

# Professional Master's Degree Equine Rehabilitation





## Professional Master's Degree Equine Rehabilitation

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

Website: [www.techitute.com/us/physiotherapy/professional-master-degree/master-equine-rehabilitation](http://www.techitute.com/us/physiotherapy/professional-master-degree/master-equine-rehabilitation)

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# 01

# Introduction

Equine Rehabilitation is inseparable from Physiotherapy, since these treatments are usually very effective in improving horses affected by lameness or sports injuries. In this program we want to go a step further to specialize physiotherapists in the approach to equine physical pathologies that can be solved with their rehabilitative practices.







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*Physiotherapists specialized in the treatment of equines will achieve great benefits in the rehabilitation of these animals if they update their knowledge with this very complete program"*

Sports injuries in horses, as well as other pathologies such as lameness or those related to the advanced age of these animals, require rehabilitation to achieve effective recoveries and the possible readaptation of the animal to exercise.

The Professional Master's Degree in Equine Rehabilitation approaches this discipline from the experience of several internationally accredited rehabilitation specialists, as well as the scientific analysis on rehabilitation seen in a global way, including information that cannot be found in any other online or classroom program, with a teaching staff of the highest level.

The contents of this preparatory program are based on experience, scientific evidence and practical application. The objective is that the student is able to develop rehabilitation plans and physiotherapy treatments, with a solid foundation that gives the maximum guarantee of success, both in planning and execution.

In this way, this program provides students with specialized tools and skills to successfully develop their professional activity in the wide environment of equine rehabilitation, working on key competencies such as knowledge of the reality and daily practice of the physiotherapist, and developing responsibility in the monitoring and supervision of their work, as well as communication skills within the essential teamwork.

As it is an online program, students will not be bound by fixed schedules or the need to move to another physical location, but rather, they can access the content at any time of the day, balancing their professional or personal life with their academic life.

This **Professional Master's Degree in Equine Rehabilitation** contains the most complete and up-to-date educational program on the market. The most outstanding characteristics of this program are:

- ♦ The development of practical cases presented by experts in Equine Rehabilitation
- ♦ 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 developments in equine rehabilitation
- ♦ Practical exercises where self-assessment can be used to improve learning
- ♦ Special emphasis on innovative methodologies in equine rehabilitation
- ♦ 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 do this Professional Master's Degree in Equine Rehabilitation with us. It's the perfect opportunity to advance your career"*

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*This program is the best investment you can make when selecting a refresher program to update your knowledge in Equine Rehabilitation”*

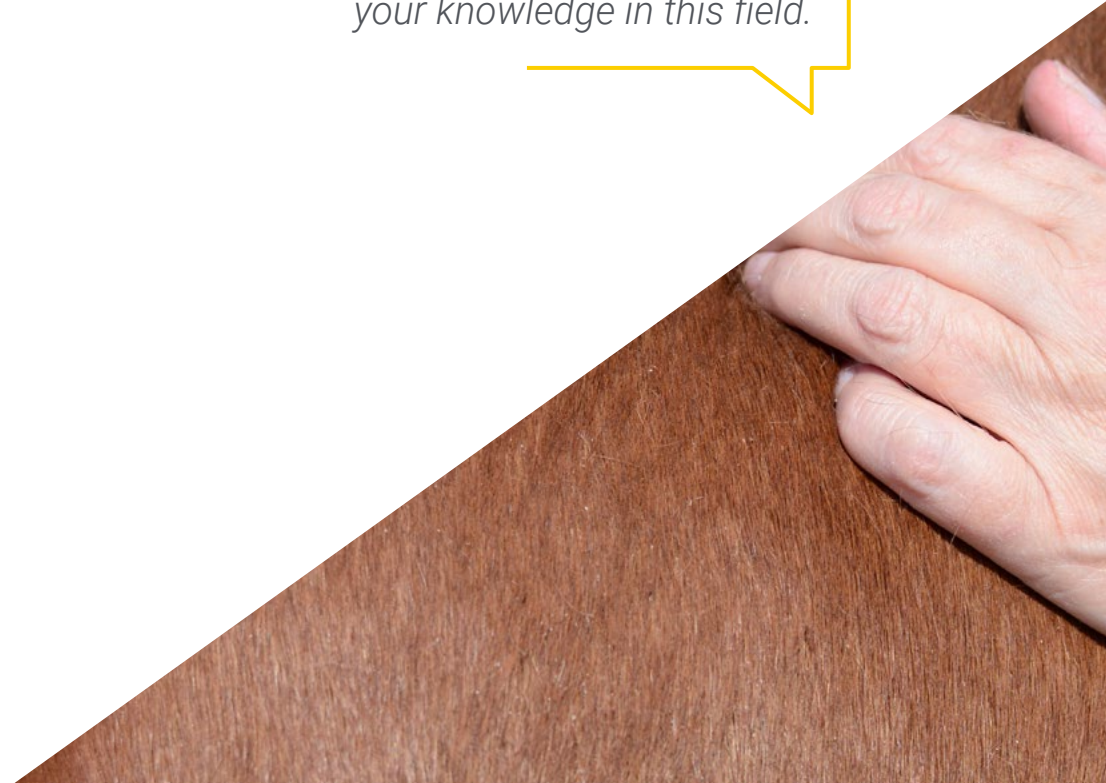
It includes in its teaching staff professionals belonging to the field of Physiotherapy, who bring to this training the experience of their work, as well as recognized specialists from reference societies and prestigious universities.

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 developed by renowned and experienced experts in Equine Rehabilitation.

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

*This 100% online program will allow you to combine your studies with your professional work while increasing your knowledge in this field.*





# 02 Objectives

The Professional Master's Degree in Equine Rehabilitation is aimed at aiding the professional's performance with the latest advances and most innovative treatments in the sector.







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*It is the best option to learn  
about the latest advances in  
Equine Rehabilitation”*



