be used to improve learning
- Special emphasis on innovative methodologies in Orthopedic Surgery in Large Animals: Ruminants, Camelids, Swine and Equidae
- 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"*

*You will analyze the most frequent anesthetic complications in the Large Animals clinic, particularly those related to orthopedic surgery"*

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

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

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training 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, the professional will have the help of an innovative interactive video system made by recognized experts in Orthopedic Surgery in Large Animals, and with great experience. Ruminants, Camelids, Swine and Equidae who have vast experience in the field.

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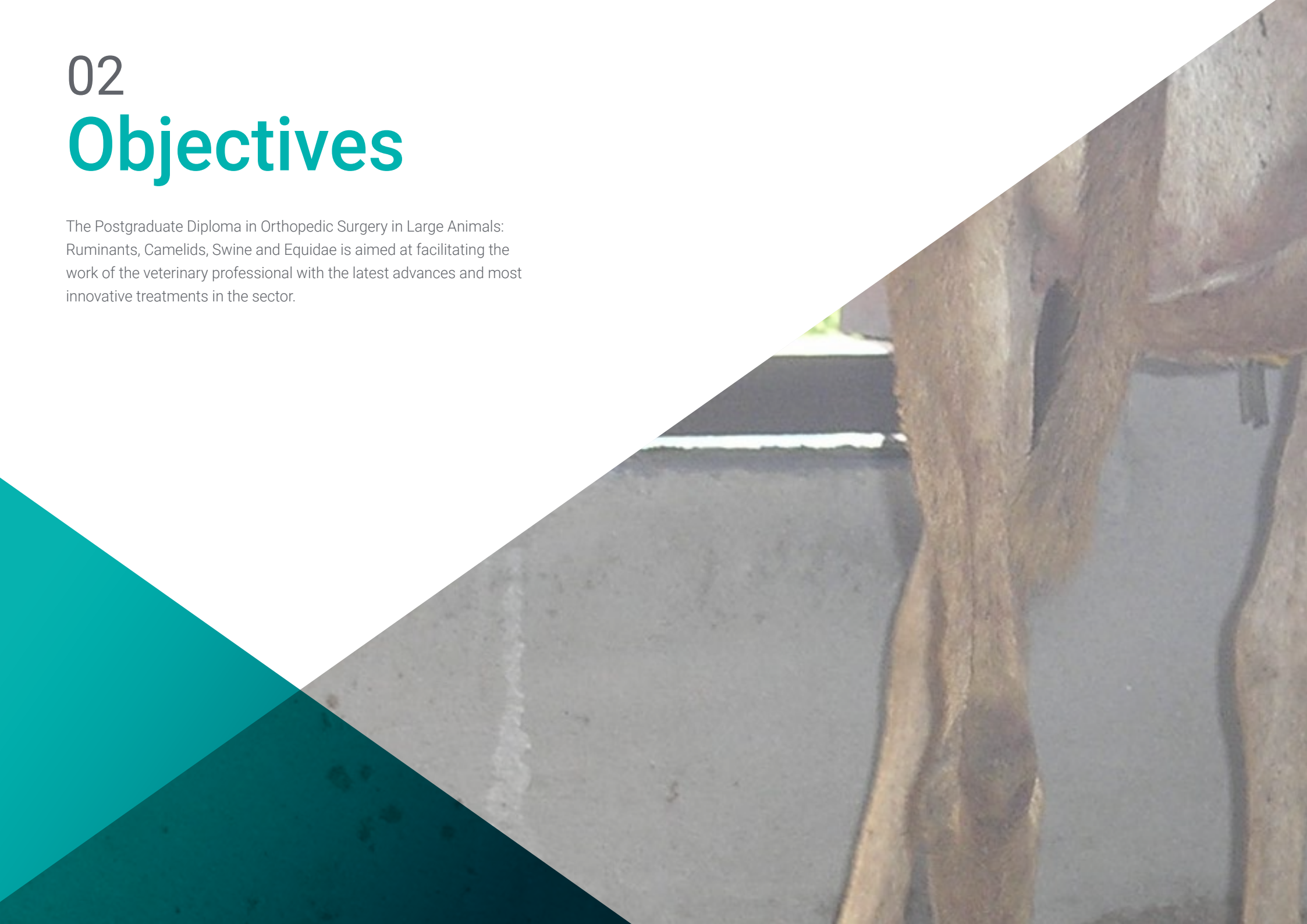
# Objectives

The Postgraduate Diploma in Orthopedic Surgery in Large Animals: Ruminants, Camelids, Swine and Equidae is aimed at facilitating the work of the veterinary professional with the latest advances and most innovative treatments in the sector.



*It is the best option to learn about the latest advances in Orthopedic Surgery in Large Animals: Ruminants, Camelids, Swine and Equidae"*

## General Objectives

- Develop specialized knowledge to correctly plan surgery
- Examine the necessary general pharmacological, anesthesia and material bases to surgically deal with the different pathologies in the rest of the modules
- Analyze the most frequent anesthetic complications in the Large Animals clinic, particularly those related to orthopedic surgery
- Examine the most frequent surgical complications in orthopedic surgery and provide useful protocols to solve or avoid them
- 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 the 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



## Specific Objectives

**Module 1. Preoperative Aspects in Large Animals: Ruminants, Swine and Equidae**

- Analyze the importance of patient acceptance for surgery, surgical risks and pre-surgical evaluation of the patient
- Fundamentals of the basic principles of general anesthesia and sedation for orthopedic surgical procedures
- Recognize the general material necessary for general orthopedic surgery in Large Animals
- Establish correct disinfection protocols for surgical material
- Differentiate the diagnostic imaging techniques available as an intra-surgical aid
- Establish a scheme of work for the preparation of the patient, the surgeon and the surgical field
- Develop postoperative treatment protocols for major orthopedic surgeries in the Large Animals clinic

### Module 2. 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 3. 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 4. 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

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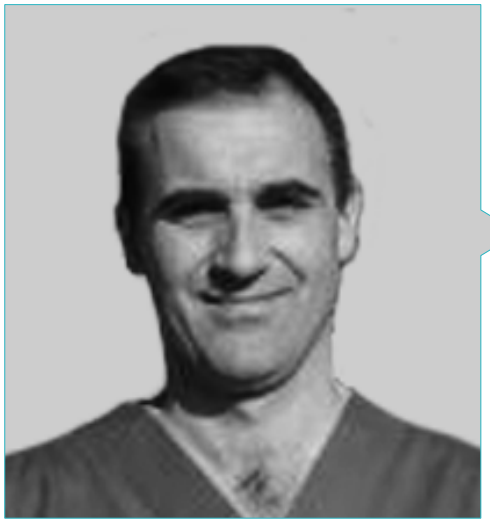
# Course Management

The program includes in its teaching staff renowned experts in Orthopedic Surgery in Large Animals: Ruminants, Camelids, Swine and Equidae who pour the experience of their work into this training. They are world-renowned doctors from different countries with proven theoretical and practical professional experience.

