

# Postgraduate Certificate

## Locomotor System Disorders and Extended Therapeutic Protocols in Outpatient Practice



## Postgraduate Certificate Locomotor System Disorders and Extended Therapeutic Protocols in Outpatient Practice

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

Website: [www.techtitute.com/in/veterinary-medicine/postgraduate-certificate/locomotor-system-disorders-extended-therapeutic-protocols-outpatient-practice](http://www.techtitute.com/in/veterinary-medicine/postgraduate-certificate/locomotor-system-disorders-extended-therapeutic-protocols-outpatient-practice)

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# 01

# Introduction

The exploration, diagnosis and treatment of pathologies of the locomotor system is one of the main occupations in the equine field clinic, so it is of primary importance for the veterinarian to have the knowledge and skills necessary to develop this specialty of his professional work.

This program will cover in depth, including topics related to sedation and anesthesia in the field, a common clinical practice that requires a certain degree of specialization to be able to adapt it to the patient being treated at any given time. A high-quality program that will drive you to the highest levels of competence in the sector.





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*A complete and comprehensive update on Locomotor Pathologies in Foals and Adult Horses. Expanded Therapeutic Protocols in Ambulatory Practice with the most complete and effective program in the online educational market"*



In order to do a good job in the field, the professionals must have a solid theoretical knowledge in anatomy, pathophysiology and therapeutics. However, with the emergence of new techniques and methodologies for the treatment of locomotor pathologies, it is necessary to undergo an update of knowledge that allows you to delve into aspects such as exploration and diagnosis of musculoskeletal problems, as well as anesthetic neural blocks, and degenerative diseases. Therefore, TECH has created this 100% online program in order to broaden the outlook of veterinary professionals.

In this way, this Postgraduate Certificate will provide the professional with the degree of technical skills necessary to induce, maintain and reverse anesthesia in the field from start to finish, ensuring the lowest possible risks to the patient and ensuring in turn the proper development of the surgical procedure, perform their practice on an outpatient basis but always based on the rigor and degree of specialization of a veterinary center, seeking to provide their patients with innovative and intensive treatments and care, to ensure the best possible results.

In addition, a series of masterclasses will be given by an international expert in the diagnosis and treatment of locomotor pathologies in equines. Students will be able to learn about the latest diagnostic techniques and therapeutic options for locomotor pathologies, as well as learn about extended therapeutic protocols for application in outpatient practice. The master session will focus on the most relevant international news in this field, with special interest in diagnostic and treatment skills in relation to these pathologies.

All this presented in a conglomerate of audiovisual resources, complementary readings and exercises based on real cases. Therefore, with the Relearning methodology, the professional will optimize his learning process, leaving behind long hours of study and memorization. It should also be noted that, being an online program, it will not be necessary to attend centers in person, only a device with an Internet connection will be required.

This **Postgraduate Certificate in Locomotor System Disorders and Extended Therapeutic Protocols in Outpatient Practice** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ The latest technology in online teaching software
- ♦ Intensely visual teaching system, supported by graphic and schematic contents, easy to assimilate and understand
- ♦ Practical cases presented by practising experts
- ♦ State-of-the-art interactive video systems
- ♦ Teaching supported by telepractice
- ♦ Continuous updating and recycling systems
- ♦ Autonomous learning: full compatibility with other occupations
- ♦ Practical exercises for self-assessment and learning verification
- ♦ Support groups and educational synergies: questions to the expert, debate and knowledge forums
- ♦ Communication with the teacher and individual reflection work
- ♦ Content that is accessible from any fixed or portable device with an Internet connection.
- ♦ Supplementary documentation databases are permanently available, even after finishing the course



*Get in direct contact with the most innovative advances and the latest diagnostic and therapeutic techniques in equine by the hand of an expert of international stature"*

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*A complete program that will allow you to acquire the most advanced knowledge in all the areas of intervention of the equine veterinarian"*

Our teaching staff is made up of professionals from different fields related to this specialty. In this way, we ensure that we provide you with the educational update we are aiming for. A multidisciplinary team of professionals specialized and experienced in different environments, who will develop the theoretical knowledge in an efficient way, but above all, they will bring their practical knowledge from their own experience to the course: one of the differential qualities of this program.

This mastery of the subject matter is complemented by the effectiveness of the methodological design. Developed by a multidisciplinary team of e-learning experts, it integrates the latest advances in educational technology. This way, you will be able to study with a range of comfortable and versatile multimedia tools that will give you the operability you need in your learning.

The design of this program is based on Problem-Based Learning: an approach that conceives learning as a highly practical process. To achieve this remotely, we will use telepractice learning: with the help of an innovative interactive video system, and learning from an expert, you will be able to acquire the knowledge as if you were actually dealing with the scenario you are learning about. A concept that will allow you to integrate and fix learning in a more realistic and permanent way.

*With the experience of working professionals and the analysis of real success stories, in a high-impact educational approach.*

