

# Professional Master's Degree Traumatology and Orthopedic Surgery in Large Animals





## Professional Master's Degree Traumatology and Orthopedic Surgery in Large Animals

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/veterinary-medicine/master/traumatology-orthopedic-surgery-large-animals](http://www.techtute.com/us/veterinary-medicine/master/traumatology-orthopedic-surgery-large-animals)

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# 01

# Introduction

Today, veterinary specialization is essential. Specialized and advanced knowledge, developed in this program in Traumatology and Orthopedic Surgery in Large Animals: Ruminants (Cattle, Sheep), Camelids (Camels, Alpacas, Llamas), Swine (Pigs, Wild Boars) and Equidae (Horses, Donkeys and Mules), will provide the student with a solid and up-to-date specialization that will allow them to perform their functions with the guarantees of a specialist.

Clients assume that the professionals working in this field have the necessary skills and training to provide a guaranteed service. The range of professional options offered to students with this program, in addition to the reference to their clinical interventions, opens the doors to the teaching sector and the field of academic research.





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*You will learn to establish the indications for the use of different diagnostic imaging techniques for orthopedic problems”*

Veterinarians face new challenges every day in treating their patients. The Professional Master's Degree in Traumatology and Orthopedic Surgery in Large Animals 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 Professional Master's Degree in Traumatology and Orthopedic Surgery in Large Animals has programmed a careful selection of techniques used in the diagnosis and treatment of limping in ruminants (cattle, sheep), camelids (camels, alpacas, llamas), swine (pigs, wild boars) and equidae (horses, donkeys and mules), including the description of musculoskeletal surgery interventions and rehabilitation in those species with which they work

The teaching surgeons of this Professional Master's Degree 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.

All of these elements mentioned above make this Professional Master's Degree a unique specialization program, exclusive and different to all the courses offered in other universities

This **Professional Master's Degree in Traumatology and Orthopedic Surgery in Large Animals** contains the most complete and up-to-date scientific program on the market.

The most important features include:

- ◆ Practical cases presented by experts in Traumatology and Orthopedic Surgery in Large Animals
- ◆ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional development
- ◆ Latest innovations in Traumatology and Orthopedic Surgery in Large Animals
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ Special emphasis on innovative methodologies in Traumatology and Orthopedic Surgery in Large Animals
- ◆ 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 Professional Master's Degree with TECH. It's the perfect opportunity to advance in your veterinary career"*

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*This Professional Master's Degree is the best investment you can make when choosing a refresher program to update your existing knowledge of Traumatology and Orthopedic Surgery in Large Animals”*

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

*Thanks to its online modality, you will be able to study wherever and whenever you want, with the help of professionals in the sector.*

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 learning 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 throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts in Traumatology and Orthopedic Surgery in Large Animals.



# 02 Objectives

The Professional Master's Degree in Traumatology and Orthopedic Surgery in Large Animals is aimed at facilitating the performance of professionals dedicated to Veterinary Medicine with the latest advances and most up-to-date treatments in the sector.







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*Analyze the main musculoskeletal rehabilitation techniques in sport horses”*



## General Objectives

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- ♦ Establish the basic system and procedures in a lameness examination
- ♦ Identify the means available to locate an anatomical site as the cause of a claudication
- ♦ Establish the indications for the use of the different imaging techniques in the presence of an orthopedic problem
- ♦ Examine the main therapeutic options currently available on the market
- ♦ Examine the main pathological entities of the musculoskeletal system
- ♦ Analyze the main lesions of the axial skeleton
- ♦ Define the etiology of palmar hoof pain or podotrochlear pathology
- ♦ Compile the main findings in the diagnosis of bone, joint and soft tissue pathologies
- ♦ Present the different therapeutic options in the management of these pathologies
- ♦ Evaluate the equipment and instruments used in synovial cavity surgery
- ♦ Fundamental knowledge of arthroscopy, tenoscopy and bursoscopy techniques
- ♦ Develop synovial cavity exploration techniques
- ♦ Establish endoscopy as a method of surgical treatment of synovial pathologies
- ♦ Gain fundamental knowledge of musculoskeletal injuries and infections
- ♦ Establish an appropriate methodology for its exploration, diagnosis and treatment.
- ♦ Generate specialized knowledge of the different materials and techniques used for the treatment of these pathologies.
- ♦ Propose therapeutic strategies in wound management alternative to the conventional ones
- ♦ Gain advanced knowledge of the angular deformities, flexural deformities, osteochondrosis, and subchondral cysts
- ♦ Determine the different treatments for angular and flexural deformities
- ♦ Establish an appropriate methodology for the identification, treatment and prognostication of osteochondral lesions
- ♦ Generate specialized knowledge on the etiopathogenesis, identification, treatment and prognosis of subchondral cysts
- ♦ Propose therapeutic strategies to limit the negative consequences of these pathologies
- ♦ Gain advanced knowledge of the angular deformities, flexural deformities, osteochondrosis, and subchondral cysts
- ♦ Determine the different treatments for angular and flexural deformities
- ♦ Establish an appropriate methodology for the identification, treatment and prognostication of osteochondral lesions
- ♦ Generate specialized knowledge on the etiopathogenesis, identification, treatment and prognosis of subchondral cysts
- ♦ Propose therapeutic strategies to limit the negative consequences of these pathologies
- ♦ 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
- ◆ 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. Diagnosis of Lameness in Large Animals: Ruminants, Swine and Equidae

- ♦ Specialize the student in the collection of essential data to obtain a complete anamnesis
- ♦ Differentiate between the different conformations that are predisposed to developing injuries in the musculoskeletal system
- ♦ Recognize the symptoms presented by a patient with thoracic limb claudication
- ♦ Recognize the symptoms presented by a patient with pelvic limb claudication
- ♦ Interpret the results of local or regional anesthesia as diagnostic tools
- ♦ Generate criteria that allows for the appropriate selection of imaging diagnostic techniques in each case
- ♦ Assess in detail the indications and considerations of each pharmacological group in the therapeutic management of a musculoskeletal injury

### Module 2. Main Musculoskeletal Pathologies in Large Animals: Ruminants, Swine and Equidae

- ♦ Gain specialized knowledge for diagnosing and treating an articular pathology
- ♦ Recognize the symptoms of tendon and ligament injuries
- ♦ Analyze the etiology and pathogenesis of lesions associated with biomechanical maladaptation processes
- ♦ Present the most frequent acute and subclinical myopathies
- ♦ Identify and recognize pathologies of the axial skeleton that are involved in a drop in sports performance
- ♦ Analyze the different differential diagnoses related to podotrochlear pathology and their therapeutic management
- ♦ Examine the different treatment strategies based on biological therapy

### Module 3. Arthroscopy, Bursoscopy and Tenoscopy in Large Animals: Ruminants, Swine and Equidae

- ♦ Develop specialized knowledge of materials used in endoscopy surgery of synovial cavities
- ♦ Specify the indications of endoscopy for the treatment of synovial pathologies
- ♦ Specify the techniques of endoscopic surgery in joint cavities, bursae and synovial sheaths
- ♦ Perform correct endoscopic treatment of synovial pathologies
- ♦ Justify the use of endoscopy in the treatment of joint fractures
- ♦ Expose the possible complications associated with the arthroscopy, bursoscopy and tenoscopy techniques
- ♦ Present the different postoperative care and rehabilitation guidelines

### Module 4. Musculoskeletal Injuries and Infections in Large Animals; Ruminants, Swine and Equidae

- ♦ Develop knowledge of the different phases of skin healing.
- ♦ Specify the different types of wounds that can occur in large animal clinics
- ♦ Indicate the tests to be performed on a patient with a musculoskeletal injury or infection to determine the significance of the injury.
- ♦ Determine the techniques of tissue management, hemostasis, suturing, reconstruction and skin grafting.
- ♦ Set guidelines for the choice of different types of sutures, needles and drains
- ♦ Select the appropriate dressing or bandage for each clinical situation.

- ♦ Expose the importance and application of the fiberglass technique
- ♦ Apply the different therapeutic guidelines in acute and chronic wounds
- ♦ Carry out a correct diagnosis and treatment of synovial and bone infections
- ♦ Specify the use of the different tenorrhaphy techniques
- ♦ Present the different causes of exuberant granulation and its treatment.
- ♦ Apply the different therapeutic guidelines in burns

#### **Module 5. Development Diseases: Angular and Flexural Deformities, Osteochondrosis and Subchondral Cyst in Large Animals: Ruminants, Swine and Equidae**

- ♦ Develop specialized knowledge on the etiopathogenesis of angular deformities, flexural deformities, osteochondrosis and subchondral cysts
- ♦ Carry out a correct diagnosis of the different alterations presented
- ♦ Specify the techniques for delaying and stimulating bone growth used in the surgical treatment of angular deformities
- ♦ Determine the medical treatments and application of resins, splints and orthopedic tools used in the treatment of angular and flexural deformities
- ♦ Specify the demotomy and tenotomy techniques used in the treatment of flexural deformities
- ♦ Establish the specificities in the treatment of deformities according to the age of the patient and the anatomical area affected
- ♦ Determine the prevalence, predisposing factors, diagnosis, localization, treatment and prognosis of osteochondral lesions and subchondral cysts

#### **Module 6. 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 7. 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 8. 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 9. 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 10. 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