*Our teaching team of the Postgraduate Diploma in Orthopedic Surgery in Large Animals: Ruminants, Camelids, Swine and Equidae will help you achieve success in your profession"*

## Management



### Dr. Muñoz Morán, Juan Alberto

- PhD in Veterinary Science
- Degree in Veterinary Medicine from the Complutense University of Madrid
- Graduate of 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 Department and professor at the Alfonso X el Sabio University, Madrid.
- Surgeon at the Equine Hospital of Aznalcollar, Seville.

## Professors

### Dr. Argüelles Capilla, David

- PhD in Veterinary Medicine from the Autonomous University of Barcelona (UAB)
- Equine Surgeon and Distinguished Research Professor- HCV of the University of Cordoba
- Degree in Veterinary Medicine from the Autonomous University of Barcelona (UAB)
- Master's Degree in Equine Medicine and Surgery from the UAB
- Finnish Equine Veterinary Postgraduate Diploma: Hevossairauksien Eirokoiseläinlääkari.
- Member of RCVS, BEVA and ECVS.
  Speaker at National and International Congresses and Courses on Equine Surgery and Equine Sports Medicine.
- Resident in Sports Medicine and Rehabilitation for the ACVSMR

### Dr. Iglesias García, Manuel

- PhD from University of Alfonso X el Sabio (2017)
- Degree in Veterinary Medicine from the Alfonso X El Sabio University in Madrid (2010)
- Surgeon at the Veterinary Hospital of the University of Extremadura, completing an official residency program at the ECVS (European College of Veterinary Surgery)

### Dr. Quinteros, Diego Daniel

- Diploma from the American College of Veterinary Surgeons
- Latin American Board on Equidae AOVET Foundation (2019-2022)
- Veterinary Surgeon (2015-present) Integral Equine Veterinary Surgeons - Pincen, Cordoba, Argentina

04

# Structure and Content

The structure of the contents has been designed by the best professionals in the field of Orthopedic Surgery in Large Animals: Ruminants, Camelids, Swine and Equidae 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.

*This Postgraduate Diploma in Orthopedic Surgery in Large Animals: Ruminants, Camelids, Swine and Equidae contains the most complete and up-to-date scientific program on the market"*

## **Module 1.** Preoperative Aspects in Large Animals: Ruminants, Swine and Equidae

1.1. Preparation for Surgery: Decision Making, Operation Risks, Patient Considerations
- 1.1.1. Surgical Risk
- 1.1.2. Preoperative Patient Evaluation

1.2. Pharmacological Management for On-Site Procedures
- 1.2.1. Sedation Drugs
- 1.2.2. Continuous Infusions
- 1.2.3. Local Anesthetics
- 1.2.4. Containment Systems, Other Considerations
- 1.2.5. Selection of Procedures to be Performed On Site

1.3. General Anesthesia
- 1.3.1. Inhalation General Anesthesia
- 1.3.2. Intravenous General Anesthesia

1.4. Recovery from General Anesthesia
- 1.4.1. Management During Recovery
- 1.4.2. Factors Affecting Recovery
- 1.4.3. Different Techniques or Installations for Anesthetic Recovery

1.5. General Surgical Technique
- 1.5.1. General Aspects
- 1.5.2. Basic Manipulation of Surgical Instruments
- 1.5.3. Tissue Incision, Blunt Dissection
- 1.5.4. Tissue Retraction and Handling
- 1.5.5. Surgical Irrigation and Suction

1.6. Preparation of the Surgery, Personnel, Patient and Surgical Area
- 1.6.1. Pre-surgery *Planning*
- 1.6.2. Surgical Attire, Preparation of Surgical Equipment: Gloves, Gowns etc.
- 1.6.3. Preparation of the Patient and Surgical Area

1.7. Use of Diagnostic Imaging in Orthopedic Surgery
- 1.7.1. Diagnostic Imaging Techniques
- 1.7.2. Diagnostic Imaging in Preparation for Surgery
- 1.7.3. Use of the Intraoperation Image

1.8. Disinfection of Material, Sterilization
  1.8.1. Cold Disinfection
  1.8.2. Packaging the Material
  1.8.3. Different Autoclaves and Sterilizing Products
1.9. Orthopedic Surgical Instruments in Large Animals
  1.9.1. General Instruments in Orthopedics
  1.9.2. Arthroscopic Instruments
  1.9.3. Osteosynthesis Instruments
1.10. The Operating Room for Large Animals
  1.10.1. Basic Installations
  1.10.2. Importance of the Design of the Operating Room, Asepsis
  1.10.3. Technical Specifications of the Advanced Surgical Equipment