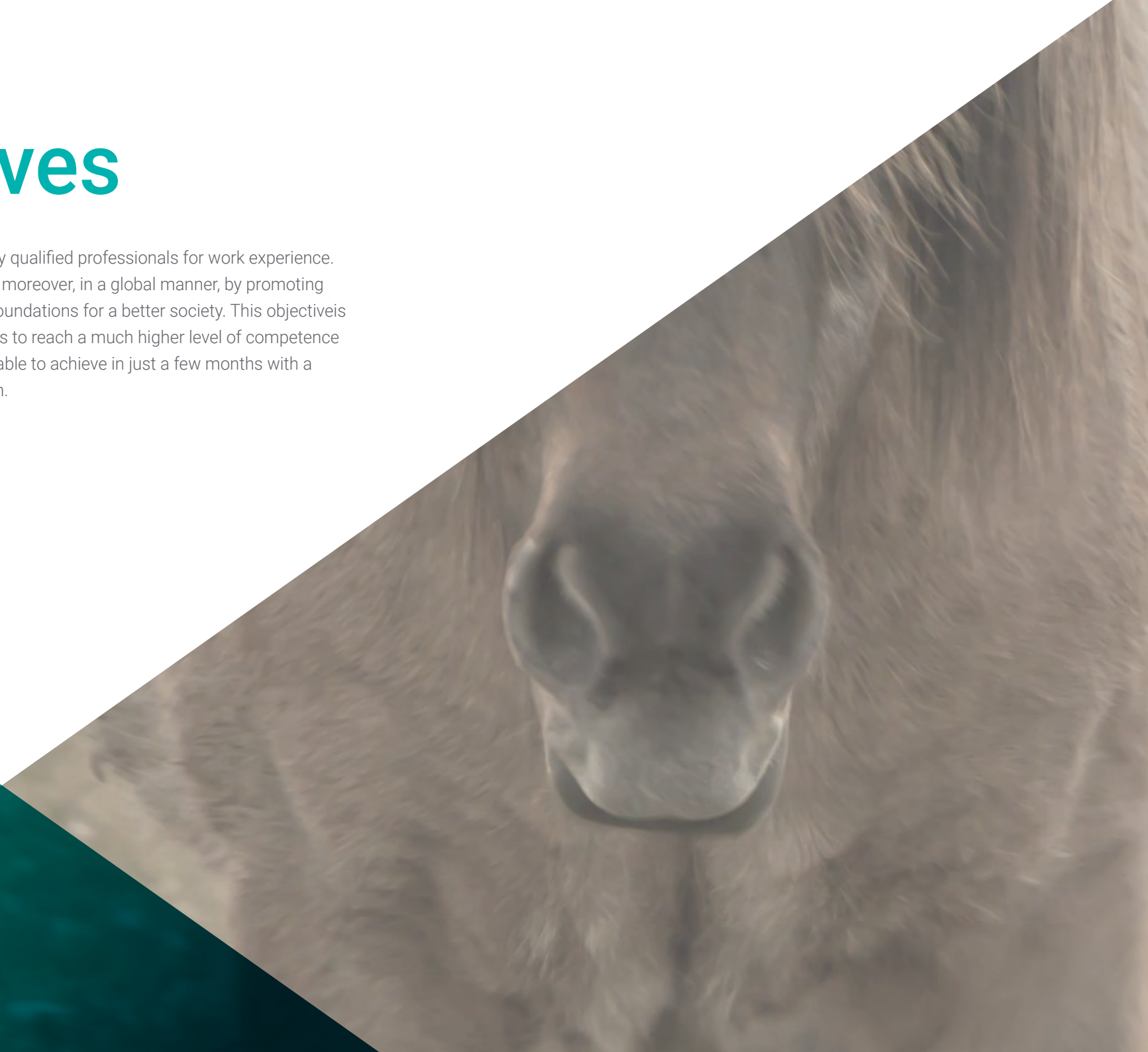
*With a methodological design based on proven teaching techniques, this innovative course will take you through different teaching approaches to allow you to learn in a dynamic and effective way.*



# 02

# Objectives

TECH's objective is to prepare highly qualified professionals for work experience. An objective that is complemented, moreover, in a global manner, by promoting human development that lays the foundations for a better society. This objective is materialized in helping professionals to reach a much higher level of competence and control. A goal that you will be able to achieve in just a few months with a high-intensity and effective program.





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*If your objective is to broaden your skills set to include new paths of success and development, this is the course for you: a program that aspires to excellence"*



## General Objectives

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- ◆ Identify the different anatomical structures and pathologies of the digestive tract of the horse
- ◆ Develop and advance in the most frequent procedures to solve oral cavity pathologies
- ◆ Recognize the symptoms of digestive disorders
- ◆ Enable the clinician to correctly assess the systemic state of the animal and the consequent severity of the pathology
- ◆ Establish diagnostic protocols and generate optimized treatments and prognoses
- ◆ Establish optimal preventive medicine criteria and good management guidelines
- ◆ Establish an appropriate methodology for the examination of the horse with respiratory or cardiac problems
- ◆ Identify all clinical signs associated with respiratory or cardiovascular disease in equids
- ◆ Generate specialized knowledge of respiratory and cardiac auscultation
- ◆ Establish the specific clinical approach to the horse with a respiratory or cardiovascular disorder
- ◆ Identify the pathologies of the urinary system of the horse
- ◆ Establish diagnostic protocols to facilitate the recognition of patients with urinary pathology
- ◆ Expand the alternatives of possible treatments according to pathological situations
- ◆ Recognize the medical and surgical genital pathologies of the stallion and the dam mare, assess their extent and provide appropriate treatments for recovery and restoration of proper reproductive function
- ◆ Develop surgical techniques for the resolution of pathologies of the reproductive system that can be performed in the field





## Specific Objectives

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- ♦ Identify the pathologies affecting the musculoskeletal system of horses by pathology type based on the different anatomical regions
- ♦ Master in depth the correct approach to the clinical case that may be presented. Obtain and control the tools to correctly explore animal patients and correctly interpret the data obtained
- ♦ Develop optimized work schemes and diagnostic protocols
- ♦ Advanced diagnosis of joint, tendon, bone and muscle pathologies in horses
- ♦ Master in depth the neural anesthetic blocks, their technique, main advantages and possible disadvantages. Develop proximal blocks and other advanced anesthetic desensitization techniques
- ♦ Master and develop in depth imaging techniques and other complementary diagnostic methods in the field
- ♦ Receive education in the latest published therapeutic measures and the latest advances in research in the treatment of locomotor pathologies
- ♦ Master and develop advanced medical and surgical techniques that can be performed in the field
- ♦ Analyze the new alternatives in terms of drugs used in sedation and anesthesia for outpatient use, as well as to delve into the most established protocols in order to optimize this type of procedures
- ♦ Prepare the clinician in effective and dynamic decision making when dealing with a patient with a serious systemic condition, in order to ensure diagnoses and treatments that ensure patient stabilization despite non-hospital conditions
- ♦ Specialize the clinician in the correction of hydro-electrolyte and acid-base imbalances to ensure the reversal of hemodynamic alterations
- ♦ Ensure advanced knowledge of equine pain management with the latest medications
- ♦ Examine the characteristics and special considerations to be taken into account when applying pharmacological treatments in the sport horse, with special emphasis on avoiding problems in the face of possible positive results in control tests for biological substances in competitions
- ♦ Generate advanced knowledge on equine toxicology, ensuring education for the recognition of toxic symptoms as well as the identification of plants and agents harmful to equids
- ♦ Analyze euthanasia procedures in depth. The clinician must be able to act correctly with patients in these last moments of their life trajectory, applying euthanasia in the most humane way possible in case of last necessity



*A path to achieve professional growth that will propel you towards a greater level of competitiveness in the job market"*



03

# Course Management

In keeping with this program's impeccable standards, TECH is proud to provide students with a teaching staff of the highest level, chosen for their proven experience Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.