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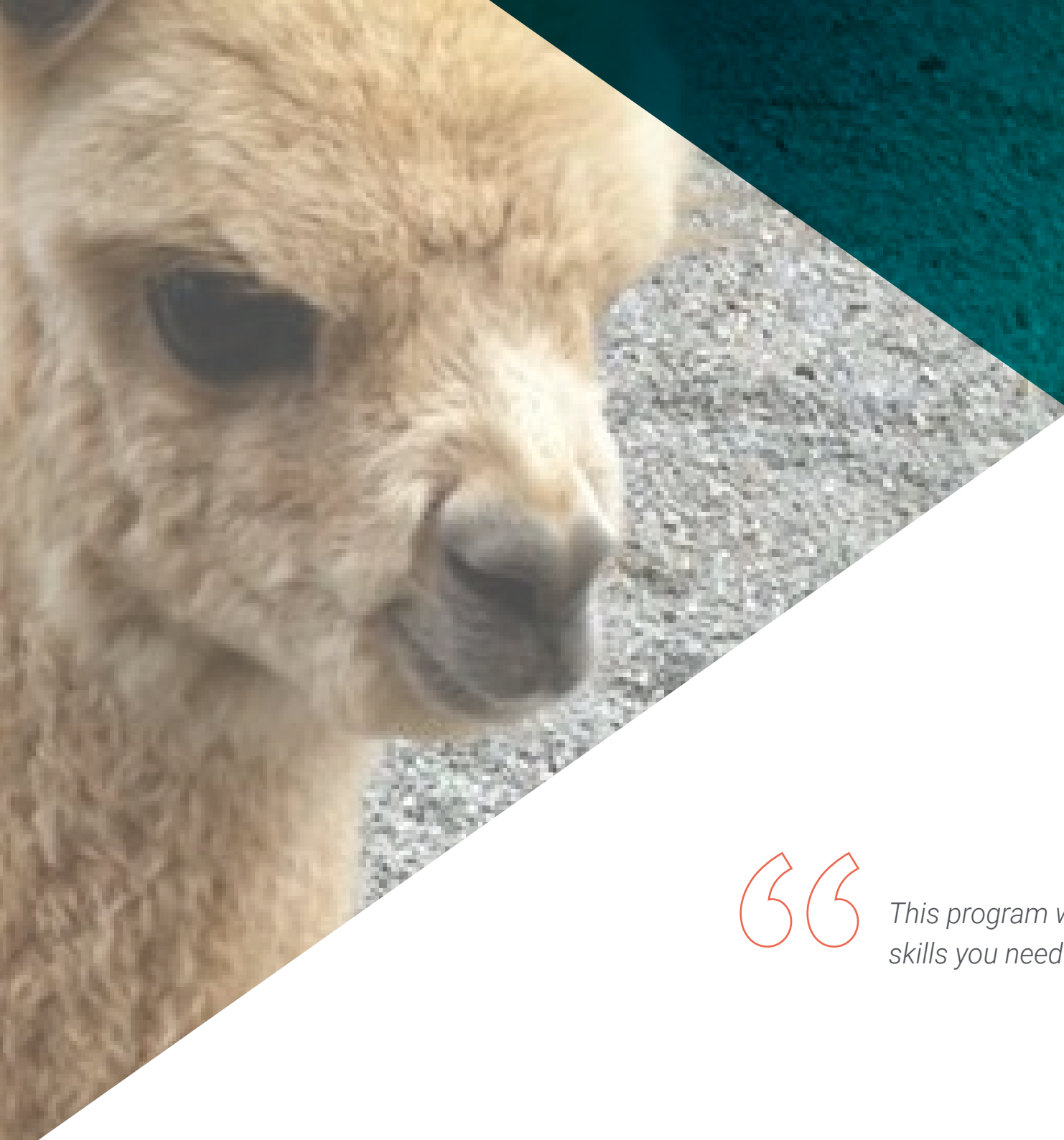
*A unique specialization program  
that will allow you to acquire  
advanced training in this field”*

# 03 Skills

After passing the evaluations of the Professional Master's Degree in Traumatology and Orthopedic Surgery in Large Animals, the professional will have acquired the necessary skills for a quality and up-to-date practice based on the most innovative teaching methodology.







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*This program will help you acquire the skills you need to excel in your daily work"*



## General Skills

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- ♦ Diagnose the different traumatological problems in animals and use the necessary techniques for their treatment
- ♦ Assess different traumatological pathologies using audiovisual methods
- ♦ Perform post-surgical care
- ♦ Utilize the most modern methods of Orthopedic Surgery





## Specific Skills

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- ♦ Interpret the results of local or regional anesthesia as diagnostic tools
- ♦ Analyze the etiology and pathogenesis of lesions associated with biomechanical maladaptation processes
- ♦ Specify the techniques of endoscopic surgery in joint cavities, bursae and synovial sheaths
- ♦ Apply the different therapeutic guidelines in acute and chronic wounds
- ♦ Determine the prevalence, predisposing factors, diagnosis, localization, treatment and prognosis of osteochondral lesions and subchondral cysts
- ♦ Differentiate the diagnostic imaging techniques available as an intra-surgical aid
- ♦ Analyze the biomechanics of the bone and classify the fractures
- ♦ Discuss the surgical techniques 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
- ♦ Analyze the significance of musculoskeletal injuries and the correct recovery needed

04

# Course Management

The teaching staff of the program includes leading experts in Traumatology and Orthopedic Surgery in Large Animals, who contribute their years of experience to this program. They are world-renowned veterinarians from different countries with proven theoretical and practical professional experience.





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*Our teaching team will help you achieve success in your profession both quickly and effectively”*

## Management



### Dr. Muñoz Morán, Juan Alberto

- ♦ PhD in Specialist Veterinary Medicine in Large Animals
- ♦ 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 service and professor at Alfonso X el Sabio University, Madrid
- ♦ Surgeon at the Equine Hospital of Aznalcollar, Seville

## Professors

### Dr. Gómez Lucas, Raquel

- ♦ PhD in Veterinary Specialist in Large Animals from the Complutense University of Madrid
- ♦ Graduate of the American College of Veterinary Sports Medicine and Rehabilitation (ACVSMR).
- ♦ Head of the Sports Medicine and Diagnostic Imaging Service of the Large Animal Area of the Clinical Veterinary Hospital of the Alfonso X el Sabio University since 2005

### Dr. Gómez Lucas, Raquel

- ♦ Doctor of Veterinary Medicine.
- ♦ Degree in Veterinary Medicine from the Complutense University Madrid
- ♦ Graduate of the American College of Veterinary Sports Medicine and Rehabilitation (ACVSMR).
- ♦ Head of the Sports Medicine and Diagnostic Imaging Service of the Large Animal Area of the Clinical Veterinary Hospital of the Alfonso X el Sabio University since 2005

**Dr. Quattrocchio, Tomás Manuel**

- ◆ Veterinarian, Buenos Aires University Center, Argentina. (UNCPBA)
- ◆ Master's Degree in Equine Sport Medicine from the UCO
- ◆ Veterinarian at Ellerston Onasis Polo Club, Scone, NSW, Australia

**Dr. Argüelles Capilla, David**

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

**Dr. López Sanromán, Javier**

- ◆ PhD in Specialist Veterinary Medicine in Large Animal Organisms
- ◆ Degree in Veterinary Medicine (specializing in Medicine and Health)
- ◆ Degree in Veterinary Science. Organization: Faculty of Veterinary Sciences. U.C.M
- ◆ PhD in Recognition of research proficiency. Surgery and Reproduction Program. Department of Animal Pathology II. Faculty of Veterinary Sciences. Complutense University of Madrid
- ◆ European College of Veterinary Surgeons Diploma

**Dr. Drici Khalfi, Amel**

- ◆ Head of Hospitalization, Department of Large Animals, Veterinary University of Pretoria, South Africa
- ◆ Degree in Veterinary Medicine from the University of Argel, Algeria



**Dr. Iglesias García, Manuel**

- ◆ Degree in Veterinary Medicine from the University of Extremadura
- ◆ PhD from University of Alfonso X El Sabio
- ◆ Degree in Veterinary Medicine from the Alfonso X El Sabio University in Madrid

**Dr. Diego Daniel Quinteros Vet. DACVS**

- ◆ Specialist Veterinary Surgeon in Comprehensive Equine Veterinary Services
- ◆ Diploma from the American College of Veterinary Surgeons
- ◆ Latin American Board on Equidae AOVET Foundation (2019-2022)

**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. Bulnes Jiménez, Fernando**

- ◆ Clinical Equine Veterinarian at the University of Córdoba
- ◆ Degree in Veterinary Medicine from the University of Extremadura
- ◆ Training of undergraduate, postgraduate and Master's programs in equine clinical care
- ◆ Active training in large animal surgery for undergraduate students at the University of Extremadura
- ◆ Intern in surgery and internal medicine at the University of Cordoba
- ◆ Three Counties Equine Hospital Rotational Internship
- ◆ Work in equine referral centers and outpatient clinic in UK







**Dr. Jiménez, Carlos**

- ◆ Veterinary Physician
- ◆ Rotational internship at the University of Cordoba, Spain
- ◆ Rotational internship at Anglesey Lodge Equine Hospital, Irlanda

**Dr. Buzón Cuevas, Antonio**

- ◆ PhD in Veterinary Science
- ◆ Degree in Veterinary Medicine from the University of Córdoba
- ◆ Degree in Biological Sciences from the University of Seville
- ◆ Master's Degree in Animal Medicine, Health, and Improvement at the University of Cordoba

**Dr. Sardoy, María Clara**

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

**Dr. Correa, Felipe**

- ◆ PhD in Veterinary Science
- ◆ Degree in Veterinary Medicine from Mayor University, Santiago, Chile
- ◆ Internship in equine surgery at Milton Equine Hospital, Canada
- ◆ Intern in Large Animal Medicine and Surgery, University of Guelph, Canada
- ◆ Master's Degree in Veterinary Science from the University of Austral de Chile
- ◆ Diploma in University Teaching from the Andrés Bello University, Santiago, Chile
- ◆ Master's Degree candidate in Equine Surgery, University of Pretoria, South Africa