## **Module 2.** Reparation of Fractures in Large Animals Ruminants, Swine and Equidae

2.1. Bone Metabolism and Healing
  2.1.1. Anatomy
  2.1.2. Histological Structure
  2.1.3. Bone Healing
  2.1.4. Biomechanics of the Bone
  2.1.5. Classification of Fractures
2.2. Stabilization of Fractures in an Emergency, Decision Making and Transport
  2.2.1. Clinical Examination of a Patient With a Suspected Fracture
  2.2.2. Stabilization of a Patient With Fractures
  2.2.3. Transport of a Patient With a Fracture
  2.2.4. Stabilization of Fractures, Decision Making and Transport of Ruminants (Cattle, Sheep), Camelids (Camels, Alpacas and Llamas) and Swine (Pigs, Wild Boar)
2.3. External Coaptation
  2.3.1. Placement of Robert Jones Bandages
  2.3.2. Placement of Acrylic Casts
  2.3.3. Splints, Bandages With Casts and Combinations
  2.3.4. Complications of Acrylic Casts
  2.3.5. Removal of Acrylic Casts
2.4. Reducing Fractures, Management of Soft Tissue in the Approach
  2.4.1. Displacements of Fracture Strands
  2.4.2. Objectives of the Fracture Reduction
  2.4.3. Reduction Techniques
  2.4.4. Evaluation of Reduction
  2.4.5. Management of Soft Tissues
  2.4.6. Histology and Blood Supply of the Skin
  2.4.7. Physical Properties and Biomechanics of the Skin
  2.4.8. Planning the Approach
  2.4.9. Incisions
  2.4.10. Wound Closure
2.5. Materials for Implants in Large Animals
  2.5.1. Properties of the Materials
  2.5.2. Stainless Steel
  2.5.3. Titanium
  2.5.4. Material Fatigue
2.6. External Fixators
  2.6.1. Transfixion Casts
  2.6.2. External Fixators
  2.6.3. External Fixators of Ruminants (Cattle, Sheep), Camelids (Camels, Alpacas and Llamas) and Swine (Pigs, Wild Boar)
2.7. Instruments for Inserting an Implant
  2.7.1. Plate Contouring Instruments
  2.7.2. Instruments for Inserting Screws
  2.7.3. Instruments for Inserting Plates
2.8. Implants
  2.8.1. Screws
  2.8.2. Plates
  2.8.3. Placement Techniques
  2.8.4. Functions of Each Implant

2.8.5. Tension Band
2.9. Bone Grafts
2.9.1. Indications
2.9.2. Removal Sites
2.9.3. Complications
2.9.4. Synthetic Bone Grafts
2.10. Complications of Inserting an Implant
2.10.1. Lack of Reduction
2.10.2. Incorrect Number and Size of Implants
2.10.3. Incorect Position of the Implant
2.10.4. Complications Related to the Compression Screw
2.10.5. Complications Related to Plates

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

3. 1. Fractures of Distal Phalanx and Navicular Bone
3.1.1. Distal Phalanx
3.1.1.1. Causes
3.1.1.2. Classification
3.1.1.3. Clinical Signs
3.1.1.4. Treatment
3.1.2. Navicular Bone Fracture
3.1.2.1. Causes
3.1.2.2. Clinical Signs and Diagnosis
3.1.2.3. Treatment
3.1.3. Digital Neurectomy
3.1.4. Bovine Distal Phalanx Fracture
3.1.5. Bovine Pedal Osteitis
3.1.6. Sepsis of the Common Digital Flexor Tendon Sheath in Ruminants
3.1.6.1. Tenosynoviotomy With Resection of Affected Tissue
3.2. Middle Phalanx Fracture
3.2.1. Etiology
3.2.2. Clinical Signs
3.2.3. Diagnosis
3.2.4. Settings
3.2.4.1. Palmar/Plantar Eminence Fractures
3.2.4.1.1. Uni- and Biaxial Fractures
3.2.4.2. Axial Fractures
3.2.4.3. Comminuted Fractures
3.3. Proximal Phalangeal and Proximal Interphalangeal Joints
3.3.1. Osteoarthritis
3.3.2. Subchondral Cystic Lesions
3.3.3. Dislocations and Subluxations
3.3.4. Fracture Configurations
3.3.5. Clinical Signs
3.3.6. Diaphyseal Fractures
3.3.7. Incomplete Sagittal Fractures
3.3.8. Non-Displaced Long Incomplete Sagittal Incomplete Fractures
3.3.9. Displaced Complete Sagittal Fractures
3.3.10. Frontal Fractures
3.3.11. Comminuted Fractures
3.4. Metacarpal- Metatarsal Falangeal Joint
3.4.1. Proximal Sesamoid Bone Fractures
3.4.1.1. Mid-Body
3.4.1.2. Basal
3.4.1.3. Abaxial
3.4.1.4. Sagittal
3.4.1.5. Biaxial
3.4.2. Osteoarthritis
3.4.3. Subchondral Cystic Lesions
3.4.4. Dislocation
3.4.5. Tenosynovitis/Desmitis/Constriction of the Annular Ligament
3.4.5.1. Mass Removal
3.4.5.1. Section of the Annular Ligament

3.4.5.1. Tendon Debridement

3.5. Metacarpal/Metatarsal Bones
- 3.5.1. Lateral Condylar Fractures
  - 3.5.1.1. Signs
  - 3.5.1.2. Diagnosis
  - 3.5.1.3. Emergency Treatment
  - 3.5.1.4. Surgery of Displaced Fractures
  - 3.5.1.5. Surgery of Non-Displaced Fractures
- 3.5.2. Medial Condylar Fractures
  - 3.5.2.1. Open Approach Surgery
  - 3.5.2.2. Minimally Invasive Surgery
  - 3.5.2.3. Post-Operative Care
  - 3.5.2.4. Prognosis
- 3.5.3. Transverse Fractures of the Distal Diaphysis of the Third Metacarpal Bone
  - 3.5.3.1. Non-Surgical Treatment
  - 3.5.3.2. Surgical Treatment
  - 3.5.3.3. Prognosis
- 3.5.4. Diaphyseal Fractures
  - 3.5.4.1. Non-Surgical Management
  - 3.5.4.2. Surgical Management
  - 3.5.4.3. Prognosis
- 3.5.5. Distal Physial Fractures
- 3.5.6. Proximal Articular Fractures
- 3.5.7. Dorsal Cortical Fractures
  - 3.5.7.1. Non-Surgical Management
  - 3.5.7.2. Surgical Treatment
  - 3.5.7.3. Prognosis
- 3.5.8. Metacarpal/Metatarsal Bone Fractures in Ruminants (Cattle, Sheep) and Camelids (Camels, Alpacas and Llamas)