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*Our teaching team is the most complete and successful in the educational panorama”*

## International Guest Director

As one of the foremost veterinary surgeons in equine care, Dr. Andy Fiske-Jackson is the Deputy Director of the Royal Veterinary College Equine in the United Kingdom. This is one of the leading institutions in both equine patient care and veterinary development, education and innovation. This has allowed him to develop in a privileged environment, even receiving the James Bee Educator Awards for excellence in educational work.

In fact, Dr. Andy Fiske-Jackson is also part of the team of surgeons at the Equine Referral Hospital, focusing his work on orthopedic and soft tissue surgery. As such, his main areas of focus are low performance, back pain, dental and sinus issues, digital flexor tendinopathies and regenerative medicine.

In terms of research, his work leans between diagnostic techniques for digital flexor tendinopathies, clinical uses of objective gait analysis and objective assessment of back pain. His efficiency in this field has led him to actively participate in various international events and conferences, including congresses in Portugal, Czech Republic, Finland, Belgium, Hungary, Switzerland, Austria, Germany, Ireland, Spain and Poland.





## Dr. Fiske-Jackson, Andy

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- Deputy Director at the Royal Veterinary College Equine. Hertfordshire, United Kingdom
- Associate Professor of Equine Surgery at the Royal Veterinary College
- Equine Surgeon at the Equine Referral Hospital. Hertfordshire, United Kingdom
- Veterinarian at Axe Valley Veterinary
- Veterinarian at Liphook Equine Hospital
- Veterinarian at the Humane Society International. Morocco
- Degree from the University of Liverpool
- Master's Degree in Veterinary Medicine from the Royal Veterinary College

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*Thanks to TECH you  
will be able to learn with  
the best professionals  
in the world"*

## Management



### Dr. Varela del Arco, Marta

- ♦ Clinical veterinarian specialized in Equine Surgery and Sports Medicine
- ♦ Head of the Large Animal Department at the Complutense Veterinary Clinic Hospital
- ♦ Associate Professor, Department of Animal Medicine and Surgery, Complutense University of Madrid
- ♦ Teacher in different graduate and postgraduate courses, university specialization programs and master's degrees
- ♦ Director of Final Year Project in the Veterinary Degree and as a member of the tribunal of different doctoral theses
- ♦ PhD in Veterinary Medicine, Complutense University of Madrid
- ♦ Spanish Certificate from Equine Clinic (CertEspCEq)



### Dr. De la Cuesta vTorrado, María

- ♦ Veterinarian with clinical specialty in Equine Internal Medicine
- ♦ Associate Professor of the Department of Equine Medicine and Surgery at the CEU University Cardenal Herrera
- ♦ Doctorate in Advanced Studies from the Complutense University of Madrid
- ♦ Master's Degree in Equine Internal Medicine by Alfonso X el Sabio University
- ♦ Founder of MC Veterinaria
- ♦ Member of: Organizing Committee of the 12th European College of Equine Internal Medicine Congress, Board of Directors of the Spanish Society of Ozone Therapy, Equine Clinicians Commission of the Official College of Veterinarians of Valencia, Spanish Association of Equine Veterinarians (AVEE), Scientific Committee and Coordinator of courses and congresses in the area of Ozone Therapy, supported by continuing education credits granted by the National Health System

## Professors

### Ms. Carriches Romero, Lucía

- ♦ Outpatient veterinary clinic specializing in equine medicine, surgery, emergencies and reproduction
- ♦ Collaborating Professor in Practical Teaching, Department of Animal Medicine and Surgery, Complutense University of Madrid
- ♦ Contracted external collaborating veterinarian at the Complutense Clinical Veterinary Hospital
- ♦ Degree in Veterinary Medicine from Alfonso X El Sabio University
- ♦ Rotating and Advanced Internships for Equine Specialization at the Complutense Clinical Veterinary Hospital
- ♦ Attendance and publication of posters in national and international congresses

### Dr. Goyoaga Elizalde, Jaime

- ♦ Head of the Equine Surgery Service of the Complutense Clinical Veterinary Hospital
- ♦ Director and veterinarian at the Equine Clinic Jaime Goyoaga SLP
- ♦ Professor in the Master's Degree in Animal Medicine, Health and Improvement: Diagnostic Imaging
- ♦ Professor in the Expert in Principles of Physiotherapy and Animal Rehabilitation of the UCM
- ♦ Co-director and teacher of the Master's Degree in Equine Medicine and Surgery by Improve International
- ♦ Associate Professor in the Department of Animal Medicine and Surgery, Faculty of Veterinary Medicine, Complutense University of Madrid
- ♦ Professor of Medical Pathology and Nutrition, Special Surgery of Large Animals, Equine Pathology and Clinic, Hospitalization, Emergency and Intensive Care in Equine Clinic, Radiology and Diagnostic Imaging
- ♦ Accreditation Spanish Certificate in Equine Clinic (CertEspCEq)

### Dr. Iglesias García, Manuel

- ♦ Veterinarian Surgeon in the Veterinary Clinical Hospital of the University of Extremadura
- ♦ Director of Final Year Project in the Veterinary Degree at the University of Extremadura
- ♦ Collaboration in teaching interns and students of the Veterinary Degree during the Master's Degree in Equine Surgery at the University of Extremadura
- ♦ Professor of the Master's Degree in Large Animal Internship at the University of Extremadura
- ♦ Doctor in Veterinary Medicine from Alfonso X El Sabio University
- ♦ Master's Degree in Equine Surgery and obtained the Master's Degree in Equine Surgery and obtaining the title of General Practitioner in Equine Surgery by the European School of Veterinary Postgraduate Studies
- ♦ Master's Degree in Equine Surgery at the Veterinary Hospital of Alfonso X el Sabio University.
- ♦ Spanish Certificate in Equine Clinic (CertEspCEq)

### Dr. Manso Díaz, Gabriel

- ♦ Clinical veterinarian, member of the Diagnostic Imaging Service at Complutense Veterinary Clinical Hospital
- ♦ Assistant Professor, Department of Animal Medicine and Surgery, Complutense University of Madrid
- ♦ Collaborator in the practical teaching at the Department of Animal Medicine and Surgery at the Complutense University of Madrid
- ♦ Regular speaker at courses, workshops and congresses in the field of Equine Diagnostic Imaging
- ♦ PhD in Veterinary from the Complutense University of Madrid
- ♦ Degree in Veterinary Medicine from the Complutense University of Madrid
- ♦ Large Animal Diagnostic Imaging Resident (ECVDI) Equine Referral Hospital, Royal Veterinary College Equine Practice and Referral Hospital
- ♦ Certified by the European College of Veterinary Diagnostic Imaging (ECVDI) in the specialty of Large Animals