05

# Structure and Content

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





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*This Professional Master's Degree in Traumatology and Orthopedic Surgery in Large Animals contains the most complete and up-to-date scientific program on the market”*

## Module 1. Diagnosis of Lameness in Large Animals: Ruminants, Swine and Equidae

- 1.1. Medical History
  - 1.1.1. Basic Information
  - 1.1.2. Current Problem
  - 1.1.3. Importance of Conformation
    - 1.1.3.1. Thoracic Limbs
    - 1.1.3.2. Pelvic Limbs
    - 1.1.3.3. Back
    - 1.1.3.4. Digits
- 1.2. Static Physical Examination
  - 1.2.1. Observation
  - 1.2.2. Palpitation
- 1.3. Dynamic Physical Evaluation
  - 1.3.1. Basic Biomechanical Characteristics
  - 1.3.2. Examination Protocol
  - 1.3.3. Lameness of the Thoracic Limbs
  - 1.3.4. Lameness of the Pelvic Limb
  - 1.3.5. Types of Claudication
  - 1.3.6. Compensatory Lameness
  - 1.3.7. Classification
  - 1.3.8. Flexion Test
- 1.4. Diagnostic Anesthesia
  - 1.4.1. Types of Local Anesthetics
  - 1.4.2. General Considerations
  - 1.4.3. Perineural Anesthesia
  - 1.4.4. Intrasynovial Anesthesia
  - 1.4.5. Recommended Action Protocols
  - 1.4.6. Interpretation of Results
- 1.5. Analysis and Quantification of Movement
  - 1.5.1. Kinetic Study
  - 1.5.2. Kinematic Study

- 1.6. Radiological Examination
  - 1.6.1. General Considerations
  - 1.6.2. Main Findings and Interpretation
- 1.7. Ultrasound Examination
  - 1.7.1. General Considerations
  - 1.7.2. Main Findings and Interpretation
- 1.8. Advanced Diagnostic Imaging Techniques
  - 1.8.1. Magnetic Resonance
  - 1.8.2. Computerized Tomography
  - 1.8.3. Gammagraphy
- 1.9. Introduction to Treatment
  - 1.9.1. Conservative Medicine Therapies
  - 1.9.2. Surgical Management
- 1.10. Clinical Examination in Ruminants, Swine and Camelids
  - 1.10.1. Ruminants (Cattle, Sheep) and Camelids (Camels, Alpacas and Llamas)
  - 1.10.2. Swine (Pigs, Wild Boar)

## Module 2. Main Musculoskeletal Pathologies in Large Animals: Ruminants, Swine and Equidae

- 2.1. Articular Pathology
  - 2.1.1. Classification
  - 2.1.2. Etiology
  - 2.1.3. Main Joints Affected in Sport Horses
  - 2.1.4. Diagnosis
  - 2.1.5. Treatment Management
- 2.2. Maladaptive Bone Pathology
  - 2.2.1. Etiology
  - 2.2.2. Diagnosis
  - 2.2.3. Treatment Management

- 2.3. Tendon Pathology
    - 2.3.1. Etiology
    - 2.3.2. Main Areas Affected in Sport Horses
    - 2.3.3. Diagnosis
    - 2.3.4. Treatment Management
  - 2.4. Ligament Pathology
    - 2.4.1. Etiology
    - 2.4.2. Main Areas Affected in Sport Horses
    - 2.4.3. Diagnosis
    - 2.4.4. Treatment Management
  - 2.5. Muscular Pathology
    - 2.5.1. Etiology and Classification
    - 2.5.2. Diagnosis
    - 2.5.3. Treatment Management
  - 2.6. Head, Dorsum and Pelvis Pathologies
    - 2.6.1. Cervical Pathology
    - 2.6.2. Thoracolumbar Pathologies
    - 2.6.3. Lumbosacral Pathologies
    - 2.6.4. Sacroiliac Pathology
  - 2.7. Podotrochlear Pathologies. Palmar Hoof Pain
    - 2.7.1. Etiology
    - 2.7.2. Clinical Signs
    - 2.7.3. Diagnosis
    - 2.7.4. Treatment Management
  - 2.8. Conservative Therapy and Therapeutic Farriery
    - 2.8.1. Nonsteroidal Anti-Inflammatories
    - 2.8.2. Corticosteroids
    - 2.8.3. Hyaluronic Acid
    - 2.8.4. Glycosaminoglycans and Oral Supplements
    - 2.8.5. Bisphosphonates
    - 2.8.6. Polyacrylamide Gel
    - 2.8.7. Other Treatments
    - 2.8.8. Therapeutic Farriery
  - 2.9. Regenerative Biological Therapy
    - 2.9.1. Use of Mesenchymal Cells
    - 2.9.2. Autologous Conditioned Serum
    - 2.9.3. Autologous Protein Solution
    - 2.9.4. Growth Factors
    - 2.9.5. Platelet-Rich Plasma
  - 2.10. Main Musculoskeletal Pathologies in Ruminants, Camelids and Swine
    - 2.10.1. Ruminants (Cattle, Sheep) and Camelids (Camels, Alpacas and Llamas)
    - 2.10.2. Swine (Pigs, Wild Boar)
- Module 3. Arthroscopy, Bursoscopy and Tenoscopy in Large Animals: Ruminants, Swine and Equidae**
- 3.1. Fundamentals and of the Arthroscopy Technique. Arthroscopy Instruments and Equipment
    - 3.1.1. Start of Veterinary Arthroscopy
    - 3.1.2. Arthroscopy Specific Material
    - 3.1.3. Arthroscopy Technique
      - 3.1.3.1. Patient Preparation
      - 3.1.3.2. Insertion and Position of Instruments
      - 3.1.3.3. Triangulation Technique
      - 3.1.3.4. Arthroscopic Diagnosis and Techniques
  - 3.2. Arthroscopic Indications and Technique for the Metacarpus/Metatarsophalangeal Joint
    - 3.2.1. Indications
    - 3.2.2. Arthroscopic Exploration of the Dorsal Recess and Palmar/Patellar Recess
    - 3.2.3. Arthroscopic Surgery of the Distal Dorsal Recess
      - 3.2.3.1. Fragmentation and Osteochondral Fragments
      - 3.2.3.2. Use of Arthroscopy in the Treatment of Condylar Fractures and First Phalangeal Fractures
      - 3.2.3.3. Villonodular Synovitis
    - 3.2.4. Arthroscopic Recessopalmar/Plantar Surgery
      - 3.2.4.1. Removal of Osteochondral Fragments

- 3.3. Indications and Arthroscopic Technique of the Carpus
  - 3.3.1. Indications
  - 3.3.2. Arthroscopic Exploration of the Antebrachiocarpal Joint (Radiocarpal)
  - 3.3.3. Arthroscopic Examination of the Intercarpal Joint
  - 3.3.4. Arthroscopic Surgery of Antebrachiocarpal and Intercarpal Joints
    - 3.3.4.1. Fragmentation and Osteochondral Fragments
    - 3.3.4.2. Ligament Lacerations
    - 3.3.4.3. Biarticular Fractures
  - 3.3.5. Arthroscopic Examination of the Carpal Joint in Ruminants
- 3.4. Arthroscopic Indications and Technique for the the Distal and Proximal Interphalangeal Joint
  - 3.4.1. Indications
  - 3.4.2. Arthroscopic Exploration of the Distal Interphalangeal Joint
  - 3.4.3. Arthroscopic Surgery of the Distal Interphalangeal Joint
    - 3.4.3.1. Removal of Osteochondral Fragments
    - 3.4.3.2. Subchondral Cysts of the Third Phalange
  - 3.4.4. Arthroscopic Examination of the Proximal Interphalangeal Joint
  - 3.4.5. Arthroscopic Surgery of the Proximal Interphalangeal Joint
  - 3.4.6. Arthroscopic Examination of These Joints in Ruminants
- 3.5. Arthroscopic Indications and Technique for the Tarsocrural Joint
  - 3.5.1. Indications
  - 3.5.2. Arthroscopic Examination of the Dorsal Recess and Palmar Recess
  - 3.5.3. Arthroscopic Surgery of the Dorsal Recess and PalmarPatellar Recess
    - 3.5.3.1. Osteochondritis Dissecans
    - 3.5.3.2. Fractures
    - 3.5.3.3. Collateral Ligament Injuries
  - 3.5.4. Arthroscopic Examination of the Tarsocrural Joint in Ruminants
- 3.6. Arthroscopic Indications and Technique for the Patellofemoral Joint and Femorotibial Joints
  - 3.6.1. Indications
  - 3.6.2. Arthroscopic Examination of the Patellofemoral Joint
  - 3.6.3. Arthroscopic Surgery of the Patellofemoral Joint
    - 3.6.3.1. Osteochondritis Dissecans
    - 3.6.3.2. Fragmentation of the Patella
  - 3.6.4. Arthroscopic Examination of the Femorotibial Joints
  - 3.6.5. Arthroscopic Surgery of the Femorotibial Joints
    - 3.6.5.1. Cystic Lesions
    - 3.6.5.2. Articular Cartilage Injuries
    - 3.6.5.3. Fractures
    - 3.6.5.4. Cruciate Ligament Injuries
    - 3.6.5.5. Meniscal Injuries
  - 3.6.6. Arthroscopic Exploration of the Patellofemoral Joint and Femorotibial Joints in Ruminants
- 3.7. Indications and Arthroscopic Technique of the Elbow, Scapulohumeral and Coxofemoral Joints
  - 3.7.1. Indications
  - 3.7.2. Exploration
  - 3.7.3. Scapulohumeral Osteochondrosis
  - 3.7.4. Fractures and Osteochondrosis Dissecans of the Elbow
  - 3.7.5. Soft Tissue and Osteocartilaginous Lesions of the Coxofemoral Joint
- 3.8. Indications and Arthroscopic Technique of the Flexor Digital Sheath, Carpal and Tarsal Canal
  - 3.8.1. Indications
  - 3.8.2. Exploration
  - 3.8.3. Tenoscopic Surgery
    - 3.8.3.1. Diagnosis and Debridement of Tendon Lacerations
    - 3.8.3.2. Demotomy of Palmar/Plantar Annular Ligament
    - 3.8.3.3. Excision of Osteochondromas and Exostoses
    - 3.8.3.4. Removal of the Accessory Ligament of the SDFT