3.6. Rudimentary Metacarpal/Metatarsal Bones
- 3.6.1. Fractures
- 3.6.2. Clinical Examination
- 3.6.3. Diagnosis
- 3.6.4. Proximal Fractures
  - 3.6.4.1. Debridement
  - 3.6.4.2. Internal Fixation
  - 3.6.4.3. Ostectomy
  - 3.6.4.4. Complete Removal
  - 3.6.4.5. Prognosis
  - 3.6.4.6. Complications
- 3.6.5. Mid-Body Fractures
  - 3.6.5.1. Non-Surgical Management
  - 3.6.5.2. Surgical Treatment
  - 3.6.5.3. Prognosis
- 3.6.6. Distal Fractures
  - 3.6.6.1. Non-Surgical Management
  - 3.6.6.2. Surgical Treatment
  - 3.6.6.3. Prognosis
- 3.6.7. Exostosis
  - 3.6.7.1. Pathophysiology
  - 3.6.7.2. Clinical Examination
  - 3.6.7.3. Diagnosis
    - 3.6.7.3.1. Treatment
    - 3.6.7.3.2. Non-Surgical Management
    - 3.6.7.3.3. Surgical Management
  - 3.6.7.4. Prognosis
- 3.6.8. Polydactyly in Ruminants and Equidae
- 3.6.9. Neoplasty

3.7. Tendon and Ligament Pathologies That Can Be Resolved Surgically
- 3.7.1. Carporadic Extensor Carpi Radialis Tendon Rupture
  - 3.7.1.1. Pathophysiology
  - 3.7.1.2. Diagnosis

3.7.1.3. Treatment
3.7.1.4. Prognosis
3.7.2. Biceps Brachii Tendon and Infraspinatus Tendon Pathologies
3.7.2.1. Treatment
3.7.2.1.1. Biceps Tendon Transection
3.7.2.2. Prognosis
3.7.3. Surgery for Suspensory Ligament Desmopathy in the Forelimb
3.7.4. Surgery of Suspensory Ligament Branches
3.7.5. Suspensory Ligament Damage in Ruminants
3.7.6. Tenectomy of the Medial Head of the Deep Digital Flexor Tendon
3.7.7. Surgery for Suspensory Ligament Dismopathy of the Hind Limb
3.7.8. Intermittent Patella Fixation in Equidae
3.7.9. Patella Fixation in Ruminants
3.7.10. Tears or Avulsions of Collateral Ligaments in Ruminants
3.7.11. Cranial Cruciate Ligament Rupture in Ruminants
3.7.11.1. Peri-Surgical Planning
3.7.11.2. Imbrication of Stifle Joint
3.7.11.3. Cranial Cruciate Ligament Replacement
3.7.11.3.1. With Gluteobiceps Tendon
3.7.11.3.2. With Synthetic Material
3.7.11.3.3. Post-Surgery and Prognosis
3.7.12. Damage to Collateral Ligaments of the Stifle
3.7.12.1. Surgery
3.7.12.2. Prognosis
3.7.13. Superficial Digital Flexor Tendon Dislocation
3.8. Muscle Pathologies That Can Be Resolved Surgically
3.8.1. Fibrotic Myopathy
3.8.1.1. Pathophysiology
3.8.1.2. Diagnosis
3.8.1.3. Treatment
3.8.1.4. Prognosis
3.8.2. Arpeo (Equine Reflex Hypertonia)
3.8.2.1. Pathophysiology
3.8.2.2. Diagnosis
3.8.2.3. Treatment
3.8.2.4. Prognosis
3.8.3. Third Peroneal
3.8.3.1. Pathophysiology
3.8.3.2. Diagnosis
3.8.3.3. Treatment
3.8.3.4. Prognosis
3.8.4. Rupture and Avulsion of the Gastrocnemius Muscles
3.8.4.1. Pathophysiology
3.8.4.2. Diagnosis
3.8.4.3. Treatment
3.8.4.4. Prognosis
3.8.5. Aerophagia
3.8.5.1. Pathophysiology
3.8.5.2. Diagnosis
3.8.5.3. Treatment
3.8.5.4. Prognosis
3.8.6. Spastic Paresis
3.9. Arthrodesis
3.9.1. Equine Distal Interphalangeal Joint
3.9.2. Arthrodesis of the Distal Bovine Interphalangeal Joint
3.9.3. Proximal Interphalangeal Joint
3.9.4. Metacarpal/Metatarsophalangeal Joint
3.9.5. Of the Carpus
3.9.6. Of the Shoulder
3.9.7. Of Distal Tarsal Joints
3.9.8. Talocalcaneal
3.10. Laminitis and Amputations in Ruminants, Swine and Equidae
3.10.1. Laminitis
3.10.1.1. Deep Digital Flexor Tendon Tenotomy



3.10.1.1.1. At Pastern Level
3.10.1.1.2. At Mid Metacarpal-Metatarsal Level
3.10.1.2. Prognosis
3.10.2. Amputations in Ruminants, Swine and Equidae
3.10.2.1. Bovine Digit Amputation
3.10.2.2. Bovine Extra Digit Amputation
3.10.2.3. Tail Amputation
3.10.2.4. Limb Amputation
3.10.2.5. Specifics in Swine

**Module 4.** Common Orthopedic Surgery Procedures of the Musculoskeletal System in Large Animals: Ruminants, Swine and Equidae Part II

4.1. Carpus
4.1.1. Pathophysiology
4.1.2. Multifragmentary Fractures
4.1.2.1. Pathogenesis
4.1.2.2. Diagnosis
4.1.2.3. Treatment
4.1.3. Accessory Bone Fracture
4.1.3.1. Pathogenesis
4.1.3.2. Diagnosis
4.1.3.3. Treatment
4.1.3.4. Non-Surgical Management
4.1.3.5. Surgical Management
4.1.3.6. Prognosis
4.1.4. Carpal Hygroma
4.1.5. Radial Distal Exostosis