## General Objectives

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- ♦ Examine the different methods of objective measurement of the horse's locomotor pattern by means of biomechanical studies
- ♦ Analyze the functional anatomy and biomechanics of the main locomotor units of the horse
- ♦ Define movement patterns in the horse's natural gaits
- ♦ Examine the locomotor demands and specific exercises in the main equestrian sport disciplines
- ♦ Establish the basis of the integral functional evaluation approach of the horse
- ♦ Define the detailed protocol of the functional assessment
- ♦ Develop tools to establish a functional diagnosis
- ♦ Identify functional and biomechanical problems
- ♦ Plan and time a training program according to the horse's fitness level, competitive objectives and the type of equestrian discipline
- ♦ Design a stress test according to the equestrian discipline in which the horse participates, deciding which parameters should be measured and their interpretation
- ♦ Establish the diagnostic protocol to be followed in the case of a horse with loss/ reduction/ lack of sporting performance
- ♦ Develop a protocol for the treatment and prevention of pathologies associated with physical exercise and training, including overtraining syndrome
- ♦ Analyze the different modalities of manual therapy, their applications and effects on the horse
- ♦ Identify the appropriate manual treatment modalities for each case
- ♦ Develop competencies in the application of the different modalities
- ♦ Establish a treatment using different manual therapy modalities
- ♦ Analyze the electrophysical agents used in equine physiotherapy
- ♦ Establish the physicochemical foundations on which its therapeutics are based
- ♦ Develop its indications, application methodology, contraindications and risks
- ♦ Determine which are the most appropriate for each pathology from a therapeutic and scientific point of view, based on evidence
- ♦ Analyze what motor control is and its importance in locomotion and rehabilitation.
- ♦ Evaluate the main tools and exercises of active therapy
- ♦ Develop clinical and in-depth reasoning on the use of therapeutic exercises in the horse
- ♦ Generate autonomy when developing active re-education programs
- ♦ Analyze the basic fundamentals of Traditional Chinese Medicine (TCM)
- ♦ Identify all the points to be treated according to TCM
- ♦ Establish an appropriate methodology for an acupuncture treatment approach
- ♦ Justify the selection of each technique and/or acupuncture points
- ♦ Analyze the characteristics of proprioceptive elastic taping
- ♦ Define proprioceptive elastic taping application techniques
- ♦ Identify in which cases to apply the proprioceptive elastic bandage
- ♦ Establish the basis for obtaining and reading diagnostic images
- ♦ Acquire knowledge of the diagnostic technique and its clinical application
- ♦ Assess the different pathologies and their clinical significance
- ♦ Provide the basis on which to establish an adequate physiotherapeutic treatment
- ♦ Develop the most common pathologies of the locomotor system in the equine athlete, their diagnosis and possibilities of conventional treatments and physiotherapy
- ♦ Present new techniques for the diagnosis and monitoring of pathology lesions
- ♦ Propose new treatments based on publications and analyze previous treatments
- ♦ Establish general recommendations for the design of treatment and rehabilitation of injuries



## Specific Objectives

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### Module 1. Applied Anatomy and Biomechanics of Horses

- ♦ Characterize the air of walk, trot and canter from the kinetic and kinematic point of view
- ♦ Examine the influence of neck position on the biomechanics of the dorsum and pelvis
- ♦ Analyze the biomechanical characteristics of the pelvic limb and its relationship with the quality of the gait, trot and canter
- ♦ Analyze locomotor modifications associated with speed and training in the horse
- ♦ Characterize the biomechanical alterations found in claudication
- ♦ Develop variations in movement quality induced by patient age and genetics
- ♦ Evaluate the influence of the morphological characteristics of the hoof on the biomechanics of the thoracic limb
- ♦ Analyze the different types of shoeing and their effect on the biomechanical characteristics of the horse's hoof
- ♦ Establish the interaction of the saddle and rider on the horse's locomotor pattern
- ♦ Evaluate the effect of different embouchures and performance systems on the characteristics of the horse's movement

### Module 2. Functional Assessment, Examination and Rehabilitation Planning

- ♦ Analyze the basis and importance of the relationship in a multidisciplinary team
- ♦ Determine the difference between a functional and an anatonopathological diagnosis and the importance of the global approach
- ♦ Compile the maximum information related to a clinical case in an objective manner
- ♦ Develop skills to perform a general static physical examination
- ♦ Define the detailed regional static evaluation methodology
- ♦ Generate analytical tools to perform a complete palpation examination
- ♦ Develop skills to perform a dynamic examination from a functional point of view

- ♦ Analyze the special considerations to be taken into account according to the sport discipline
- ♦ Value the importance of the rider-horse pairing
- ♦ Define the methodology of a neurological examination complementary to the functional assessment
- ♦ Identify the presence of pain in the horse
- ♦ Determine the correct fit of the saddle
- ♦ Define the list of problems and treatment objectives according to the findings
- ♦ Develop the basic knowledge to plan a rehabilitation program

### Module 3. Exercise Physiology and Training

- ♦ Examine respiratory, cardiovascular and musculoskeletal changes in response to submaximal and maximal, short and long duration, and intermittent exercises
- ♦ Understand the importance of histological and biochemical muscle changes with training and their impact on aerobic capacity and the respiratory, cardiovascular and metabolic response to exercise
- ♦ Establish how heart rate and blood lactate monitoring is performed, as well as measurement of ventilatory volumes and VO<sub>2</sub> oxygen consumption
- ♦ Identify the mechanisms of thermoregulation of a horse in sport, the associated pathologies, their consequences and the protocol of action in case of thermoregulatory alterations
- ♦ Specify training strategies to develop oxidative potential, strength and anaerobic capacity
- ♦ Present strategies to reduce or delay the onset of fatigue during various types of exercise



#### **Module 4. Manual Therapy**

- ♦ Analyze different types of passive kinesitherapy and joint mobilizations
- ♦ Develop the methodology of massage and its applications
- ♦ Examine existing stretches in horses and their applications
- ♦ Develop myofascial therapy techniques and their influence on the horse
- ♦ Define what "Trigger Points" are and their consequences
- ♦ Establish which are the existing treatments of trigger points and their execution
- ♦ Analyze joint manipulative techniques and application methodology

#### **Module 5. Electrophysical Agents in Equine Physiotherapy**

- ♦ Analyze the use of analgesic electrotherapy and muscle stimulation, its application, scientific basis, indications and contraindications
- ♦ Identify possible applications of percutaneous electrolysis, as well as its scientific basis, indications and contraindications
- ♦ Evaluate the clinical use of diathermy and its application in the horse
- ♦ Develop knowledge on the clinical use of therapeutic lasers
- ♦ Determine the relationship of dose to power, frequency and penetration for effective and safe laser treatment.
- ♦ Define the uses of shock waves medicine and their application in different pathologies
- ♦ Propose different protocols for the application of electrophysical agents

#### **Module 6. Therapeutic Exercise and Active Kinesitherapy**

- ♦ Analyze the neuromuscular physiology involved in motor control
- ♦ Identify the consequences of altered motor control
- ♦ Define what specific tools we have and how we can include them in a motor control re-education program.
- ♦ Examine what elements we should consider when designing an active kinesitherapy program
- ♦ Define core training techniques and their application as a therapeutic exercise
- ♦ Define proprioceptive facilitation techniques and their application as a therapeutic exercise
- ♦ Evaluate the characteristics and biomechanical implications of some of the main exercises from a therapeutic point of view
- ♦ Evaluate the effects of active work