- 3.9. Indications and Arthroscopic Technique of the Navicular, Calcaneal, and Bicipital Bursae
  - 3.9.1. Indications
  - 3.9.2. Examinations
  - 3.9.3. Bursoscopic Surgery
    - 3.9.3.1. Laceration at the Calcaneal Insertion of SDFT
    - 3.9.3.2. Fragmentation of the Calcaneal Tuberosity
    - 3.9.3.3. Traumatic Bicipital Bursitis
    - 3.9.3.4. Penetrating Injuries of the Podotrochlear Bursa
    - 3.9.3.5. Lacerations of the SDFT in the Podotrochlear Bursa
- 3.10. Post-Operative Care, Complications and Rehabilitation Plans
  - 3.10.1. Post-Operative Care
  - 3.10.2. Complications Associated with Synovial Endoscopy Techniques
  - 3.10.3. Postoperative Rehabilitation Plans

#### Module 4. Musculoskeletal Injuries and Infections in Large Animals: Ruminants, Swine and Equidae

- 4.1. Exploration and Wound Types
  - 4.1.1. Anatomy
  - 4.1.2. Initial Assessment, Emergency Treatment
  - 4.1.3. Wound Classification
  - 4.1.4. Wound Healing Process
  - 4.1.5. Factors Influencing Wound Infection and Wound Healing
  - 4.1.6. Primary and Secondary Intention Wound Healing
  - 4.1.7. Particularities in Ruminants and Swine
- 4.2. Tissue Management, Hemostasis and Suture Techniques
  - 4.2.1. Incision and Tissue Dissection
  - 4.2.2. Hemostasis
    - 4.2.2.1. Mechanical Hemostasis
    - 4.2.2.2. Ligatures
    - 4.2.2.3. Tourniquet
    - 4.2.2.4. Electrocoagulation
    - 4.2.2.5. Chemical Hemostasis
  - 4.2.3. Tissue Management, Irrigation and Suctioning
- 4.3. Suturing Materials and Techniques
  - 4.3.1. Materials Used
    - 4.3.1.1. Instruments
    - 4.3.1.2. Suture Material Selection
    - 4.3.1.3. Needles
    - 4.3.1.4. Drainages
  - 4.3.2. Approaches to Wound Suturing
  - 4.3.3. Suture Patterns
- 4.4. Acute Wound Repair
  - 4.4.1. Wound Treatment Medication
  - 4.4.2. Debriding
  - 4.4.3. Hoof Wounds
  - 4.4.4. Emphysema Secondary to Wounds
- 4.5. Repair and Management of Chronic and/or Infected Wounds
  - 4.5.1. Particularities of Chronic and Infected Wounds
  - 4.5.2. Causes of Chronic Wounds
  - 4.5.3. Management of Severely Contaminated Wounds
  - 4.5.4. Laser Benefits
  - 4.5.5. Larvotherapy
  - 4.5.6. Cutaneous Fistulas Treatment
- 4.6. Management and Repair of Synovial Wounds, Joint Lavage and Phytitis
  - 4.6.1. Diagnosis
  - 4.6.2. Treatment
    - 4.6.2.1. Systemic and Local Antibiotic Therapy
    - 4.6.2.2. Types of Joint Lavage
    - 4.6.2.3. Analgesia
  - 4.6.3. Phytitis
    - 4.6.3.1. Diagnosis
    - 4.6.3.2. Treatment
  - 4.6.4. Particularities in Ruminants and Swine

- 4.7. Bandages, Dressings, Topical Treatments and Negative Pressure Therapy
  - 4.7.1. Types and Indications of the Different Types of Bandages and Dressings
  - 4.7.2. Topical Treatment Types
  - 4.7.3. Ozone Therapy
  - 4.7.4. Negative Pressure Therapy
- 4.8 Tendon Lacerations Management and Repair
  - 4.8.1. Diagnosis
  - 4.8.2. Emergency Treatment
  - 4.8.3. Paratendinous Laceration
  - 4.8.4. Tenorrhaphy
  - 4.8.5. Avulsion and Rupture of Tendons in Ruminants
  - 4.8.6. Ligament Lacerations in Ruminants and Swine
- 4.9. Reconstructive Surgery and Skin Grafting
  - 4.9.1. Principles and Techniques of Reconstructive Surgery
  - 4.9.2. Principles and Techniques of Skin Grafts
- 4.10 Treatment of Exuberant Granulation Tissue Sarcoid Burns
  - 4.10.1. Causes of the Appearance of Exuberant Granulation Tissue
  - 4.10.2. Treatment of Exuberant Granulation Tissue
  - 4.10.3. Sarcoid Appearance in Wounds
    - 4.10.3.1. Wound Associated Sarcoid Type
    - 4.10.3.2. Treatment
  - 4.10.4. Burn Treatment

**Module 5. Development Diseases: Angular and Flexural Deformities; Osteochondrosis and Subchondral Cyst in Large Animals: Ruminants, Swine and Equidae**

- 5.1. Angular Deformities Etiopathogenesis
  - 5.1.1. Anatomy
  - 5.1.2. Hormonal Factors
  - 5.1.3. Perinatal and Developmental Factors
- 5.2. Diagnosis and Preserved Treatment of Angular Deformities
  - 5.2.1. Clinical and Radiography Diagnosis
  - 5.2.2. Use of Splints, Resins and Fittings
  - 5.2.3. Use of Shockwaves





- 5.3. Surgical Treatment of Angular Deformities
  - 5.3.1. Bone Growth Stimulation Techniques
  - 5.3.2. Bone Growth Delay Techniques
  - 5.3.3. Corrective Osteotomy
  - 5.3.4. Prognosis
- 5.4. Etiopathogenesis and Diagnosis of Flexural Deformities
  - 5.4.1. Congenital
  - 5.4.2. Acquired
- 5.5. Conservation Treatment of Flexural Deformities
  - 5.5.1. Physiotherapy and Exercise Control
  - 5.5.2. Medical Treatment
  - 5.5.3. Use of Splints and Resins
- 5.6. Surgical Treatment of Flexural Deformities
  - 5.5.1. Distal Interphalangeal Joint
  - 5.5.2. Metacarpal/Metatarsal-Phalangeal Joint
  - 5.5.3. Carpal Joint
  - 5.5.4. Tarsal Joint
- 5.7. Osteochondrosis I
  - 5.7.1. Etiopathogenesis
  - 5.7.2. Diagnosis
  - 5.7.3. Location of Lesions
- 5.8. Osteochondrosis II
  - 5.8.2. Treatment
  - 5.8.3. Prognosis
- 5.9. Subchondral Bone Cyst I
  - 5.9.1. Etiopathogenesis
  - 5.9.2. Diagnosis
  - 5.9.3. Location of Lesions
- 5.10. Subchondral Bone Cyst II
  - 5.10.1. Treatment
  - 5.10.2. Prognosis

## Module 6. Preoperative Aspects in Large Animals: Ruminants, Swine and Equidae

- 6.1. Preparation for Surgery: Decision-Making, Operation Risks, Patient Considerations
  - 6.1.1. Surgical Risk
  - 6.1.2. Preoperative Patient Evaluation
- 6.2. Pharmacological Management for On-Site Procedures
  - 6.2.1. Sedation Drugs
  - 6.2.2. Continuous Infusions
  - 6.2.3. Local Anesthetics
  - 6.2.4. Containment Systems, Other Considerations
  - 6.2.5. Selection of Procedures to be Performed On Site
- 6.3. General Anesthesia
  - 6.3.1. Inhalation General Anesthesia
  - 6.3.2. Intravenous General Anesthesia
- 6.4. Recovery from General Anesthesia
  - 6.4.1. Management During Recovery
  - 6.4.2. Factors Affecting Recovery
  - 6.4.3. Different Techniques or Installations for Anesthetic Recovery
- 6.5. General Surgical Technique
  - 6.5.1. General Aspects
  - 6.5.2. Basic Manipulation of Surgical Instruments
  - 6.5.3. Tissue Incision, Blunt Dissection
  - 6.5.4. Tissue Retraction and Handling
  - 6.5.5. Surgical Irrigation and Suction
- 6.6. Preparation of the Surgery, Personnel, Patient and Surgical Area
  - 6.6.1. Pre-surgery *Planning*
  - 6.6.2. Surgical Attire, Preparation of Surgical Equipment: Gloves, Gowns etc.
  - 6.6.3. Preparation of the Patient and Surgical Area
- 6.7. Use of Diagnostic Imaging in Orthopedic Surgery
  - 6.7.1. Diagnostic Imaging Techniques
  - 6.7.2. Diagnostic Imaging in Preparation for Surgery
  - 6.7.3. Use of the Intraoperation Image