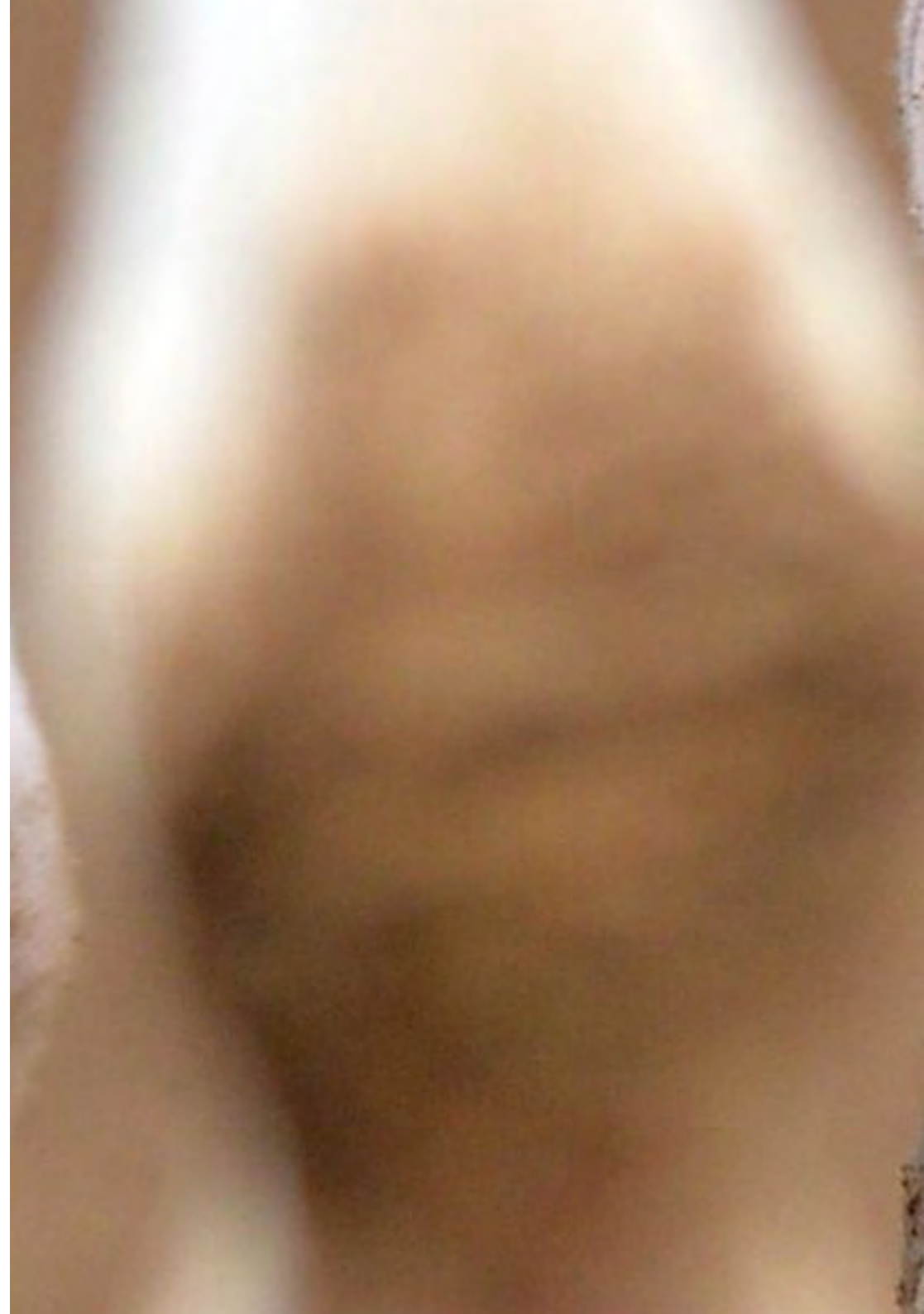


**Dr. Aguirre Pascasio, Carla**

- ♦ Doctor in Veterinary Medicine from the University of Murcia
- ♦ Postgraduate degree in equine physiotherapy from the University of Barcelona
- ♦ Master in Business and Administration by ENAE Business School, Murcia
- ♦ Certificate in Internal Medicine from the Royal Veterinary College of London and by the University of Liverpool
- ♦ Certified in Soft Tissue Surgery by the Royal Veterinary College of London and by the University of Liverpool
- ♦ Spanish Certificate in Equine Clinical Practice from the Spanish Veterinary Council
- ♦ Eligible en el ECEIM (European College of Equine Internal Medicine)
- ♦ Fellowship at Casal do Rio Equine Hospital

**Dr. Rodríguez Hurtado, Isabel**

- ♦ Head of the Department of Large Animals at the Veterinary Hospital of the Alfonso X el Sabio University
- ♦ Professor and coordinator of the subject Medical Pathology and Nutrition of the Veterinary Degree at the Alfonso X el Sabio University
- ♦ Professor of the Postgraduate Master's Degree in Equine Internal Medicine at the Alfonso X el Sabio University
- ♦ Head of the Large Animals Area of the Clinical Veterinary Hospital
- ♦ Doctor in Veterinary Medicine from Alfonso X El Sabio University
- ♦ Diplomate from the American College of Veterinary Internal Medicine
- ♦ Internship and Residency in Equine Internal Medicine at Auburn University
- ♦ Master's Degree in Biomedical Sciences from Auburn University
- ♦ Master's Degree in Research Methodology in Health Sciences from the Alfonso X El Sabio University



**Dr. Santiago Llorente, Isabel**

- ◆ Head of the Equine Internal Medicine at the Complutense Veterinary Clinical Hospital.
- ◆ Member of the Anesthesia Service at the Complutense Veterinary Clinic Hospital of the Complutense University of Madrid
- ◆ Collaborator in practical teaching in the Department of Animal Medicine and Surgery at the Complutense University of Madrid
- ◆ PhD in Veterinary Medicine, Complutense University of Madrid
- ◆ Degree in Veterinary Medicine from the Complutense University Madrid
- ◆ Lecturer at the Universidade Lusófona. Lisbon, Portugal
- ◆ Vice-president and of the Association of Equine Veterinarians (AVE)

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*An impressive teaching staff, made up of professionals from different areas of expertise, will be your teachers during your learning: a unique opportunity not to be missed”*



04

# Structure and Content

The contents have been developed by different experts, with a clear purpose: to ensure that our students acquire each and every one of the skills necessary to become true experts in this field.