#### **Module 7. Complementary Modalities: Neuromuscular Taping and Acupuncture**

- ♦ Define the most important aspects of TCM at the clinical level
- ♦ Analyze the effect of acupuncture at the clinical level
- ♦ Specifically evaluate the different meridians in horses
- ♦ Compile information on the advantages and disadvantages of available acupuncture techniques
- ♦ Analyze the response obtained in the pretreatment scan
- ♦ Justify the selection of acupuncture points in reference to the response to the pretreatment scan
- ♦ Propose a work methodology for horses with musculoskeletal problems
- ♦ Analyze the mechanisms of action of proprioceptive taping
- ♦ Develop proprioceptive elastic taping application techniques
- ♦ Identify neuromuscular taping techniques according to the diagnosis
- ♦ Develop the integration of taping techniques and exercise in rehabilitation programs

**Module 8. Diagnostic Imaging Oriented to the Diagnosis of Problems Susceptible to Physiotherapy Treatment**

- ♦ Establish a protocol for diagnostic imaging screening
- ♦ Identify which technique is necessary in each case
- ♦ Generate specialized knowledge in each anatomical area
- ♦ Establish a diagnosis that helps to better treat the patient
- ♦ Determine the various diagnostic techniques and the contributions each makes to the examination
- ♦ Examine the normal anatomy of the different areas to be explored in the different imaging modalities
- ♦ Recognize individual anatomical variations
- ♦ Assess incidental findings and their possible clinical impact
- ♦ Establish the significant alterations in the different diagnostic modalities and their interpretation.
- ♦ Determine an accurate diagnosis to assist in the establishment of an appropriate treatment

**Module 9. Common Injuries in Sport Horses: Diagnosis, Conventional Treatment, Rehabilitation Programs and Physiotherapy. Thoracic Limb Part I**

- ♦ Present the most frequent pathologies by region, as well as their etiopathology, diagnosis, treatment and rehabilitation
- ♦ Recognize clinical signs associated to each pathology
- ♦ Evaluate treatment options for each pathology according to scientific publications and experience
- ♦ Compile images by pathology to present examples of clinical cases
- ♦ Establish differential diagnoses that cause similar clinical signs
- ♦ Develop different therapies for each pathology
- ♦ Generate methodical knowledge for the diagnosis of forelimb lameness
- ♦ Determine guidelines for the design of individualized rehabilitation programs

**Module 10. Common Injuries in Sport Horses: Diagnosis, Conventional Treatment, Rehabilitation Programs and Physiotherapy. Thoracic Limb Part II**

- ♦ Present the most frequent pathologies by region, as well as their etiopathology, diagnosis, treatment and rehabilitation
- ♦ Recognize clinical signs associated to each pathology
- ♦ Evaluate treatment options for each pathology according to scientific publications and experience
- ♦ Compile images by pathology to present examples of clinical cases
- ♦ Establish differential diagnoses that cause similar clinical signs
- ♦ Develop different therapies for each pathology
- ♦ Generate methodical knowledge for the diagnosis of forelimb lameness
- ♦ Determine guidelines for the design of individualized rehabilitation programs

# 03 Skills

After passing the assessments on the Professional Master's Degree in Equine Rehabilitation, 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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- ◆ Perform rehabilitation-related therapies such as biomechanics, functional anatomy, exercise adaptation, rehabilitation planning and treatable pathologies
- ◆ Expand its treatments and the concept of rehabilitation, creating rehabilitation plans and complementary treatment protocols
- ◆ Get a new line of services that are becoming indispensable in horse medicine rehabilitation







## Specific Skills

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- ♦ Know the training of horses and the possible biomechanical alterations
- ♦ Perform physical diagnosis of equines and know how to detect possible pathologies
- ♦ Identify changes in animals when they perform physical exercise
- ♦ Perform different types of manual therapy on horses
- ♦ Use electrotherapy as the basis for the rehabilitation of the animal
- ♦ Evaluate the most appropriate therapeutic exercises for each horse according to its circumstances
- ♦ Apply acupuncture and neuromuscular taping as an additional tool to rehabilitative and physiotherapeutic work with equines
- ♦ Identify musculoskeletal pathologies and apply appropriate treatments
- ♦ Treat animals suffering from sports injuries by developing specific therapies for each pathology



04

# Course Management

The program includes in its teaching staff leading experts in Equine Rehabilitation who bring to this training the experience of their work. They are world-renowned professionals from different countries with proven theoretical and practical professional experience.





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*Our teaching team, experts in  
Equine Rehabilitation, will help you  
achieve success in your profession"*



## Management



### Dr. Hernández Fernández, Tatiana

- ♦ PhD in Veterinary Medicine from the UCM
- ♦ Diploma in Physiotherapy at the URJC
- ♦ Degree in Veterinary Medicine from the UCM
- ♦ Professor at the Complutense University of Madrid of: Postgraduate Diploma in Equine Physiotherapy and Rehabilitation, Postgraduate Diploma in Bases of Animal Rehabilitation and Physiotherapy, Postgraduate Diploma in Physiotherapy and Rehabilitation of Small Animals, Training Diploma in Podiatry and Shoeing
- ♦ Resident in the area of Equidae at the Clinical Veterinary Hospital of the UCM
- ♦ Practical experience of more than 500 hours in hospitals, sports centers, primary care centers and human physical therapy clinics.
- ♦ More than 10 years working as a specialist in rehabilitation and physiotherapy

## Professors

### Ms. Álvarez González, Carlota

- ♦ Degree in Veterinary Medicine from the Universidad Alfonso X El Sabio
- ♦ Certified in Acupuncture and Traditional Chinese Veterinary Medicine by the Chi Institute of Europe
- ♦ Veterinary part of the clinical service of Traditional Chinese Veterinary Medicine of the Chi Institute of Europe (CHIVETs)
- ♦ Veterinarian in charge of the Holistic Medicine service of the Villalba Veterinary Hospital (Veterinaria)
- ♦ Holistic Medicine Outpatient Service since 2010
- ♦ Specialist in animal physiotherapy in Fisioveterinaria
- ♦ Member of the WATCVM (World Association of Traditional Chinese Veterinary Medicine) and AVEE (Association of Equine Veterinarians)

### 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 (UAB)
- ♦ Master's Degree in Equine Medicine and Surgery from the UAB
- ♦ Finnish Equine Veterinary Postgraduate Diploma: Hevossairauksien Eirokoiseläinlääkäri.
- ♦ Member of MRVCS, AVEE and ECVS
- ♦ Speaker at national and international congresses and courses on equine surgery and sports medicine
- ♦ Equine Surgeon and Distinguished Research Professor- HCV of the University of Cordoba."