4.1.5.1. Clinical Examination
4.1.5.2. Diagnosis
4.1.5.3. Treatment
4.1.5.3.1. Non-Surgical Management
4.1.5.3.2. Surgical Management
4.1.5.4. Prognosis
4.1.6. Dislocation
4.1.6.1. Pathogenesis
4.1.6.2. Diagnosis
4.1.6.3. Treatment
4.1.6.3.1. Non-Surgical Management
4.1.6.3.2. Surgical Management
4.1.6.4. Prognosis
4.1.7. Coronation
4.1.7.1. Pathogenesis
4.1.7.2. Diagnosis
4.1.7.3. Treatment
4.1.8. Synovial Osteochondromatosis
4.1.9. Circumscribed Calcinosis
4.1.9.1. Pathophysiology
4.1.9.2. Diagnosis
4.1.9.3. Treatment
4.1.9.4. Prognosis
4.2. Radio and Ulna
4.2.1. Ulna Fracture
4.2.1.1. Anatomy
4.2.1.2. Pathogenesis.
4.2.1.3. Diagnosis
4.2.1.4. Treatment
4.2.1.4.1. Emergency Stabilization
4.2.1.4.2. Non-Surgical Management
4.2.1.4.3. Surgical Treatment
4.2.1.5. Prognosis
4.2.1.6. Complications
4.2.2. Radius Fractures
4.2.2.1. Anatomy
4.2.2.2. Pathogenesis.
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4.2.2.4. Treatment
4.2.2.4.1. Emergency Stabilization
4.2.2.4.2. Non-Surgical Management
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4.2.3. Radial Osteochondroma
4.2.3.1. Pathogenesis
4.2.3.2. Diagnosis
4.2.3.3. Treatment
4.2.3.4. Prognosis
4.2.4. Subchondral Cystic Lesions
4.2.5. Enostosis-Like Lesions
4.3. Humerus Fractures
4.3.1. Anatomy
4.3.2. Greater Tubercle Fracture
4.3.2.1. Diagnosis
4.3.2.2. Treatment
4.3.2.2.1. Non-Surgical Management
4.3.2.2.2. Surgical Management
4.3.2.3. Prognosis
4.3.3. Fracture of the Deltoid Tuberosity
4.3.3.1. Diagnosis
4.3.3.2.Tratamiento

4.3.3.3. Prognosis
4.3.4. Stress Fractures
4.3.4.1. Diagnosis
4.3.4.2. Treatment
4.3.4.3. Prognosis
4.3.5. Physiological Fractures
4.3.6. Diaphyseal Fractures
4.3.6.1. Diagnosis
4.3.6.2. Treatment
4.3.6.2.1. Non-Surgical Management
4.3.6.2.2. Surgical Treatment
4.3.6.3. Prognosis
4.3.7. Supraglenoid Tubercle Fractures
4.3.7.1. Treatment
4.3.7.1.1. Fragment Removal
4.3.7.1.2. Internal Fixation
4.3.7.2. Prognosis
4.4. Tarsus
4.4.1. Osteoarthritis of the Distal Intertarsal Joints
4.4.1.1. Surgical Treatment
4.4.1.2. Post-Operative Care
4.4.1.3. Prognosis
4.4.2. Osteoarthritis of Talocalcaneal Joint
4.4.3. Fractures of the Distal Tibia
4.4.4. Talus Bone
4.4.4.1. Trochlear Ridges
4.4.4.2. Sagittal Fractures
4.4.5. Calcaneus
4.4.5.1. Chip Fractures of the Heel Pad
4.4.6. Small Tarsal Bone Fractures
4.4.7. Tarsal Hygroma in Ruminants
4.5. Tibia and Femorotibiorotullary Joint
4.5.1. Enostosis-Like Lesions
4.5.2. Stress Fractures
4.5.2.1. Etiology
4.5.2.2. Signs
4.5.2.3. Diagnosis
4.5.2.4. Treatment
4.5.3. Tibial Fissures
4.5.3.1. Clinical Signs and Diagnosis
4.5.3.2. Treatment
4.5.4. Proximal Physeal Fractures
4.5.4.1. Clinical Signs and Diagnosis
4.5.4.2. Treatment
4.5.4.3. Post-Operative Care
4.5.4.4. Complications
4.5.4.5. Prognosis
4.5.5. Diaphyseal Fractures
4.5.5.1. Clinical Signs and Diagnosis
4.5.5.2. Treatment
4.5.5.3. Post-Operative Care
4.5.5.4. Complications
4.5.5.5. Prognosis
4.5.6. Distal Physial Fractures
4.5.7. Tibial Ridge Fractures
4.5.8. Stifle
4.5.8.1. Patella Fractures
4.5.8.2. Subchondral Cystic Lesions
4.5.8.2.1. Transcondylar Screw

4.6. Femur and Pelvis
- 4.6.1. Head and Neck Fractures
- 4.6.2. Third Trochanter Fractures
- 4.6.3. Diaphysis Fractures
- 4.6.4. Distal Fractures
  - 4.6.4.1. Prognosis
- 4.6.5. Pelvis Fractures
  - 4.6.5.1. Clinical Signs
  - 4.6.5.2. Diagnosis
  - 4.6.5.3. Treatment
  - 4.6.5.4. Of the Coxal Tuberosity
    - 4.6.5.4.1. Clinical Signs
    - 4.6.5.4.2. Diagnosis
    - 4.6.5.4.3. Treatment
  - 4.6.5.5. Of the Wing of the Ileum
  - 4.6.5.6. Of the Body of the Ileum
  - 4.6.5.7. Pubis and Ischium
  - 4.6.5.8. Acetabulum

4.7. Luations and Subluxations in Ruminants and Equidae
- 4.7.1. Distal Interphalangeal Joint
- 4.7.2. Proximal Interphalangeal Joint
- 4.7.3. Metacarpal/ Metatarsal Falangeal Joint
- 4.7.4. Carpus
- 4.7.5. Scapulohumeral Joint
- 4.7.6. Coxofemoral Joint
- 4.7.7. Dorsal Defect of the Patella
- 4.7.8. Lateral Patella Dislocation in Equidae
- 4.7.9. Of Patella in Calves and Small Ruminants
  - 4.7.9.1. Lateral Capsule Imbrication
  - 4.7.9.2. Transposition of Tibial Tuberosity
  - 4.7.9.3. Sulcoplasty
- 4.7.10. Of the Tarsal Joint