- 6.8. Disinfection of Material, Sterilization
  - 6.8.1. Cold Disinfection
  - 6.8.2. Packaging the Material
  - 6.8.3. Different Autoclaves and Sterilizing Products
- 6.9. Orthopedic Surgical Instruments in Large Animals
  - 6.9.1. General Instruments in Orthopedics
  - 6.9.2. Arthroscopic Instruments
  - 6.9.3. Osteosynthesis Instruments
- 6.10. The Operating Room for Large Animals
  - 6.10.1. Basic Installations
  - 6.10.2. Importance of the Design of the Operating Room, Asepsis
  - 6.10.3. Technical Specifications of the Advanced Surgical Equipment

## Module 7. Reparation of Fractures in Large Animals Ruminants, Swine and Equidae

- 7.1. Bone Metabolism and Healing
  - 7.1.1. Anatomy
  - 7.1.2. Histological Structure
  - 7.1.3. Bone Healing
  - 7.1.4. Biomechanics of the Bone
  - 7.1.5. Classification of Fractures
- 7.2. Stabilization of Fractures in an Emergency, Decision Making and Transport
  - 7.2.1. Clinical Examination of a Patient With a Suspected Fracture
  - 7.2.2. Stabilization of a Patient With Fractures
  - 7.2.3. Transport of a Patient With a Fracture
  - 7.2.4. Stabilization of Fractures, Decision Making and Transport of Ruminants (Cattle, Sheep), Camelids (Camels, Alpacas and Llamas) and Swine (Pigs, Wild Boar)
- 7.3. External Coaptation
  - 7.3.1. Placement of Robert Jones Bandages
  - 7.3.2. Placement of Acrylic Casts
  - 7.3.3. Splints, Bandages With Casts and Combinations
  - 7.3.4. Complications of Acrylic Casts
  - 7.3.5. Removal of Acrylic Casts
- 7.4. Reducing Fractures, Management of Soft Tissue in the Approach
  - 7.4.1. Displacements of Fracture Strands
  - 7.4.2. Objectives of the Fracture Reduction
  - 7.4.3. Reduction Techniques
  - 7.4.4. Evaluation of Reduction
  - 7.4.5. Management of Soft Tissues
  - 7.4.6. Histology and Blood Supply of the Skin
  - 7.4.7. Physical Properties and Biomechanics of the Skin
  - 7.4.8. Planning the Approach
  - 7.4.9. Incisions
  - 7.4.10. Wound Closure
- 7.5. Materials for Implants in Large Animals
  - 7.5.1. Material Properties
  - 7.5.2. Stainless Steel
  - 7.5.3. Titanium
  - 7.5.4. Material Fatigue
- 7.6. External Fixators
  - 7.6.1. Transfixion Casts
  - 7.6.2. External Fixators
  - 7.6.3. External Fixators of Ruminants (Cattle, Sheep), Camelids (Camels, Alpacas and Llamas) and Swine (Pigs, Wild Boar)
- 7.7. Instruments for Inserting an Implant
  - 7.7.1. Plate Contouring Instruments
  - 7.7.2. Instruments for Inserting Screws
  - 7.7.3. Instruments for Inserting Plates
- 7.8. Implants
  - 7.8.1. Screws
  - 7.8.2. Plates
  - 7.8.3. Placement Techniques
  - 7.8.4. Functions of Each Implant
  - 7.8.5. Tension Band

- 7.9. Bone Grafts
  - 7.9.1. Indications
  - 7.9.2. Removal Sites
  - 7.9.3. Complications
  - 7.9.4. Synthetic Bone Grafts
- 7.10. Complications of Inserting an Implant
  - 7.10.1. Lack of Reduction
  - 7.10.2. Incorrect Number and Size of Implants
  - 7.10.3. Incorrect Position of the Implant
  - 7.10.4. Complications Related to the Compression Screw
  - 7.10.5. Complications Related to Plates

## Module 8. Common Orthopedic Surgery Procedures of the Musculoskeletal System in Large Animals: Ruminants, Swine and Equidae Part I

- 8.1. Fractures of Distal Phalanx and Navicular Bone
  - 8.1.1. Distal Phalanx
    - 8.1.1.1. Causes
    - 8.1.1.2. Classification
    - 8.1.1.3. Clinical Signs
    - 8.1.1.4. Treatment
  - 8.1.2. Navicular Bone Fracture
    - 8.1.2.1. Causes
    - 8.1.2.2. Clinical Signs and Diagnosis
    - 8.1.2.3. Treatment
  - 8.1.3. Digital Neurectomy
  - 8.1.4. Bovine Distal Phalanx Fracture
  - 8.1.5. Bovine Pedal Osteitis
  - 8.1.6. Sepsis of the Common Digital Flexor Tendon Sheath in Ruminants
    - 8.1.6.1. Tenosynoviotomy With Resection of Affected Tissue
- 8.2. Middle Phalanx Fracture
  - 8.2.1. Etiology
  - 8.2.2. Clinical Signs
  - 8.2.3. Diagnosis
- 8.2.4. Settings
  - 8.2.4.1. Palmar/Plantar Eminence Fractures
    - 8.2.4.1.1. Uni- and Biaxial Fractures
  - 8.2.4.2. Axial Fractures
  - 8.2.4.3. Comminuted Fractures
- 8.3. Proximal Phalangeal and Proximal Interphalangeal Joints
  - 8.3.1. Osteoarthritis
  - 8.3.2. Subchondral Cystic Lesions
  - 8.3.3. Dislocations and Subluxations
  - 8.3.4. Fracture Configurations
  - 8.3.5. Clinical Signs
  - 8.3.6. Diaphyseal Fractures
  - 8.3.7. Incomplete Sagittal Fractures
  - 8.3.8. Non-Displaced Long Incomplete Sagittal Incomplete Fractures
  - 8.3.9. Displaced Complete Sagittal Fractures
  - 8.3.10. Frontal Fractures
  - 8.3.11. Comminuted Fractures
- 8.4. Metacarpal- Metatarsal Phalangeal Joint
  - 8.4.1. Proximal Sesamoid Bone Fractures
    - 8.4.1.1. Mid-Body
    - 8.4.1.2. Basal
    - 8.4.1.3. Abaxial
    - 8.4.1.4. Sagittal
    - 8.4.1.5. Biaxial
  - 8.4.2. Osteoarthritis
  - 8.4.3. Subchondral Cystic Lesions
  - 8.4.4. Dislocation
  - 8.4.5. Tenosynovitis/Desmitis/Constriction of the Annular Ligament
    - 8.4.5.1. Mass Removal
    - 8.4.5.1. Section of the Annular Ligament
    - 8.4.5.1. Tendon Debridement

- 8.5. Metacarpal/Metatarsal Bones
  - 8.5.1. Lateral Condylar Fractures
    - 8.5.1.1. Signs
    - 8.5.1.2. Diagnosis
    - 8.5.1.3. Emergency Treatment
    - 8.5.1.4. Surgery of Displaced Fractures
    - 8.5.1.5. Surgery of Non-Displaced Fractures
  - 8.5.2. Medial Condylar Fractures
    - 8.5.2.1. Open Approach Surgery
    - 8.5.2.2. Minimally Invasive Surgery
    - 8.5.2.3. Post-Operative Care
    - 8.5.2.4. Prognosis
  - 8.5.3. Transverse Fractures of the Distal Diaphysis of the Third Metacarpal Bone
    - 8.5.3.1. Non-Surgical Treatment
    - 8.5.3.2. Surgical Treatment
    - 8.5.3.3. Prognosis
  - 8.5.4. Diaphyseal Fractures
    - 8.5.4.1. Non-Surgical Treatment
    - 8.5.4.2. Surgical Treatment
    - 8.5.4.3. Prognosis
  - 8.5.5. Distal Physial Fractures
  - 8.5.6. Proximal Articular Fractures
  - 8.5.7. Dorsal Cortical Fractures
    - 8.5.7.1. Non-Surgical Treatment
    - 8.5.7.2. Surgical Treatment
    - 8.5.7.3. Prognosis
  - 8.5.8. Metacarpal/Metatarsal Bone Fractures in Ruminants (Cattle, Sheep) and Camelids (Camels, Alpacas and Llamas)
- 8.6. Rudimentary Metacarpal/Metatarsal Bones
  - 8.6.1. Fractures
  - 8.6.2. Clinical Examination
  - 8.6.3. Diagnosis





- 8.6.4. Proximal Fractures
  - 8.6.4.1. Debridement
  - 8.6.4.2. Internal Fixation
  - 8.6.4.3. Ostectomy
  - 8.6.4.4. Complete Removal
  - 8.6.4.5. Prognosis
  - 8.6.4.6. Complications
- 8.6.5. Mid-Body Fractures
  - 8.6.5.1. Non-Surgical Treatment
  - 8.6.5.2. Surgical Treatment
  - 8.6.5.3. Prognosis
- 8.6.6. Distal Fractures
  - 8.6.6.1. Non-Surgical Treatment
  - 8.6.6.2. Surgical Treatment
  - 8.6.6.3. Prognosis
- 8.6.7. Exostosis
  - 8.6.7.1. Pathophysiology
  - 8.6.7.2. Clinical Examination
  - 8.6.7.3. Diagnosis
    - 8.6.7.3.1. Treatment
    - 8.6.7.3.2. Non-Surgical Treatment
    - 8.6.7.3.3. Surgical Treatment
  - 8.6.7.4. Prognosis
- 8.6.8. Polydactyly in Ruminants and Equidae
- 8.6.9. Neoplasty.