**Ms. Boado Lama, Ana**

- ◆ Graduated from the Complutense University of Madrid.
- ◆ Internship at the Animal Health Trust, Newmarket
- ◆ Residency in Orthopedics at the University of Edinburgh, UK.
- ◆ Certificate in Equine Surgery (Orthopedics) from the Royal College of Veterinary Surgeons, UK
- ◆ Advanced Practitioner of Equine Surgery (Orth) (RCVS)
- ◆ Diploma in Sports Medicine and Rehabilitation (American and European)
- ◆ Member of the British Veterinary Association (BEVA) and the Spanish Association of Equine
- ◆ Speaker at international and national congresses and courses
- ◆ Teaching during residency fourth and fifth year students at the University of Edinburgh and postgraduate Master's students
- ◆ Teacher in CPD courses for veterinarians in the field of equine traumatology.
- ◆ Teacher in Master's Degree in Physiotherapy at the Complutense University of Madrid
- ◆ Specialized Equine Sports Medicine and Rehabilitation Service (August 2008-present)

**Ms. Castellanos Alonso, María**

- ◆ Degree in Veterinary Medicine from the University of Santiago de Compostela
- ◆ Postgraduate Diploma in Equine Clinic from the Autonomous University of Barcelona.
- ◆ Resident in the Equine Area of the Hospital Clínico Veterinario UCM
- ◆ Outpatient Clinical Veterinary and Equine Reproduction from 2017
- ◆ Member of the veterinary team of Compluvet S.L., performing inspection in races and anti-doping control in different racetracks nationwide since 2018
- ◆ Clinical veterinarian forming part of José Manuel Romero Guzmán's team.
- ◆ Veterinary in National and International Conferences
- ◆ Member AVEE (Association of Veterinary Specialists in Equidae)"

**Ms. Dreyer, Cristina**

- ◆ Degree in Veterinary Medicine from the ULPGC
- ◆ Internship in Sports Medicine and Lameness, at the Lameness Referral Center, NWEF, North West Equine Performance, in Oregon, USA.
- ◆ Postgraduate Diploma in Equine Science by the Veterinary University in Edinburgh
- ◆ Own Title of Expert in Bases of Physiotherapy and Animal Rehabilitation by the UCM
- ◆ UCM's own degree Expert in Equine Physiotherapy and Rehabilitation
- ◆ Veterinary Chiropractic at IAVC International Academy of Veterinary Chiropractic
- ◆ Veterinary Acupuncture at IVAS International Veterinary Acupuncture Society
- ◆ Applied Kinesiology and Veterinary Holistic by EMVI and the Spanish Association of Kinesiology
- ◆ Spanish Certificate in Equine Clinic
- ◆ Practical clinical experience of more than 1000 hours in several European and American Referral Hospitals
- ◆ Clinical Manager for two years of the Equine Department at the Large Animal Clinic Los Molinos, Madrid
- ◆ More than 10 years as veterinarian of the Sotogrande International Polo Tournament
- ◆ More than 10 years working as a self-employed Clinical Veterinarian

**Dr. Cruz Madorrán, Antonio**

- ◆ Professor of Equine Surgery
- ◆ Department of Orthopedics and Equine Surgery
- ◆ Equine surgeon, Justus-Liebig University, University of Giessen, Giessen, Germany
- ◆ Specialists in Equine Anesthesia and Surgery of recognized prestige.
- ◆ Diplomate of the American and European Colleges of Veterinary Surgery (ACVS, ECVS) and Veterinary Anesthesiology (ACVA, ECVA).
- ◆ Author of the book: Manual de técnicas quirúrgicas y anestésicas en la clínica equina. (Manual of Surgical Techniques and Anesthesia in the Equine Clinic) 2012.

### Dr. García de Brigard, Juan Carlos

- ♦ Licensed as a Veterinarian Doctor from the National University of Colombia. Bogotá, Colombia
- ♦ Certified Equine Rehabilitation Clinician. University of Tennessee at Knoxville. Knoxville, TN, USA
- ♦ Certificate in Equine Sports Massage Therapy. Equine Sports Massage and Saddle-fitting School. Camden, SC, USA
- ♦ Certificate in Animal Chiropractic. American Veterinary Chiropractic Association. Parker University - Dallas, TX, USA
- ♦ Certified Kinesio Taping Instructor - Equine. KinesioTaping International Association Albuquerque, NM, USA
- ♦ Certified Manual Lymphatic Drainage Therapist. Seminar House Schildbachhof - WIFI-Lower Austria. Baden, Austria
- ♦ Certified Equine KinesioTaping Therapist. KinesioTaping International Association Baden, Austria
- ♦ HIPPO-Training E.U. Manager and founder. Private practice for high performance sport horses (2006 - today)
- ♦ International Equestrian Federation. President of the Veterinary Commission of the 2017 Bolivarian Games and the 2018 Central American and Caribbean Games (2017 - today)."

### 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)
- ♦ Professor of the Veterinary Degree at the Alfonso X el Sabio University, teaching Equine Diagnostic Imaging, Internal Medicine and Applied Anatomy
- ♦ Professor of the Postgraduate Master's Degree of Equine Medicine and Surgery Internship at the Alfonso X el Sabio University

### Dr. Romero, José Manuel

- ♦ Degree in Veterinary Medicine from the Complutense University of Madrid (1979)
- ♦ Extensive experience in the diagnosis and treatment of locomotor system injuries in sport horses
- ♦ Veterinarian of the Spanish Olympic Team in Seoul '88 and Barcelona '92
- ♦ Veterinarian of the Club de Campo Villa de Madrid
- ♦ Official FEI Veterinarian in the disciplines of Show Jumping, Dressage and Eventing and Permitted Treating Veterinarian
- ♦ Diplomate of the American and European colleges American College of Sports Medicine and Rehabilitation
- ♦ Certified Member of ISELP
- ♦ Veterinarian of the National Eventing Team of the Royal Spanish Equestrian Federation"

### Dr. Luna Correa, Paulo Andrés

- ♦ Graduate in Veterinary Medicine, National University of Rio Cuarto URC, Córdoba, Argentina
- ♦ Postgraduate in Physiotherapy and Rehabilitation of Sport Equine, in IACES, with Equidynamics by MV Marta García Piqueres, Madrid, Spain
- ♦ Master's Degree in Equine Sports Medicine, University of Cordoba UCO, Spain
- ♦ Associate Professor in the Department of Domestic Animal Anatomy at the National University of Rio Cuarto, UNRC, Córdoba, Argentina - 2019
- ♦ 2018-2020 Equine Physiotherapy and Rehabilitation Practice my personal venture: eKine
- ♦ Head of the Postgraduate Master's Degree in Sports Medicine and Equine Surgery at the Alfonso X el Sabio University
- ♦ 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. Goyoaga Elizalde, Jaime**

- ♦ Graduated in Veterinary Medicine in 1986
- ♦ Associate Professor in the Department of Animal Medicine and Surgery. Faculty of Veterinary Sciences. U.C.M. Since 1989
- ♦ Stays abroad at the University of Bern, Germany (veterinary clinic Dr. Cronau) and the United States (University of Georgia)
- ♦ Spanish Certificate in Equine Clinic
- ♦ Assistance work at the HCV Faculty of Veterinary Medicine of Madrid UCM since 1989
- ♦ Chief of the Large Animal Surgery Service of said institution
- ♦ Professor attached to the Diagnostic Imaging Service of the HCV Faculty of Veterinary Medicine of Madrid UCM.