A complete and well-structured program will take you to the highest standards of quality and success.







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*A comprehensive teaching program,  
structured in well-developed teaching units,  
oriented towards learning that is compatible  
with your personal and professional life"*

## Module 1. Locomotor System

- 1.1. Examination and Diagnosis of Lameness
  - 1.1.1. Introduction
    - 1.1.1.1. Definition of Lameness
    - 1.1.1.2. Causes and Types of Lameness
    - 1.1.1.3. Symptoms of Lameness
  - 1.1.2. Static Examination of Lameness
    - 1.1.2.1. Medical History
    - 1.1.2.2. Approach to the Horse and General Examination
      - 1.1.2.2.1. Visual Examination: General Condition and Conformation
      - 1.1.2.2.2. Static Physical Examination, Palpation, Percussion and Flexion
  - 1.1.3. Dynamic Examination of Lameness
    - 1.1.3.1. Examination in Motion
    - 1.1.3.2. Flexion Test
    - 1.1.3.3. Assessment and Quantification of Lameness Objective and Subjective Methods
    - 1.1.3.4. Introduction to Neural Anesthetic Blocks
  - 1.1.4. Introduction to Complementary Diagnostic Methods
- 1.2. Anesthetic Nerve Blocks
  - 1.2.1. Diagnostic Loco-Regional Analgesia: Introduction
    - 1.2.1.1. General Considerations and Pre-Diagnostic Requirements
    - 1.2.1.2. Types of Blockages and Injection Techniques
    - 1.2.1.3. Drugs to be Used
    - 1.2.1.4. Election of Blockages
    - 1.2.1.5. Approach to the Patient
      - 1.2.1.5.1. Patient Management and Preparation
      - 1.2.1.5.2. Chemical Containment
    - 1.2.1.6. Evaluation of Results
      - 1.2.1.6.1. Subjective Assessment
      - 1.2.1.6.2. Objective Assessment
    - 1.2.1.7. Complications
  - 1.2.2. Perineural Anesthetic Blocks
    - 1.2.2.1. Perineural Analgesia in the Forelimb
    - 1.2.2.2. Perineural Analgesia in the Hindlimb
  - 1.2.3. Regional Anesthetic Blocks
  - 1.2.4. Intrasynovial Anesthetic Blocks
    - 1.2.4.1. Intra-Articular Blocks
    - 1.2.4.2. Bursa and Tendon Sheath Blocks
- 1.3. Diagnostic Imaging of Lameness
  - 1.3.1. Introduction to Diagnostic Imaging in the Field
  - 1.3.2. Technical Basis
    - 1.3.2.1. Radiology
    - 1.3.2.2. Musculoskeletal
    - 1.3.2.3. Advanced Techniques
      - 1.3.2.3.1. Gammagraphy
      - 1.3.2.3.2. Magnetic Resonance
      - 1.3.2.3.3. Computerized Tomography
  - 1.3.3. Bone Pathology Diagnosis
  - 1.3.4. Joint Pathology Diagnosis
  - 1.3.5. Diagnosis of Tendon and Ligament Pathology
- 1.4. Pathologies of the Axial Skeleton. Diagnosis and Treatment
  - 1.4.1. Introduction to Axial Skeletal Pathology
  - 1.4.2. Axial Skeleton Examination
  - 1.4.3. Cervical Spine Diagnosis
  - 1.4.4. Diagnosis of the Thoracolumbar and Sacroiliac Spine
  - 1.4.5. Axial Skeleton Pathology Treatment
- 1.5. Degenerative Joint Disease (DJD). Traumatic Arthritis and Post-Traumatic Osteoarthritis. Etiology, Diagnosis and Treatment
  - 1.5.1. Anatomy and Physiology of the Joints
  - 1.5.2. Definition of EDA
  - 1.5.3. Cartilage Lubrication and Repair
  - 1.5.4. DJD Manifestations
    - 1.5.4.1. Acute Injuries
    - 1.5.4.2. Chronic Fatigue Injuries
  - 1.5.5. DJD Diagnosis
    - 1.5.5.1. Clinical Examination
    - 1.5.5.2. Objective and Subjective Examination of Lameness

- 1.5.5.3. Diagnostic Anesthesia
- 1.5.5.4. Diagnostic Imaging
  - 1.5.5.4.1. Radiology
  - 1.5.5.4.2. Musculoskeletal
  - 1.5.5.4.3. Magnetic Resonance Imaging and Computerized Axial Tomography
  - 1.5.5.4.4. New Technologies
- 1.5.6. Treatment of DJD
  - 1.5.6.1. Nonsteroidal Anti-Inflammatories
  - 1.5.6.2. Steroid Anti-Inflammatories
  - 1.5.6.3. Hyaluronic Acid
  - 1.5.6.4. Glucosaminoglycans
  - 1.5.6.5. Pentosan
  - 1.5.6.6. Biological Therapies
    - 1.5.6.6.1. Autologous Conditioned Serum
    - 1.5.6.6.2. Platelet-rich Plasma
    - 1.5.6.6.3. Stem Cells
  - 1.5.6.7. Oral Supplements
- 1.6. Tendinitis, Desmitis and Adjacent Structures Pathologies
  - 1.6.1. Applied Anatomy and Tendon Damage Pathophysiology
  - 1.6.2. Alterations of Tendons, Ligaments and Associated Structures
    - 1.6.2.1. Soft Tissues of the Pastern
    - 1.6.2.2. Superficial Digital Flexor Tendon (SDFT)
    - 1.6.2.3. Deep Digital Flexor Tendon (DDFT)
    - 1.6.2.4. Inferior Accessory Ligament of the TFDSPL
    - 1.6.2.5. Suspensory Ligament of the Fetlock (SL)
      - 1.6.2.5.1. Proximal part of the SL
      - 1.6.2.5.2. SL Body
      - 1.6.2.5.3. SL Branches
    - 1.6.2.6. Carpal Canal and Carpal Synovial Sheath
    - 1.6.2.7. Tarsal Sheath
    - 1.6.2.8. Plantar Fasciitis
    - 1.6.2.9. Bursitis
  - 1.6.3. Management of Tendon and Ligament Injuries
    - 1.6.3.1. Medical Therapy
    - 1.6.3.2. Regenerative Therapies
      - 1.6.3.2.1. Stem Cell and Bone Marrow Therapies
      - 1.6.3.2.2. Platelet-Rich Plasma Therapy
    - 1.6.3.3. Shock Waves and Other Physical Therapies
    - 1.6.3.4. Surgical Therapies
    - 1.6.3.5. Rehabilitation and Return to Work Guidelines
- 1.7. Fractures. Bone Sequestration
  - 1.7.1. First Approach to Fractures, General Considerations Bone Sequestration
    - 1.7.1.1. Introduction
      - 1.7.1.1.1. First Aid for Fractures in Horses
      - 1.7.1.1.2. Case Selection, General Considerations
      - 1.7.1.1.3. Immobilization of Fractures According to Location
    - 1.7.1.2. Transport
      - 1.7.1.2.1. Transporting an Equine Patient for Fracture Treatment
    - 1.7.1.3. Prognosis
    - 1.7.1.4. Bone Sequestration
  - 1.7.2. Rehabilitation and Return to Work Guidelines
    - 1.7.2.1. In Fractures
    - 1.7.2.2. In Bone Sequestration
- 1.8. Laminitis
  - 1.8.1. Pathophysiology of Laminitis
  - 1.8.2. Clinical of Laminitis
  - 1.8.3. Diagnosis of Laminitis
    - 1.8.3.1. Physical Examination
    - 1.8.3.2. Diagnostic Imaging
    - 1.8.3.3. Endocrine and Metabolic Assessment