4.8. Head
- 4.8.1. Temporomandibular Joint
  - 4.8.1.1. Condylectomy
- 4.8.2. Craniomaxillofacial Fractures
  - 4.8.2.1. Incisors, Mandible and Premaxillary
    - 4.8.2.1.1. Diagnosis
    - 4.8.2.1.2. Surgical Management
    - 4.8.2.1.3. Post-Operative
- 4.8.3. Fractures of the Skull and Paranasal Sinuses
  - 4.8.3.1. Clinical Signs and Diagnosis
  - 4.8.3.2. Treatment
  - 4.8.3.3. Post-Operative Care
  - 4.8.3.4. Complications
  - 4.8.3.5. Prognosis
- 4.8.4. Periorbital Fractures
  - 4.8.4.1. Clinical Signs and Diagnosis
  - 4.8.4.2. Treatment
  - 4.8.4.3. Post-Operative Care
  - 4.8.4.4. Complications
  - 4.8.4.5. Prognosis
- 4.8.5. Paranasal Sinus Fistulas
- 4.8.6. Dehorning
  - 4.8.6.1. Indications
  - 4.8.6.2. Techniques
  - 4.8.6.3. Complications
- 4.8.7. Frontal Sinus Trepanation in Ruminants
  - 4.8.7.1. Indications
  - 4.8.7.2. Anatomy
  - 4.8.7.3. Clinical Signs
  - 4.8.7.4. Technique
  - 4.8.7.5. Postoperative Care and Complications
- 4.8.8. Mandibular, Premaxillary and Maxillary Rostral Resection

4.8.8.1. Treatment
4.8.8.2. Post-Operative Care
4.8.8.3. Complications
4.8.8.4. Prognosis
4.8.9. Wry Nose
4.8.9.1. Treatment
4.8.9.2. Post-Operative Care
4.8.9.3. Complications
4.8.9.4. Prognosis
4.8.10. Upper and Lower Prognathism
4.8.10.1. Treatment
4.8.10.2. Post-Operative Care
4.8.11. Suture Periostitis
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4.9. Spinal Column Surgery in Equidae
4.9.1. Considerations of the Patient and Operating Room
4.9.2. Approaches
4.9.3. Incisions Sutures
4.9.4. Anesthetic Recovery
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4.9.6. Cervical Fractures
4.9.6.1. Atlas and Axis
4.9.6.2. Subluxation and Atlantoaxial Dislocation
4.9.6.3. From C3 to C7
4.9.7. Thoracolumbar Fractures
4.9.7.1. Dorsal Spinal Processes
4.9.7.2. Vertebral Bodies
4.9.8. Traumatic Sacral Injury
4.9.9. Traumatic Coccygeal Injury
4.9.10. Crushed Tail Head Syndrome
4.9.11. Developmental Diseases
4.9.11.1. Cervical Vertebral Stenotic Spinal Myelopathy
4.9.11.1.1. Surgical Treatment
4.9.11.1.1.1. Intervertebral Fusion
4.9.11.1.1.2. Laminectomy
4.9.11.1.2. Complications
4.9.11.2. Occipitoatlantoaxial Malformation
4.9.11.3. Atlantoaxial Subluxation
4.9.11.4. Atlantoaxial Instability
4.10. Neurosurgery
4.10.1. Cerebral Trauma Surgery
4.10.2. Peripheral Nerve Surgery
4.10.2.1. General Surgical Repair Techniques
4.10.2.2. Suprascapular and Axillary Nerve Damage
4.10.2.2.1. Treatment
4.10.2.2.2. Non-Surgical Management
4.10.2.2.3. Decompression of the Scapular Nerve
4.10.2.2.4. Prognosis

05

# Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**

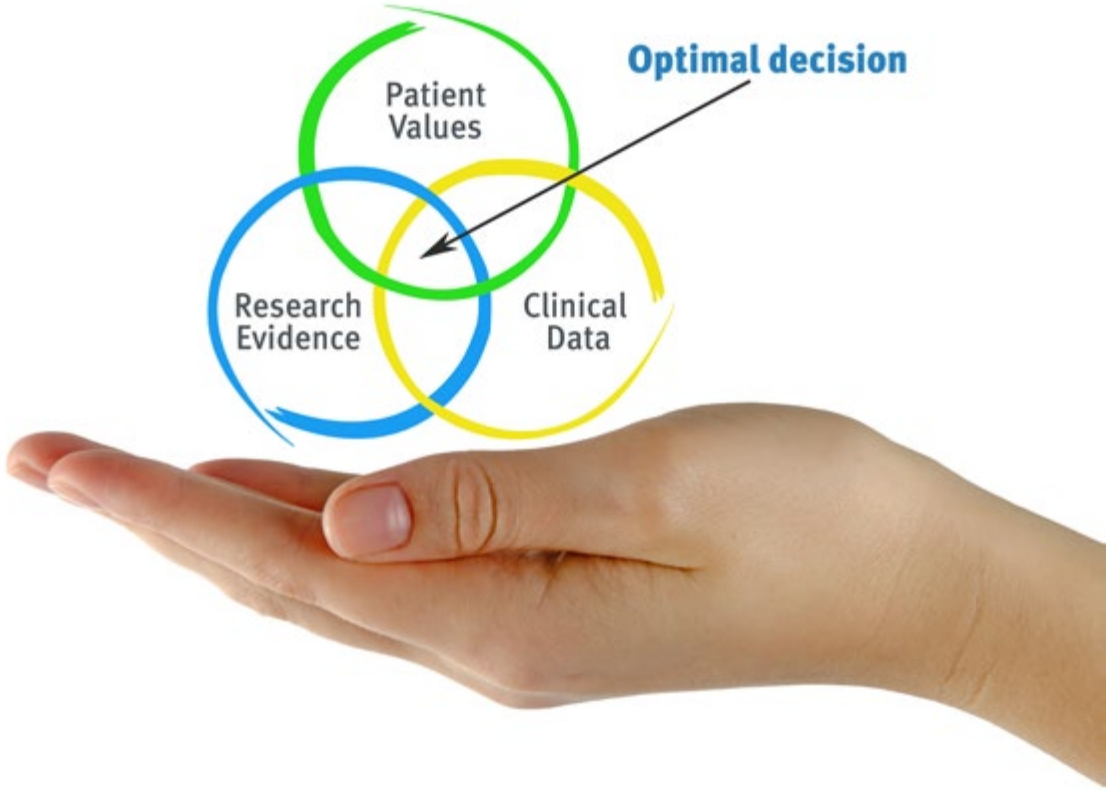
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

*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.