**Dr. Gutiérrez Cepeda, Luna**

- ♦ PhD in Veterinary Medicine, Complutense University of Madrid
- ♦ Degree in Veterinary Medicine from the Complutense University Madrid
- ♦ Official Master's Degree in Veterinary Science Research from the Complutense University of Madrid
- ♦ Master's Degree in Horse Physiotherapy of the Autonomous University of Barcelona
- ♦ Diploma in Veterinary Acupuncture by The International Veterinary Acupuncture Society (IVAS)
- ♦ Postgraduate in Physiotherapy of Large Animals (Horses) by the Autonomous University of Barcelona
- ♦ Kinesiotaping Instructor for horses by the International Kinesiotaping Society
- ♦ Associate Professor, Department of Animal Medicine and Surgery, Faculty of Veterinary Medicine, Complutense University of Madrid since 2014"

**Dr. Muñoz Juzgado, Ana**

- ♦ Doctorate in Veterinary from the University of Córdoba
- ♦ Degree in Veterinary Medicine from the University of Córdoba
- ♦ Professor in the Department of Animal Medicine and Surgery. Faculty of Veterinary Medicine of the University of Cordoba"

**Ms. Millares Ramirez, Esther M**

- ♦ Degree in Veterinary Medicine from the Alfonso X El Sabio University from Madrid
- ♦ Master's Degree in Veterinary Science from the University of Montreal, Canada
- ♦ Certified Veterinary Acupuncturist (CVA) by the Chi Institute of Florida, USA
- ♦ Certified in the application of Kinesiotaping (muscle taping) on equines by EquiTape in California, USA
- ♦ Participation in the teaching and development of clinical weeks for students at the University of California, Davis USA
- ♦ Equine Sports Medicine Service, University of California, Davis, USA (2015-2017).
- ♦ Equine Ambulatory Medicine Service, University of California, Davis, USA (2017-2018)"



# 05

## Structure and Content

The structure of the content has been designed by the best professionals in the Equine Rehabilitation 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.





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*We have the most complete and up-to-date academic program in the market. We strive for excellence and for you to achieve it too"*



## Module 1. Applied Anatomy and Biomechanics of Horses

- 1.1. Introduction to the Biomechanics of Horses
  - 1.1.1. Kinematic Analysis
  - 1.1.2. Kinetic Analysis
  - 1.1.3. Other Methods of Analysis
- 1.2. Biomechanics of Natural Airs
  - 1.2.1. Step
  - 1.2.2. Trot
  - 1.2.3. Gallop
- 1.3. Thoracic Limb
  - 1.3.1. Functional Anatomy
  - 1.3.2. Biomechanics of the Proximal Third
  - 1.3.3. Biomechanics of the Distal Third and the Digit
- 1.4. Pelvic Limb
  - 1.4.1. Functional Anatomy
  - 1.4.2. Reciprocal Apparatus
  - 1.4.3. Biomechanical Considerations
- 1.5. Head, Neck, Dorsum and Pelvis
  - 1.5.1. Functional Anatomy of the Head and Neck
  - 1.5.2. Functional Anatomy of the Dorsum and Pelvis
  - 1.5.3. Position of the Neck and Influence on the Mobility of the Dorsum
- 1.6. Variations of the Locomotor Pattern I
  - 1.6.1. Age
  - 1.6.2. Speed
  - 1.6.3. Training
  - 1.6.4. Genetics
- 1.7. Variations of the Locomotor Pattern II
  - 1.7.1. Thoracic Limb Claudication
  - 1.7.2. Pelvic Limb Claudication
  - 1.7.3. Compensatory Clauses
  - 1.7.4. Modifications Associated With Neck and Dorsal Pathologies
- 1.8. Variations of the Locomotor Pattern III
  - 1.8.1. Trimming and Rebalancing of the Hoof
  - 1.8.2. Horseshoeing

- 1.9. Biomechanical Considerations Associated With Equestrian Disciplines
  - 1.9.1. Jump
  - 1.9.2. Dressage
  - 1.9.3. Races and Speed
- 1.10. Applied Biomechanics
  - 1.10.1. Rider Influence
  - 1.10.2. Effect of the Frame
  - 1.10.3. Working Tracks and Floors
  - 1.10.4. Auxiliary Aids: Mouthpieces and Yields

## Module 2. Functional Assessment, Examination and Rehabilitation Planning

- 2.1. Introduction to Functional Assessment, Global Approach and Clinical History
  - 2.1.1. Introduction to Functional Assessment
  - 2.1.2. Objectives and Structure of Functional Assessment
  - 2.1.3. Global Approach and Importance of Teamwork
  - 2.1.4. Medical History
- 2.2. Static Physical Examination: General and Regional Static Examination
  - 2.2.1. Considerations of the Static Physical Evaluation
  - 2.2.2. General Static Evaluation
    - 2.2.2.1. Importance of the General Physical Evaluation
    - 2.2.2.2. Body Condition Assessment
    - 2.2.2.3. Conformation Assessment and Poise
  - 2.2.3. Regional Static Evaluation
    - 2.2.3.1. Palpitation
    - 2.2.3.2. Evaluation of Muscle Mass and Joint Range of Motion
    - 2.2.3.3. Mobilization and Functional Tests
- 2.3. Regional Static Evaluation I
  - 2.3.1. Exploration of the Head and the Temporomandibular Joint
    - 2.3.1.1. Inspection and Palpation and Special Considerations
    - 2.3.1.2. Mobility Tests
  - 2.3.2. Neck Exploration
    - 2.3.2.1. Inspection-Palpation
    - 2.3.2.2. Mobility Tests





- 2.3.3. Examination of the Thoracic and Thoracolumbar Region
  - 2.3.3.1. Inspection-Palpation
  - 2.3.3.2. Mobility Tests
- 2.3.4. Exploration of the Lumbopelvic and Sacroiliac Region
  - 2.3.4.1. Inspection-Palpation
  - 2.3.4.2. Mobility Tests
- 2.4. Regional Static Evaluation II
  - 2.4.1. Exploration of the Forelimb
    - 2.4.1.1. Back Region
    - 2.4.1.2. Shoulder Region
    - 2.4.1.3. Elbow and Arm Region
    - 2.4.1.4. Carpus and Forearm Region
    - 2.4.1.5. Fetlock Region
    - 2.4.1.6. Quadrilateral and Crown Region
    - 2.4.1.7. The Hoof
  - 2.4.2. Exploration of the Posterior Extremity
    - 2.4.2.1. Hip and Rump Region
    - 2.4.2.2. Stifle and Leg Region
    - 2.4.2.3. Hock Region
    - 2.4.2.4. Distal Regions of the Hind Limb
  - 2.4.3. Complementary Diagnostic Methods
- 2.5. Dynamic Examination I
  - 2.5.1. General Considerations
  - 2.5.2. Examination of Lameness
    - 2.5.2.1. General Information and Considerations
    - 2.5.2.2. Forelimb Lameness
    - 2.5.2.3. Hind Limb Lameness
  - 2.5.3. Functional Dynamic Examination
    - 2.5.3.1. Evaluation at Pace
    - 2.5.3.2. Evaluation at a Trot
    - 2.5.3.3. Evaluation at a Galop