- 1.8.4. Medical Treatment of Laminitis
  - 1.8.4.1. Anti-Inflammatories
  - 1.8.4.2. Vasoactive Drugs
  - 1.8.4.3. Analgesia
  - 1.8.4.4. Hypothermia
  - 1.8.4.5. Sepsis
  - 1.8.4.6. Pars Intermedia Pituitary Dysfunction (PPID) and Equine Metabolic Syndrome (EMS)
- 1.8.5. Stabilization of the Third Phalanx
  - 1.8.5.1. Sole Support Techniques
  - 1.8.5.2. Therapeutic Horseshoeing
- 1.8.6. Treatment of Laminitis
  - 1.8.6.1. Use of Casts
  - 1.8.6.2. Fexor Digitorum Superficialis Tenotomy
  - 1.8.6.3. Dorsal Wall Resection
  - 1.8.6.4. Complications
- 1.8.7. Chronic Laminitis
- 1.8.8. Laminitis Prevention
- 1.9. Orthopedic Field Surgery
  - 1.9.1. Fractures of Rudimentary Metacarpals/Metatarsals
    - 1.9.1.1. Clinical History, Symptomatology, Different Presentations
    - 1.9.1.2. Diagnostic Techniques
    - 1.9.1.3. Decision Making, Optimal Treatment
    - 1.9.1.4. Surgical Management
    - 1.9.1.5. Complications to Surgery
    - 1.9.1.6. Post-Operative Care
    - 1.9.1.7. Rehabilitation and Return to Work Guidelines
  - 1.9.2. Desmotomies
    - 1.9.2.1. Medical History
    - 1.9.2.2. Decision-Making
    - 1.9.2.3. Surgical Management
    - 1.9.2.4. Complications to Desmotomies
    - 1.9.2.5. Post-Operative Care
    - 1.9.2.6. Rehabilitation and Return to Work Guidelines
  - 1.9.3. Neurectomies
    - 1.9.3.1. Indications
    - 1.9.3.2. Pre-Surgical Considerations and Implications
    - 1.9.3.3. Surgical Technique
    - 1.9.3.4. Complications
    - 1.9.3.5. Post-Operative Care
    - 1.9.3.6. Rehabilitation and Return to Work Guidelines
- 1.10. Myopathies in the Horse
  - 1.10.1. Genetic and Congenital Diseases
    - 1.10.1.1. Myotonia
    - 1.10.1.2. Myopathy due to Polysaccharide Storage
    - 1.10.1.3. Malignant Hyperthermia
    - 1.10.1.4. Hyperkalemic Periodic Paralysis
  - 1.10.2. Traumatic and Irritative Alterations
    - 1.10.2.1. Fibrotic Myopathy
    - 1.10.2.2. Bruises and Tears
    - 1.10.2.3. Intramuscular Irritant Injections
  - 1.10.3. Infectious Diseases
    - 1.10.3.1. Abscesses
    - 1.10.3.2. Clostridial Myositis
  - 1.10.4. Ischemic Diseases
    - 1.10.4.1. Post-Anesthetic Myositis
  - 1.10.5. Nutritional Diseases
    - 1.10.5.1. Malnutrition
    - 1.10.5.2. Vitamin E and Selenium Alterations
    - 1.10.5.3. Cachectic Atrophy
  - 1.10.6. Pathologies Associated with Exercise
    - 1.10.6.1. Acute Exertional Rhabdomyolysis
    - 1.10.6.2. Recurrent Exertional Rhabdomyolysis
    - 1.10.6.3. Hypokinetic Atrophy