*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:**

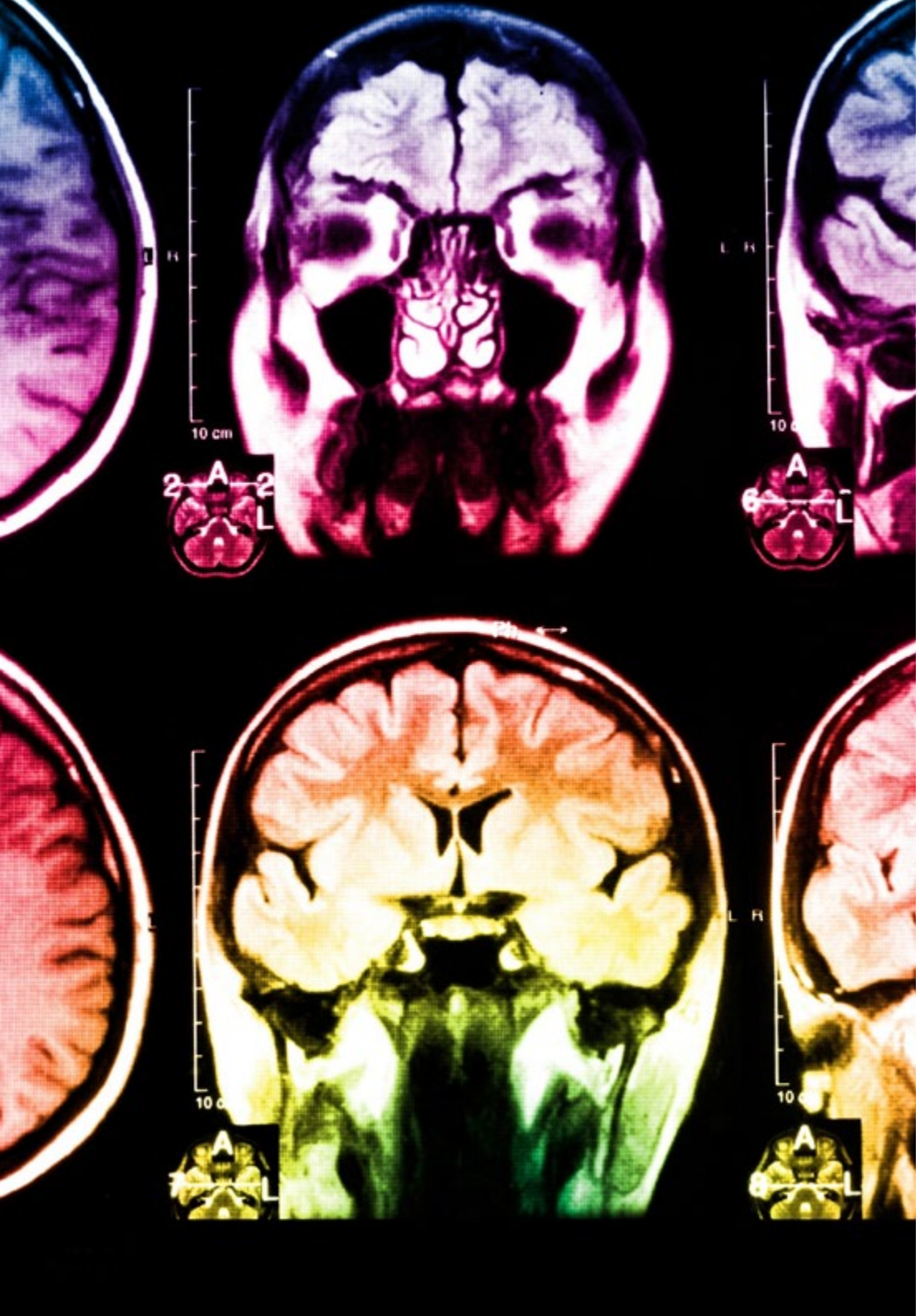
1. Veterinarians who follow this method not only manage to assimilate concepts, but also develop their mental capacity through exercises to evaluate real situations and knowledge application
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real 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.