- 2.6. Dynamic Examination II
  - 2.6.1. Evaluation of the Ridden Horse
  - 2.6.2. Functional Considerations by Discipline
  - 2.6.3. Importance of the Rider-Horse Pairing and Evaluation of the Rider
- 2.7. Pain Evaluation and Assessment
  - 2.7.1. Basis of Pain Physiology
  - 2.7.2. Evaluation and Pain Recognition
  - 2.7.3. Importance of Pain and its Impact on Performance Non-musculoskeletal Causes of Pain that Induce Performance Loss
- 2.8. Neurological Examination Complementary to Functional Assessment
  - 2.8.1. Need to Perform a Complementary Neurological Examination
  - 2.8.2. Neurological Examination
    - 2.8.2.1. Exploration of the Head
    - 2.8.2.2. Posture and Gait
    - 2.8.2.3. Neck and Thoracic Limb Evaluation
    - 2.8.2.4. Evaluation of the Trunk and Pelvic Limb
    - 2.8.2.5. Evaluation of Tail and Anus
    - 2.8.2.6. Complementary Diagnostic Methods
- 2.9. Joint Blocks
  - 2.9.1 Introduction to Joint Blocks
  - 2.9.2. Joint Mobilization in Search of Blockages
    - 2.9.2.1. Sacropelvic Area
      - 2.9.2.1.1. Sacro
      - 2.9.2.1.2. Pelvis
    - 2.9.2.2. Lumbar and Thoracolumbar Zone
      - 2.9.2.2.1. Lumbar Region
      - 2.9.2.2.2. Thoracic Region
    - 2.9.2.3. Head and Cervical zone
      - 2.9.2.3.1. Atlanto-Occipital and Atlanto-Axial Region
      - 2.9.2.3.2. Lower Cervicals
      - 2.9.2.3.3. Temporomandibular Joint TMJ
    - 2.9.2.4. Limbs
      - 2.9.2.4.1. Forelimbs

- 2.9.2.4.2. Hind Limbs
- 2.9.2.4.3. Appendicular System

- 2.10. Saddle Evaluation
  - 2.10.1. Introduction
  - 2.10.2. Part of the Saddle
    - 2.10.2.1. Armor
    - 2.10.2.2. Panels
    - 2.10.2.3. Channel or Gullet
  - 2.10.3. Adjustment and Placement of the Saddle on the Horse
  - 2.10.4. Individualized Evaluation of the Frame
    - 2.10.4.1. Regarding the Horse
    - 2.10.4.2. Regarding the Rider
  - 2.10.5. Common Problems
  - 2.10.6. General Considerations

### Module 3. Exercise Physiology and Training

- 3.1. Systemic Adaptations to Physical Exercises of Different Intensity and Duration
  - 3.1.1. Introduction to Exercise Physiology and Comparative Exercise Physiology: What Makes the Horse the Ultimate Athlete and What Consequences for the Horse?
  - 3.1.2. Respiratory Adaptations to Exercise
    - 3.1.2.1. Airway Mechanics
    - 3.1.2.2. Physiological Adjustments During Exercise
  - 3.1.3. Cardiovascular Adaptations to Exercise
    - 3.1.3.1. Importance of the Cardiovascular System in Aerobic Capacity
    - 3.1.3.1. Interpretation of Heart Rate in Exercises of Different Intensity
  - 3.1.4. Metabolic Response to Exercise
  - 3.1.5. Thermoregulation During and After Exercise
- 3.2. Systemic Adaptations to Training
  - 3.2.1. Response of Respiratory Function to Training
  - 3.2.2. Cardiovascular Changes Associated with Training and their Consequences
  - 3.2.3. Metabolic Responses to Training and Associated Mechanisms Intervention of Muscle Modifications Associated Training
  - 3.2.4. Adaptive Response of Thermoregulatory Mechanisms to Training and

- Implications for the Equine Athlete
    - 3.2.5. Adaptations of Musculoskeletal Tissues to Training: Tendons, Ligaments, Bones, Joints
  - 3.3. Design of an Exercise Test or Stress Test to Assess Physical Fitness Level
    - 3.3.1. Types of Stress Tests
      - 3.3.1.1. Treadmill and Field Stress Tests
      - 3.3.1.2. Maximum and Submaximal Intensity Tests
    - 3.3.2. Variables to Consider in the Design of a Stress Test
    - 3.3.3. Characteristics of Stress Tests for Speed, Jumping, Dressage and Endurance Horses
  - 3.4. Physiological Parameters to Be Monitored During and After a Stress Test and Interpretation
    - 3.4.1. Respiratory Measures
      - 3.4.1.1. Ventilatory Measures: Minute Ventilation and Tidal Volume
      - 3.4.1.2. Measurements of Pulmonary Mechanics
      - 3.4.1.3. Arterial Blood Gas Concentration
      - 3.4.1.4. Oxygen Consumption ( $VO_2$ ), Peak Consumption and Peak Consumption
    - 3.4.2. Cardiovascular Measures
      - 3.4.2.1. Heart Rate
      - 3.4.2.2. ECG
    - 3.4.3. Metabolic Measurements
    - 3.4.4. Gait Analysis
    - 3.4.5. Calculation and Interpretation of Functionality Indices Derived from Heart Rate and Lactate Response to Stress Testing:  $V_2$ ,  $V_4$ ,  $HR_2$ ,  $HR_4$ ,  $V_{150}$ ,  $V_{200}$
  - 3.5. Diagnostic Approach to Loss/Lack of Performance Use of Stress Tests for the Diagnosis of Reduced Performance
    - 3.5.1. Factors Limiting Sports Performance According to Competition
    - 3.5.2. Diagnostic Approach to the Horse with Loss of Performance: Evaluation at Rest
    - 3.5.3. Diagnostic Approach to the Horse with Loss of Performance: Evaluation at Exercise
    - 3.5.4. Stress Tests for the Diagnosis of Loss of Performance
    - 3.5.5. Usefulness of Serial Stress Testing and Calculation of Functional Indices for Early Diagnosis of Performance Loss
- 3.6. General Basis of Training Training of the Three Essential Capacities: Endurance, Speed and Strength
  - 3.6.1. Basic Principles of Sports Training
  - 3.6.2. Capacity Training
    - 3.6.2.1. Resistance Training
    - 3.6.2.2. Speed Training
    - 3.6.2.3. Strength Training
  - 3.6.3. Periodization of Training. Programming From Data Obtained in a Stress Test
- 3.7. Specific Training for Dressage, Show Jumping and Eventing
  - 3.7.1. Dressage
    - 3.7.1.1. Systemic Adaptations to Exercise during Dressage Testing
    - 3.7.1.2. Stress Tests Specific to the Dressage Horse
    - 3.7.1.3. Training for Dressage Horses
  - 3.7.2. Show Jumping
    - 3.7.2.1. Systemic Adaptations to Exercise during Show Jumping Trials
    - 3.7.2.2. Specific Stress Tests for Dressage Horses
    - 3.7.2.3. Training for Show Jumping Horses
  - 3.7.3. Complete Horseback Riding Competition
    - 3.7.3.1. Systemic Adaptations to Exercise During a Full Competition
    - 3.7.3.2. Specific Stress Tests for the All-Round Horse
    - 3.7.3.3. Training for All-Round Horses
- 3.8. Specific Training for Endurance and Speed
  - 3.8.1. Resistance and Endurance
    - 3.8.1.1. Systemic Adaptations to Exercise during Endurance Tests of Different Durations
    - 3.8.1.2. Specific Stress Tests for Resistance Horses
    - 3.8.1.3. Training for Resistance Horses
  - 3.8.2. Training for Race Horses
    - 3.8.2.1. Systemic Adaptations to Exercise During Speed Testing
    - 3.8.2.2. Specific Stress Tests for Race Horses
    - 3.8.2.3. Training for Race Horses