- 8.7. Tendon and Ligament Pathologies That Can Be Resolved Surgically
  - 8.7.1. Carporadic Extensor Carpi Radialis Tendon Rupture
    - 8.7.1.1. Pathophysiology
    - 8.7.1.2. Diagnosis
    - 8.7.1.3. Treatments
    - 8.7.1.4. Prognosis
  - 8.7.2. Biceps Brachii Tendon and Infraspinatus Tendon Pathologies
    - 8.7.2.1. Treatment
      - 8.7.2.1.1. Biceps Tendon Transection
    - 8.7.2.2. Prognosis
  - 8.7.3. Surgery for Suspensory Ligament Desmopathy in the Forelimb
  - 8.7.4. Surgery of Suspensory Ligament Branches
  - 8.7.5. Suspensory Ligament Damage in Ruminants
  - 8.7.6. Tenectomy of the Medial Head of the Deep Digital Flexor Tendon
  - 8.7.7. Surgery for Suspensory Ligament Dismopathy of the Hind Limb
  - 8.7.8. Intermittent Patella Fixation in Equidae
  - 8.7.9. Patella Fixation in Ruminants
  - 8.7.10. Tears or Avulsions of Collateral Ligaments in Ruminants
  - 8.7.11. Cranial Cruciate Ligament Rupture in Ruminants
    - 8.7.11.1. Peri-Surgical Planning
    - 8.7.11.2. Imbrication of Stifle Joint
    - 8.7.11.3. Cranial Cruciate Ligament Replacement
      - 8.7.11.3.1. With the Gluteobiceps Tendon
      - 8.7.11.3.2. With Synthetic Material
      - 8.7.11.3.3. Post-Surgery and Prognosis
  - 8.7.12. Damage to Collateral Ligaments of the Stifle
    - 8.7.12.1. Surgery
    - 8.7.12.2. Prognosis
  - 8.7.13. Superficial Digital Flexor Tendon Dislocation
- 8.8. Muscle Pathologies That Can Be Resolved Surgically
  - 8.8.1. Fibrotic Myopathy
    - 8.8.1.1. Pathophysiology
    - 8.8.1.2. Diagnosis
    - 8.8.1.3. Treatments
    - 8.8.1.4. Prognosis
  - 8.8.2. Arpeo (Equine Reflex Hypertonia)
    - 8.8.2.1. Pathophysiology
    - 8.8.2.2. Diagnosis
    - 8.8.2.3. Treatments
    - 8.8.2.4. Prognosis
  - 8.8.3. Third Peroneal
    - 8.8.3.1. Pathophysiology
    - 8.8.3.2. Diagnosis
    - 8.8.3.3. Treatments
    - 8.8.3.4. Prognosis
  - 8.8.4. Rupture and Avulsion of the Gastrocnemius Muscles
    - 8.8.4.1. Pathophysiology
    - 8.8.4.2. Diagnosis
    - 8.8.4.3. Treatments
    - 8.8.4.4. Prognosis
  - 8.8.5. Aerophagia
    - 8.8.5.1. Pathophysiology
    - 8.8.5.2. Diagnosis
    - 8.8.5.3. Treatments
    - 8.8.5.4. Prognosis
  - 8.8.6. Spastic Paresis
- 8.9. Arthrodesis
  - 8.9.1. Equine Distal Interphalangeal Joint
  - 8.9.2. Arthrodesis of the Distal Bovine Interphalangeal Joint
  - 8.9.3. Proximal Interphalangeal Joint
  - 8.9.4. Metacarpal/Metatarsophalangeal Joint

- 8.9.5. Of the Carpus
- 8.9.6. Of the Shoulder
- 8.9.7. Of Distal Tarsal Joints
- 8.9.8. Talocalcaneal
- 8.10. Laminitis and Amputations in Ruminants, Swine and Equidae
  - 8.10.1. Laminitis
    - 8.10.1.1. Deep Digital Flexor Tendon Tenotomy
      - 8.10.1.1.1. At Pastern Level
      - 8.10.1.1.2. At Mid Metacarpal-Metatarsal Level
    - 8.10.1.2. Prognosis
  - 8.10.2. Amputations in Ruminants, Swine and Equidae
    - 8.10.2.1. Bovine Digit Amputation
    - 8.10.2.2. Bovine Extra Digit Amputation
    - 8.10.2.3. Tail Amputation
    - 8.10.2.4. Limb Amputation
    - 8.10.2.5. Specifics in Swine

## Module 9. Common Orthopedic Surgery Procedures of the Musculoskeletal System in Large Animals: Ruminants, Swine and Equidae Part II

- 9.1. Carpus
  - 9.1.1. Pathophysiology
  - 9.1.2. Multifragmentary Fractures
    - 9.1.2.1. Pathogenesis
    - 9.1.2.2. Diagnosis
    - 9.1.2.3. Treatment
  - 9.1.3. Accessory Bone Fracture
    - 9.1.3.1. Pathogenesis
    - 9.1.3.2. Diagnosis
    - 9.1.3.3. Treatment
    - 9.1.3.4. Non-Surgical Treatment
    - 9.1.3.5. Surgical Treatment
    - 9.1.3.6. Prognosis
  - 9.1.4. Carpal Hygroma
  - 9.1.5. Radial Distal Exostosis
    - 9.1.5.1. Clinical Examination
    - 9.1.5.2. Diagnosis
    - 9.1.5.3. Treatment
      - 9.1.5.3.1. Non-Surgical Treatment
      - 9.1.5.3.2. Surgical Treatment
    - 9.1.5.4. Prognosis
  - 9.1.6. Dislocation
    - 9.1.6.1. Pathogenesis
    - 9.1.6.2. Diagnosis
    - 9.1.6.3. Treatment
      - 9.1.6.3.1. Non-Surgical Treatment
      - Surgical Treatment
    - 9.1.6.4. Prognosis
  - 9.1.7. Coronation
    - 9.1.7.1. Pathogenesis
    - 9.1.7.2. Diagnosis
    - 9.1.7.3. Treatment
  - 9.1.8. Synovial Osteochondromatosis
  - 9.1.9. Circumscribed Calcinosis
    - 9.1.9.1. Pathophysiology
    - 9.1.9.2. Diagnosis
    - 9.1.9.3. Treatments
    - 9.1.9.4. Prognosis
- 9.2. Radio and Ulna
  - 9.2.1. Ulna Fracture
    - 9.2.1.1. Anatomy
    - 9.2.1.2. Pathogenesis.
    - 9.2.1.3. Diagnosis

- 9.2.1.4. Treatment
  - 9.2.1.4.1. Emergency Stabilization
  - 9.2.1.4.2. Non-Surgical Treatment
  - 9.2.1.4.3. Surgical Treatment
- 9.2.1.5. Prognosis
- 9.2.1.6. Complications
- 9.2.2. Radius Fractures
  - 9.2.2.1. Anatomy
  - 9.2.2.2. Pathogenesis.
  - 9.2.2.3. Diagnosis
  - 9.2.2.4. Treatment
    - 9.2.2.4.1. Emergency Stabilization
    - 9.2.2.4.2. Non-Surgical Treatment
    - 9.2.2.4.3. Surgical Treatment
  - 9.2.2.5. Prognosis
  - 9.2.2.6. Complications
- 9.2.3. Radial Osteochondroma
  - 9.2.3.1. Pathogenesis.
  - 9.2.3.2. Diagnosis
  - 9.2.3.3. Treatment
  - 9.2.3.4. Prognosis
- 9.2.4. Subchondral Cystic Lesions
- 9.2.5. Enostosis-Like Lesions
- 9.3. Humerus Fractures
  - 9.3.1. Anatomy
  - 9.3.2. Greater Tubercle Fracture
    - 9.3.2.1. Diagnosis
    - 9.3.2.2. Treatment
      - 9.3.2.2.1. Non-Surgical Treatment
      - 9.3.2.2.2. Surgical Treatment
    - 9.3.2.3. Prognosis
  - 9.3.3. Fracture of the Deltoid Tuberosity
    - 9.3.3.1. Diagnosis
    - 9.3.3.2. Treatment
    - 9.3.3.3. Prognosis
  - 9.3.4. Stress Fractures
    - 9.3.4.1. Diagnosis
    - 9.3.4.2. Treatment
    - 9.3.4.3. Prognosis
  - 9.3.5. Physiological Fractures
  - 9.3.6. Diaphyseal Fractures
    - 9.3.6.1. Diagnosis
    - 9.3.6.2. Treatment
      - 9.3.6.2.1. Non-Surgical Treatment
      - 9.3.6.2.2. Surgical Treatment
    - 9.3.6.3. Prognosis
  - 9.3.7. Supraglenoid Tubercle Fractures
    - 9.3.7.1. Treatment
      - 9.3.7.1.1. Fragment Removal
      - 9.3.7.1.2. Internal Fixation
    - 9.3.7.2. Prognosis
- 9.4. Tarsus
  - 9.4.1. Osteoarthritis of the Distal Intertarsal Joints
    - 9.4.1.1. Surgical Treatment
    - 9.4.1.2. Post-Operative Care
    - 9.4.1.3. Prognosis
  - 9.4.2. Osteoarthritis of Talocalcaneal Joint
  - 9.4.3. Fractures of the Distal Tibia
  - 9.4.4. Talus Bone
    - 9.4.4.1. Trochlear Ridges
    - 9.4.4.2. Sagittal Fractures
  - 9.4.5. Calcaneus
    - 9.4.5.1. Chip Fractures of the Heel Pad