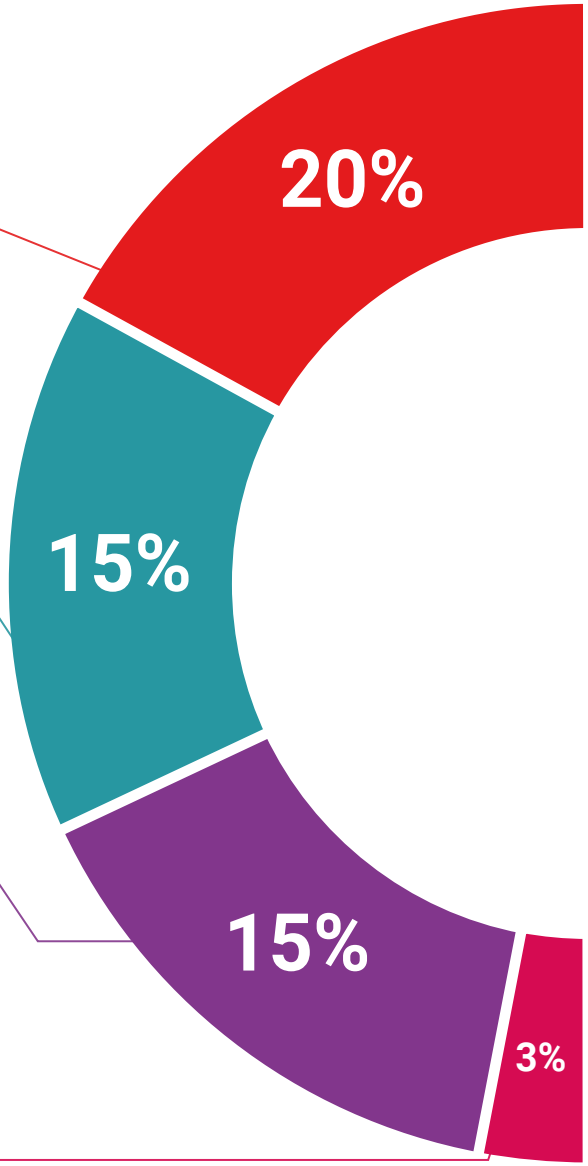
### Interactive Summaries

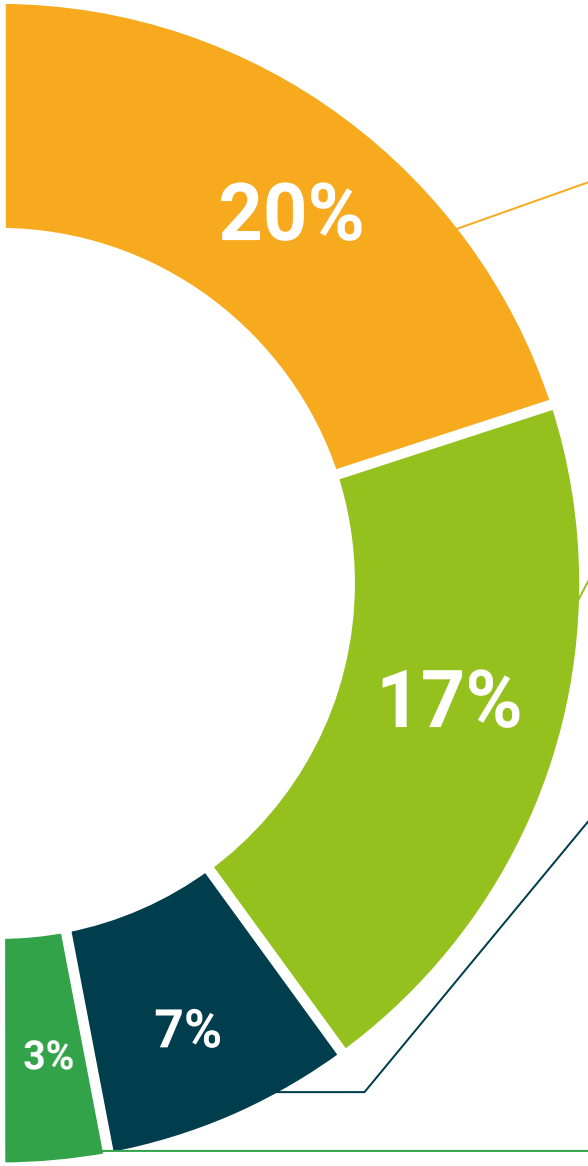
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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 in Large Animals: Ruminants, Camelids, Swine and Equidae guarantees you, in addition to the most rigorous and up-to-date training, access to a Postgraduate Diploma issued by TECH Global University.

*Successfully complete this training and receive your university qualification without travel or laborious paperwork"*

This program will allow you to obtain your **Postgraduate Diploma in Orthopedic Surgery in Large Animals: Ruminants, Camelids, Swine and Equidae** endorsed by **TECH Global University**, the world's largest online university.

**TECH Global University** is an official European University publicly recognized by the Government of Andorra (***official bulletin***). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

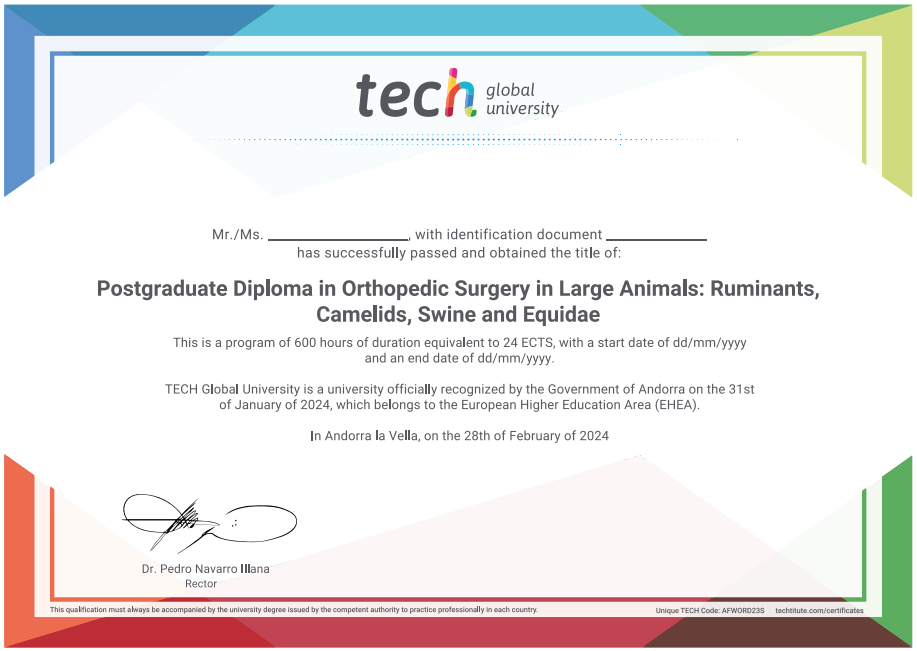
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Diploma in Orthopedic Surgery in Large Animals: Ruminants, Camelids, Swine and Equidae**

Modality: **online**

Duration: **6 months**

Accreditation: **24 ECTS**


tech global university

Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

**Postgraduate Diploma in Orthopedic Surgery in Large Animals: Ruminants, Camelids, Swine and Equidae**

This is a program of 600 hours of duration equivalent to 24 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country.

Unique TECH Code: AFWORD23S techtitute.com/certificates

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

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# Postgraduate Diploma

## Orthopedic Surgery in Large Animals: Ruminants, Camelids, Swine and Equidae

- Modality: **online**
- Duration: **6 months**
- Certificate: **TECH Global University**
- Credits: **24 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

# Postgraduate Diploma

## Orthopedic Surgery in Large Animals: Ruminants, Camelids, Swine and Equidae

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