- 3.9. Overtraining Syndrome
  - 3.9.1. Definition and Types of Overtraining Syndrome
  - 3.9.2. Etiology and Pathophysiology
  - 3.9.3. Hematological, Endocrine, Muscular and Behavioral Changes Compatible with Overtraining
- 3.10. Excessive Fatigue or Exhaustion. Diagnosis, Treatment and Prevention. Pathologies Associated with Physical Exercise
  - 3.10.1. Definition of Exhaustion vs. Fatigue Pathophysiology of the Exhaustion and Post-Exhaustion Syndrome
  - 3.10.2. Pathophysiological Mechanisms Associated With Water-Electrolyte Imbalances and Energy Substrate Depletion
  - 3.10.3. Specific Pathologies Within the Exhaustion Syndrome: Exercise Hyperthermia/ Heat Stroke, Flutter or Synchronous Diaphragmatic Flutter, Colic, Diarrhea, Laminitis, Metabolic Encephelopathy, Renal Failure
  - 3.10.4. Medical Management of the Exhausted Horse
  - 3.10.5. Exhaustion Prevention Strategies: Before, During and After Competition

## Module 4. Manual Therapy

- 4.1. Introduction to Manual Therapy and Kinesiotherapy
  - 4.1.1. Definition of Manual Therapy and Kinesiotherapy
  - 4.1.2. Types of Kinesiotherapy
  - 4.1.3. Technical Aspects
  - 4.1.4. Horse Application
- 4.2. Joint Mobilizations of the Extremities
  - 4.2.1. Mobilization of the Distal Portion of the Forelimb
  - 4.2.2. Mobilization of the Proximal Portion of the Forelimb
  - 4.2.3. Mobilization of the Distal Portion of the Forelimb
  - 4.2.4. Mobilization of the Proximal Portion of the Forelimb
- 4.3. Joint Mobilizations of the Axial Skeleton
  - 4.3.1. TMJ Mobilization
  - 4.3.2. Cervical Mobilization
  - 4.3.3. Thoracolumbar Mobilization
  - 4.3.4. Lumbosacral Mobilization
  - 4.3.5. Sacroiliac Mobilization
  - 4.3.6. Tail Mobilization





- 4.4. Musculoskeletal Stretching
  - 4.4.1. Introduction
  - 4.4.2. Types of Musculoskeletal Stretching
  - 4.4.3. Osteoarticular Postures
  - 4.4.4. Forelimb Stretches
  - 4.4.5. Hind Limb Stretches
  - 4.4.6. Axial Structure Stretching
  - 4.4.7. Horse Application
- 4.5. Massage Therapy
  - 4.5.1. Introduction and Types of Massage Therapy
  - 4.5.2. Massage Therapy Techniques
  - 4.5.3. Massage Effects and Applications
  - 4.5.4. Horse Application
- 4.6. Myofascial Manual Therapy
  - 4.6.1. Introduction, Concept of Fascia and Fascial System in the Horse
  - 4.6.2. Techniques of Myofascial Therapy
  - 4.6.3. Horse Application
- 4.7. Trigger Points: Definition and Implications
  - 4.7.1. Definition and Classification of Trigger Points
  - 4.7.2. Effects and Characteristics of Trigger Points
  - 4.7.3. Origin and Causes of Trigger Points
  - 4.7.4. Implications of Chronic Pain
  - 4.7.5. Implications of Myofascial Pain in Sports
- 4.8. Trigger Point Treatment
  - 4.8.1. Manual Techniques
  - 4.8.2. Dry Needling
  - 4.8.3. Cryotherapy and Application of Electrophysical Agents
  - 4.8.4. Horse Application
- 4.9. Manipulative Therapy I
  - 4.9.1. Introduction
  - 4.9.2. Terminology.
    - 4.9.2.1. Joint Locking or Fixation
    - 4.9.2.2. Handling and Adjustment
    - 4.9.2.3. Joint Range of Motion (ROM)

- 4.9.3. Description of the Manual Handling Technique
  - 4.9.3.1. Hand Posture
  - 4.9.3.2. Body Posture
  - 4.9.3.3. Description of Settings
- 4.9.4. Security Considerations
- 4.9.5. Sacropelvic Area
  - 4.9.5.1. Sacro
  - 4.9.5.2. Pelvis
- 4.9.6. Lumbar Region
- 4.10. Manipulative Therapy II
  - 4.10.1. Thoracic Region
    - 4.10.1.1. Thoracic Region
    - 4.10.1.2. Rib Region
  - 4.10.2. Head and Cervical Region
    - 4.10.2.1. Atlanto-Occipital and Atlanto-Axial Region
    - 4.10.2.2. Lower Cervicals
    - 4.10.2.3. Temporomandibular Joint TMJ
  - 4.10.3. Limbs
    - 4.10.3.1. Forelimbs
      - 4.10.3.1.1. Scapula
      - 4.10.3.1.2. Shoulder
      - 4.10.3.1.3. Carpus

## Module 5. Electrophysical Agents in Equine Physiotherapy

- 5.1. Electrotherapy
  - 5.1.1. Physiological Basis of Electrostimulation
  - 5.1.2. Electrotherapy Parameters
  - 5.1.3. Electrotherapy Classification
  - 5.1.4. Equipment
  - 5.1.5. Precautions
  - 5.1.6. General Contraindications to Electrotherapy