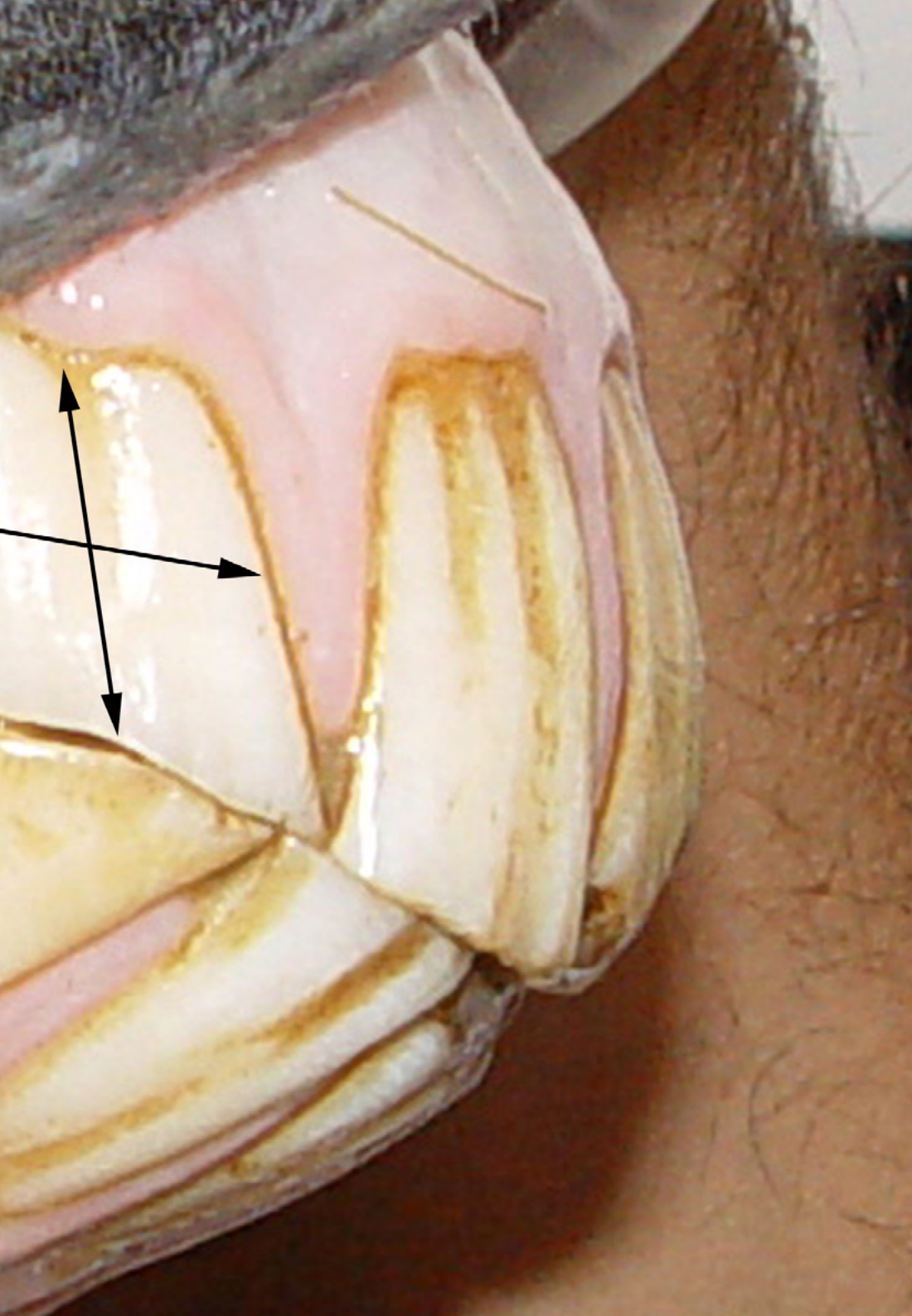
**Module 2. Advanced Therapeutic Protocols and Toxicology**

- 2.1. Sedation and Total Intravenous Anesthesia
  - 2.1.1. Total Intravenous Anesthesia
    - 2.1.1.1. General Considerations
    - 2.1.1.2. Patient and Procedure Preparation
    - 2.1.1.3. Pharmacology
    - 2.1.1.4. Total Intravenous Anesthesia in Short-Term Procedures
    - 2.1.1.5. Total Intravenous Anesthesia in Procedures of Medium Duration
    - 2.1.1.6. Total Intravenous Anesthesia in Long-Term Procedures
  - 2.1.2. Sedation for On-Station Procedures
    - 2.1.2.1. General Considerations
    - 2.1.2.2. Patient Preparation/Procedure
    - 2.1.2.3. Technique: Bolus and Continuous Intravenous Infusions
    - 2.1.2.4. Pharmacology
    - 2.1.2.5. Drug Combinations
- 2.2. Pain Relief in Horses
  - 2.2.1. Detection of Pain in Hospitalized Patients and Multimodal Analgesia
  - 2.2.2. Types of NSAIDs
  - 2.2.3. Agonists and Opioids
  - 2.2.4. Local anesthetics
  - 2.2.5. Other Drugs Used for Pain Control in Equines
  - 2.2.6. Complementary Therapies: Acupuncture, Shockwaves, Chiropractic, Laser
- 2.3. Correction of the Hydro-Electrolytic Balance
  - 2.3.1. General Considerations on Fluid Therapy
    - 2.3.1.1. Objective and Key Concepts
    - 2.3.1.2. Organic Fluid Distribution
    - 2.3.1.3. Assessment of Patient Needs
  - 2.3.2. Types of Fluid
    - 2.3.2.1. Crystalloids
    - 2.3.2.2. Colloids
    - 2.3.2.3. Supplements
  - 2.3.3. Routes of Administration
    - 2.3.3.1. Intravenous
    - 2.3.3.2. Oral
  - 2.3.4. Practical Principles of Fluid Therapy Calculation
  - 2.3.5. Associated Complications
- 2.4. Specific Considerations of Acid-Base Equilibrium in Horses
  - 2.4.1. Specific Considerations of Acid-Base Equilibrium in Horses
    - 2.4.1.1. Assessment of the Patient's Acid-Base Status
    - 2.4.1.2. Role of Bicarbonate, Chloride and Anion Gap
  - 2.4.2. Metabolic Acidosis and Alkalosis
  - 2.4.3. Respiratory Acidosis and Alkalosis
  - 2.4.4. Compensatory Mechanisms
  - 2.4.5. Base Excess
- 2.5. Pharmacological Considerations in the Sport Horse
  - 2.5.1. Equestrian Sports Regulation
  - 2.5.2. Doping
    - 2.5.2.1. Definition
    - 2.5.2.2. Medication Control Objectives
    - 2.5.2.3. Sampling and Accredited Laboratories
    - 2.5.2.4. Classification of Substances
  - 2.5.3. Types of Doping
  - 2.5.4. Withdrawal Time
    - 2.5.4.1. Factors Affecting Withdrawal Time
      - 2.5.4.1.1. Detection Time
      - 2.5.4.1.2. Regulatory Policies
      - 2.5.4.1.3. Animal Disposal Rate
    - 2.5.4.2. Factors to Consider in Determining Withdrawal Time
      - 2.5.4.2.1. Dose Administered
      - 2.5.4.2.2. Formulation
      - 2.5.4.2.3. Route of Administration
      - 2.5.4.2.4. Individual Pharmacokinetics
      - 2.5.4.2.5. Sensitivity of Analytical Procedures
      - 2.5.4.2.6. Sample Behavior Matrix
      - 2.5.4.2.7. Environmental persistence of substances and environmental pollution