- 9.4.6. Small Tarsal Bone Fractures
- 9.4.7. Tarsal Hygroma in Ruminants
- 9.5. Tibia and Femorotibiorotullary Joint
  - 9.5.1. Enostosis-Like Lesions
  - 9.5.2. Stress Fractures
    - 9.5.2.1. Etiology
    - 9.5.2.2. Signs
    - 9.5.2.3. Diagnosis
    - 9.5.2.4. Treatment
  - 9.5.3. Tibial Fissures
    - 9.5.3.1. Clinical Signs and Diagnosis
    - 9.5.3.2. Treatment
  - 9.5.4. Proximal Physial Fractures
    - 9.5.4.1. Clinical Signs and Diagnosis
    - 9.5.4.2. Treatment
    - 9.5.4.3. Post-Operative Care
    - 9.5.4.4. Complications
    - 9.5.4.5. Prognosis
  - 9.5.5. Diaphyseal Fractures
    - 9.5.5.1. Clinical Signs and Diagnosis
    - 9.5.5.2. Treatment
    - 9.5.5.3. Post-Operative Care
    - 9.5.5.4. Complications
    - 9.5.5.5. Prognosis
  - 9.5.6. Distal Physial Fractures
  - 9.5.7. Tibial Ridge Fractures
  - 9.5.8. Stifle
    - 9.5.8.1. Patella Fractures
    - 9.5.8.2. Subchondral Cystic Lesions
      - 9.5.8.2.1. Transcondylar Screw
- 9.6. Femur and Pelvis
  - 9.6.1. Head and Neck Fractures
  - 9.6.2. Third Trochanter Fractures
  - 9.6.3. Diaphysis Fractures
  - 9.6.4. Distal Fractures
    - 9.6.4.1. Prognosis
  - 9.6.5. Pelvis Fractures
    - 9.6.5.1. Clinical Signs
    - 9.6.5.2. Diagnosis
    - 9.6.5.3. Treatment
    - 9.6.5.4. Of the Coxal Tuberosity
      - 9.6.5.4.1. Clinical Signs
      - 9.6.5.4.2. Diagnosis
      - 9.6.5.4.3. Treatment
    - 9.6.5.5. Of the Wing of the Ileum
    - 9.6.5.6. Of the Body of the Ileum
    - 9.6.5.7. Pubis and Ischium
    - 9.6.5.8. Acetabulum
- 9.7. Luxations and Subluxations in Ruminants and Equidae
  - 9.7.1. Distal Interphalangeal Joint
  - 9.7.2. Proximal Interphalangeal Joint
  - 9.7.3. Metacarpal/ Metatarsal Phalangeal Joint
  - 9.7.4. Carpus
  - 9.7.5. Scapulohumeral Joint
  - 9.7.6. Coxofemoral Joint
  - 9.7.7. Dorsal Defect of the Patella
  - 9.7.8. Lateral Patella Dislocation in Equidae
  - 9.7.9. Of Patella in Calves and Small Ruminants
    - 9.7.9.1. Lateral Capsule Imbrication
    - 9.7.9.2. Transposition of Tibial Tuberosity
    - 9.7.9.3. Sulcoplasty
  - 9.7.10. Of the Tarsal Joint

- 9.8. Head
  - 9.8.1. Temporomandibular Joint
    - 9.8.1.1. Condylectomy
  - 9.8.2. Craniomaxillofacial Fractures
    - 9.8.2.1. Incisors, Mandible and Premaxillary
      - 9.8.2.1.1. Diagnosis
      - 9.8.2.1.2. Surgical Management
      - 9.8.2.1.3. Post-Operative
  - 9.8.3. Fractures of the Skull and Paranasal Sinuses
    - 9.8.3.1. Clinical Signs and Diagnosis
    - 9.8.3.2. Treatment
    - 9.8.3.3. Post-Operative Care
    - 9.8.3.4. Complications
    - 9.8.3.5. Prognosis
  - 9.8.4. Periorbital Fractures
    - 9.8.4.1. Clinical Signs and Diagnosis
    - 9.8.4.2. Treatment
    - 9.8.4.3. Post-Operative Care
    - 9.8.4.4. Complications
    - 9.8.4.5. Prognosis
  - 9.8.5. Paranasal Sinus Fistulas
  - 9.8.6. Dehorning
    - 9.8.6.1. Indications
    - 9.8.6.2. Techniques
    - 9.8.6.3. Complications
  - 9.8.7. Frontal Sinus Trepanation in Ruminants
    - 9.8.7.1. Indications
    - 9.8.7.2. Anatomy
    - 9.8.7.3. Clinical Signs
    - 9.8.7.4. Technique
    - 9.8.7.5. Postoperative Care and Complications
  - 9.8.8. Mandibular, Premaxillary and Maxillary Rostral Resection
    - 9.8.8.1. Treatment
    - 9.8.8.2. Post-Operative Care
    - 9.8.8.3. Complications
    - 9.8.8.4. Prognosis
  - 9.8.9. Wry Nose
    - 9.8.9.1. Treatment
    - 9.8.9.2. Post-Operative Care
    - 9.8.9.3. Complications
    - 9.8.9.4. Prognosis
  - 9.8.10. Upper and Lower Prognathism
    - 9.8.10.1. Treatment
    - 9.8.10.2. Post-Operative Care
  - 9.8.11. Suture Periostitis
    - 9.8.11.1. Diagnosis
    - 9.8.11.2. Treatment
- 9.9. Spinal Column Surgery in Equidae
  - 9.9.1. Considerations of the Patient and Operating Room
  - 9.9.2. Approaches
  - 9.9.3. Incisions Sutures
  - 9.9.4. Anesthetic Recovery
  - 9.9.5. Post-Operative Care

- 9.9.6. Cervical Fractures
  - 9.9.6.1. Atlas and Axis
  - 9.9.6.2. Subluxation and Atlantoaxial Dislocation
  - 9.9.6.3. From C3 to C7
- 9.9.7. Thoracolumbar Fractures
  - 9.9.7.1. Dorsal Spinal Processes
  - 9.9.7.2. Vertebral Bodies
- 9.9.8. Traumatic Sacral Injury
- 9.9.9. Traumatic Coccygeal Injury
- 9.9.10. Crushed Tail Head Syndrome
- 9.9.11. Developmental Disorders
  - 9.9.11.1. Cervical Vertebral Stenotic Spinal Myelopathy
    - 9.9.11.1.1. Surgical Treatment
      - 9.9.11.1.1.1. Intervertebral Fusion
      - 9.9.11.1.1.2. Laminectomy
    - 9.9.11.1.2. Complications
  - 9.9.11.2. Occipitoatlantoaxial Malformation
  - 9.9.11.3. Atlantoaxial Subluxation
  - 9.9.11.4. Atlantoaxial Instability
- 9.10. Neurosurgery
  - 9.10.1. Cerebral Trauma Surgery
  - 9.10.2. Peripheral Nerve Surgery
    - 9.10.2.1. General Surgical Repair Techniques
    - 9.10.2.2. Suprascapular and Axillary Nerve Damage
      - 9.10.2.2.1. Treatment
      - 9.10.2.2.2. Non-Surgical Treatment
      - 9.10.2.2.3. Decompression of the Scapular Nerve
      - 9.10.2.2.4. Prognosis

## Module 10. Rehabilitation of Musculoskeletal Injuries in Sport Horses

- 10.1. Significance of Musculoskeletal Injuries in Sport Horses
  - 10.1.1. Introduction
  - 10.1.2. Impact of Musculoskeletal Injuries on the Equine Industry
  - 10.1.3. Most Common Musculoskeletal Injuries According to the Equestrian Discipline
  - 10.1.4. Factors Associated With the Incidence of Injuries in Sport Horses
- 10.2. Physiotherapeutic Assessment of the Horse
  - 10.2.1. Introduction
  - 10.2.2. Clinical Evaluation
  - 10.2.3. Body Alignment Assessment
  - 10.2.4. Static Physical Assessment
    - 10.2.4.1. Palpitation
    - 10.2.4.2. Active Mobility Test
    - 10.2.4.3. Passive Mobility Tests
- 10.3. Physiotherapeutic Assessment of the Limbs
  - 10.3.1. Physiotherapeutic Assessment of the Thoracic Limbs
    - 10.3.1.1. Scapula and Scapulohumeral Joint
    - 10.3.1.2. Elbow and Forearm Joint
    - 10.3.1.3. Carpal Joint and Shank
    - 10.3.1.4. Distal Joints: Metacarpal/Tarsal-Phalangeal, Proximal Interphalangeal and Distal Interphalangeal Joints
  - 10.3.2. Physiotherapeutic Assessment of the Pelvic Limbs
    - 10.3.2.1. Coxofemoral and Rump Joints
    - 10.3.2.2. Stifle and Leg Articulation
    - 10.3.2.3. Tarsal Joint
- 10.4. Physiotherapeutic Assessment of the Head of Vertebral Column
  - 10.4.1. Physiotherapeutic Assessment of the Head
    - 10.4.1.1. Head
    - 10.4.1.2. Hyoid Apparatus
    - 10.4.1.3. Temporomandibular Joint

- 10.4.2. Physiotherapeutic Assessment of the Vertebral Column
  - 10.4.2.1. Cervical Region
  - 10.4.2.2. Thoracic Region
  - 10.4.2.3. Lumbar Region
  - 10.4.2.4. Sacroiliac Joint
- 10.5. Neuromuscular Assessment of the Sport Horse
  - 10.5.1. Introduction
  - 10.5.2. Neurological Evaluation
    - 10.5.2.1. Neurological Examination
    - 10.5.2.2. Evaluation of Cranial Nerves
    - 10.5.2.3. Evaluation of Posture and Gait
    - 10.5.2.4. Assessment of Reflexes and Proprioception
  - 10.5.3. Diagnostic Tests
    - 10.5.3.1. Diagnostic Imaging Techniques
    - 10.5.3.2. Electromyography
    - 10.5.3.3. Cerebrospinal Fluid Analysis
  - 10.5.4. Main Neurologic Pathologies
  - 10.5.5. Main Muscular Pathologies
- 10.6. Manual Therapy Techniques
  - 10.6.1. Introduction
  - 10.6.2. Technical Aspects of Manual Therapy
  - 10.6.3. Considerations of Manual Therapy
  - 10.6.4. Main Techniques of Manual Therapy
  - 10.6.5. Manual Therapy in Limbs and Joints
  - 10.6.6. Manual Therapy in the Spine
- 10.7. Electrotherapy
  - 10.7.1. Introduction
  - 10.7.2. Principles of Electrotherapy
  - 10.7.3. Tissue Electrostimulation
    - 10.7.3.1. Activation of Peripheral Nerves
    - 10.7.3.2. Application of Electric Stimulation





- 10.7.4. Pain Control
  - 10.7.4.1. Mechanism of Action
  - 10.7.4.2. Indications of Its Use in Pain Control
  - 10.7.4.3. Main Applications
- 10.7.5. Muscular Stimulation
  - 10.7.5.1. Mechanism of Action
  - 10.7.5.2. Indications for Use
  - 10.7.5.3. Main Applications
- 10.7.6. Laser Therapy
- 10.7.7. Ultrasound
- 10.7.8. Radiofrequency
- 10.8. Hydrotherapy
  - 10.8.1. Introduction
  - 10.8.2. Physical Properties of Water
  - 10.8.3. Physiological Response to Exercise
  - 10.8.4. Types of Hydrotherapy
    - 10.8.4.1. Aquatic Therapy in Flotation
    - 10.8.4.2. Aquatic Therapy in Semi-Flotation
  - 10.8.5. Main applications of Hydrotherapy
- 10.9. Controlled Exercise
  - 10.9.1. Introduction
  - 10.9.2. Stretching
  - 10.9.3. Core Training
  - 10.9.4. Cavalletti and Proprioceptive Bracelets
- 10.10. Rehabilitation Plans
  - 10.10.1. Introduction
  - 10.10.2. Tendo-Ligament Injuries
  - 10.10.2. Muscle Injuries
  - 10.10.3. Bone and Cartilage Lesions

# 06 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. Gervas, 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

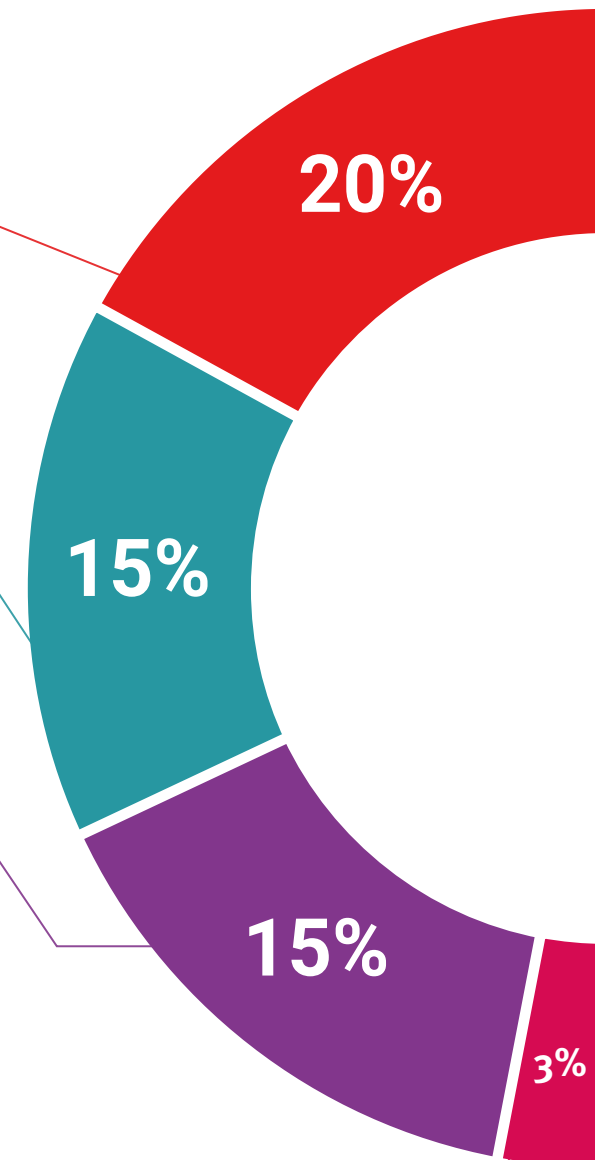
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

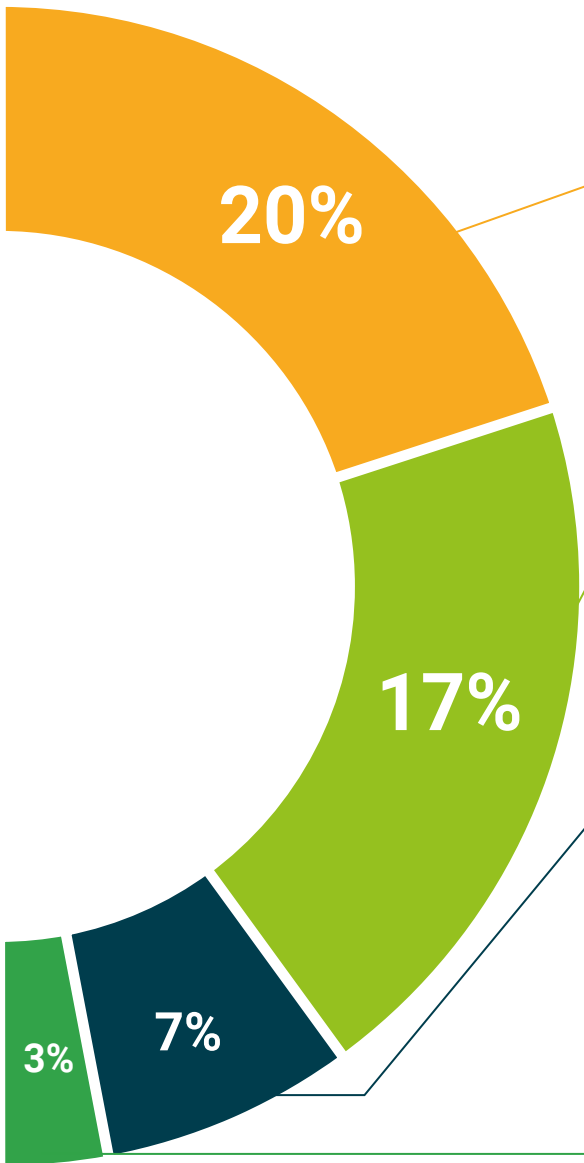
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### 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.



# 07 Certificate

The Professional Master's Degree in Traumatology and Orthopedic Surgery in Large Animals guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree 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”*

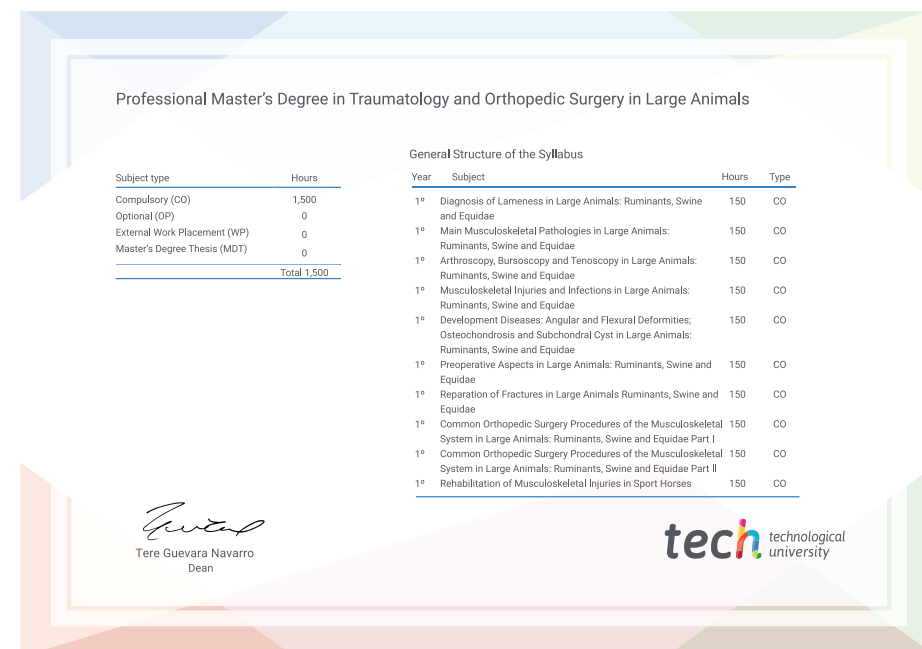
This **Professional Master's Degree in Traumatology and Orthopedic Surgery in Large Animals** contains the most complete and up-to-date scientific program on the market.

After the student has passed the assessments, they will receive their corresponding **Professional Master's Degree** issued by **TECH Technological University** via tracked delivery\*.

The diploma issued by **TECH Technological University** will reflect the qualification obtained in the Professional Master's Degree, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Professional Master's Degree in Traumatology and Orthopedic Surgery in Large Animals**

Official N° of Hours: **1,500 h.**



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



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guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge presentation  
development languages  
virtual classroom



**Professional Master's Degree**  
Traumatology and Orthopedic  
Surgery in Large Animals

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

# Professional Master's Degree Traumatology and Orthopedic Surgery in Large Animals