- 2.6. Intensive Care of the Neonatal Foal
  - 2.6.1. Types of Catheters, Infusion Sets, Nasogastric and Urinary Catheters for the Maintenance of Intensive Care in the Foal
  - 2.6.2. Types of Fluids, Colloids, Plasmotherapy and Hemotherapy
  - 2.6.3. Total and Partial Parenteral Feeding
  - 2.6.4. Antibiotic Therapy, Analgesia and Other Important Medications
  - 2.6.5. Cardiopulmonary Resuscitation
- 2.7. Adult Intensive Care
  - 2.7.1. General Intensive Care Considerations
  - 2.7.2. Intensive Care Procedures and Techniques
    - 2.7.2.1. Vascular Access: Maintenance and Care
    - 2.7.2.2. Arterial and Venous Pressure Monitoring
  - 2.7.3. Cardiovascular Support
    - 2.7.3.1. Shock
    - 2.7.3.2. Supportive Drugs: Inotropes and Vasopressors
    - 2.7.3.3. Support Strategies
  - 2.7.4. Respiratory Support
    - 2.7.4.1. Management of Respiratory Distress
  - 2.7.5. Critically Ill Patient Nutrition
  - 2.7.6. Neurological Patient Care
    - 2.7.6.1. Medical and Supportive Management of the Neurological Horse
      - 2.7.6.1.1. Trauma
      - 2.7.6.1.2. Encephalopathies and Myeloencephalopathies
    - 2.7.6.2. Specific Management of the Recumbent Horse
- 2.8. Toxicology I
  - 2.8.1. Digestive System Toxicology
  - 2.8.2. Liver Toxicology
  - 2.8.3. Toxicology Affecting the Central Nervous System







- 2.9. Toxicology II
  - 2.9.1. Toxicology Producing Clinical Signs Related to the Cardiovascular and Hemolymphatic Systems
  - 2.9.2. Toxicology Producing Clinical Signs related to the Skin, Musculoskeletal System and General Condition
  - 2.9.3. Toxicology Producing Clinical Signs Related to the Urinary System
  - 2.9.4. Toxicological Problems Causing Sudden Death
- 2.10. Euthanasia Procedures
  - 2.10.1. General Considerations
    - 2.10.1.1. Geriatric Horse
  - 2.10.2. Mechanisms of action for Hypothermia
  - 2.10.3. Chemical Euthanasia Methods
  - 2.10.4. Physical Euthanasia Methods
  - 2.10.5. Euthanasia Protocol
  - 2.10.6. Confirmation of Death



*Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice"*

# 05 Methodology

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

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







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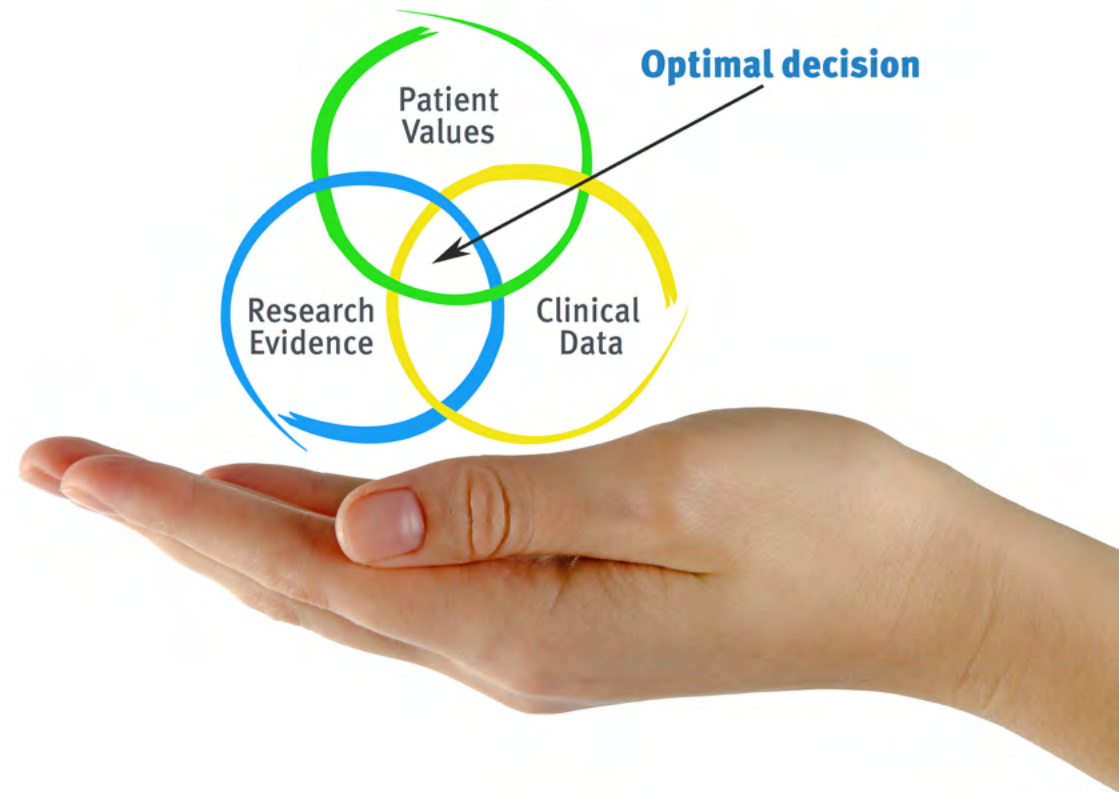
*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization”*



## At TECH, we use the Case Method

What should a professional do in a given situation? Throughout the program you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.*



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a “case”, an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, in an attempt to recreate the actual conditions in a veterinarian’s professional practice.

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*Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method.*

**The effectiveness of the method is justified by four fundamental achievements:**

1. Veterinarians who follow this method not only manage to assimilate concepts, but also develop their mental capacity through exercises to assess 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. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the program.



## Relearning Methodology

TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

*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 prepared 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 education, 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 adapted in 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 assess and re-assess 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 Certificate in Locomotor System Disorders and Extended Therapeutic Protocols in Outpatient Practice guarantees students, in addition to the most rigorous and up-to-date education, access to a qualification issued by TECH Technological University.



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

This **Postgraduate Certificate in Locomotor System Disorders and Extended Therapeutic Protocols in Outpatient Practice** contains the most complete and up-to-date scientific program Scientific the market.

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

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

Title: **Postgraduate Certificate in Locomotor System Disorders and Extended Therapeutic Protocols in Outpatient Practice**

Official N° of Hours: **300 h.**



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





**Postgraduate Certificate**  
Locomotor System Disorders  
and Extended Therapeutic  
Protocols in Outpatient Practice

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

# Postgraduate Certificate

## Locomotor System Disorders and Extended Therapeutic Protocols in Outpatient Practice