- 5.2. Analgesic Electrotherapy
  - 5.2.1. Therapeutic Effects of Electricity
  - 5.2.2. TENS
    - 5.2.2.1. Endorphin TENS
    - 5.2.2.2. Conventional TENS
    - 5.2.2.3. BURST type TENS
    - 5.2.2.4. Modulated TENS
    - 5.2.2.5. Invasive TENS
  - 5.2.3. Other Types of Analgesic Electrotherapy
  - 5.2.4. Precautions and Contraindications
- 5.3. Muscle Electrostimulation
  - 5.3.1. Preliminary Considerations
  - 5.3.2. Electrostimulation Parameters
  - 5.3.3. Effects of Electrostimulation on Musculature
  - 5.3.4. Stimulation in Denervated Muscle
  - 5.3.5. Horse Application
  - 5.3.6. Precautions and Contraindications
- 5.4. Interferential Currents and Other Currents of Clinical Interest
  - 5.4.1. Interferential Currents
  - 5.4.2. Diadynamic Currents
  - 5.4.3. Russian Currents
  - 5.4.4. Other Currents That the Equine Physiotherapist Should Know About
- 5.5. Microcurrents, Iontophoresis and Magnetotherapy
  - 5.5.1. Microcurrents
  - 5.5.2. Iontophoresis
  - 5.5.3. Magnetotherapy
- 5.6. Percutaneous Electrolysis
  - 5.6.1. Physiological Fundamentals and Scientific Basis
  - 5.6.2. Procedure and Methodology
  - 5.6.3. Applications in Equine Sports Medicine
  - 5.6.4. Precautions and Contraindications





- 5.7. Diathermy
  - 5.7.1. Therapeutic Effects of Heat
  - 5.7.2. Types of Diathermy
  - 5.7.3. Radiofrequency Diathermy or Tecartherapy
  - 5.7.4. Indications and Horse Application
  - 5.7.5. Precautions and Contraindications
- 5.8. Ultrasound
  - 5.8.1. Definition, Physiological Basis and Therapeutic Effects
  - 5.8.2. Ultrasound Types and Parameter Selection
  - 5.8.3. Indications and Horse Application
  - 5.8.4. Precautions and Contraindications
- 5.9. Laser
  - 5.9.1. Concept of Photobiomodulation, Physical and Biological Basis
  - 5.9.2. Laser Types
  - 5.9.3. Physiological Effects
  - 5.9.4. Indications and Horse Application
  - 5.9.5. Precautions and Contraindications
- 5.10. Shock Waves
  - 5.10.1. Definition, Physiological Fundamentals and Scientific Basis
  - 5.10.2. Indications and Horse Application
  - 5.10.3. Precautions and Contraindications

## Module 6. Therapeutic Exercise and Active Kinesitherapy

- 6.1. Physiological Basis of Motor Control I
  - 6.1.1. Sensory Physiology
    - 6.1.1.1. What It Is and Why It Is Important Sensation vs. Perception
    - 6.1.1.2. Interconnection Between the Sensory and Motor System
  - 6.1.2. Sensory Afferent Fibers
  - 6.1.3. Sensory Receptors
    - 6.1.3.1. Definition, Types and Characteristics
    - 6.1.3.2. Cutaneous Sensory Receptors
    - 6.1.3.3. Muscle Proprioceptors
- 6.2. Physiological Basis of Motor Control II
  - 6.2.1. Afferent Sensory Tracts

- 6.2.1.1. Dorsal Spine
- 6.2.1.2. Spinothalamic Tracts
- 6.2.1.3. Spinocerebellar Tracts
- 6.2.1.4. Other Afferent Sensory Tracts
- 6.2.2. Efferent Motor Tracts
  - 6.2.2.1. Corticospinal Tract
  - 6.2.2.2. Rubrospinal Tract
  - 6.2.2.3. Reticulospinal Tract
  - 6.2.2.4. Vestibulospinal Tract
  - 6.2.2.5. Tectospinal Tract
  - 6.2.2.6. Importance of the Pyramidal and Extrapyramidal System in Animals
- 6.2.3. Neuromotor Control, Proprioception and Dynamic Stability
- 6.2.4. Fascia, Proprioception and Neuromuscular Control
- 6.3. Motor Control. Operation and Alteration
  - 6.3.1. Motor Patterns
  - 6.3.2. Levels of Motor Control
  - 6.3.3. Theories of Motor Control
  - 6.3.4. How Motor Control is Altered?
  - 6.3.5. Disfunctional Patterns
  - 6.3.6. Pain and Motor Control
  - 6.3.7. Fatigue and Motor Control
  - 6.3.8. The Gamma Circuit
- 6.4. Motor Control. Alteration and Re-Education
  - 6.4.1. Consequences of Altered Motor Control
  - 6.4.2. Neuromuscular Re-Education
  - 6.4.3. Learning Principles and Other Theoretical Considerations in Motor Control Re-Education
  - 6.4.4. Assessment and Goals in Motor Control Re-Education
  - 6.4.5. Importance of Rider-Horse Communication in the Neuromotor System
- 6.5. Motor Control. Re-Education II: *Core Training*
  - 6.5.1. Basis of Application
  - 6.5.2. Core Anatomy of the Horse
  - 6.5.3. Dynamic Mobilizations
  - 6.5.4. Facilitation or Strengthening Exercises
  - 6.5.5. Imbalance or Destabilization Exercises
- 6.6. Motor Control. Re-Education II: Proprioceptive Facilitation Techniques
  - 6.6.1. Basis of Application
  - 6.6.2. Environmental Stimulation Techniques
  - 6.6.3. Use of Proprioceptive or Tactile Stimulators and Wristbands
  - 6.6.4. Use of Unstable Surfaces
  - 6.6.5. Use of Neuromuscular Taping
  - 6.6.6. Use of Resistive Elastic Bands
- 6.7. Training and Active Rehabilitation Programs I
  - 6.7.1. Initial Considerations
  - 6.7.2. The Natural Gaits of the Horse: Biomechanical Aspects to be Considered in Re-Education
    - 6.7.2.1. Walk
    - 6.7.2.2. Trot
    - 6.7.2.3. Canter
  - 6.7.3. Working With the Neck in a Low and Elongated Position: Biomechanical Aspects to Be Considered in Reeducation
  - 6.7.4. Working in Circles: Biomechanical Aspects to Consider in Re-Education
- 6.8. Training and Active Rehabilitation Programs II
  - 6.8.1. The Backward Step: Biomechanical Aspects to Be Considered in Re-Education
    - 6.8.1.1. Initial Considerations
    - 6.8.1.2. Effects From a Biomechanics Perspective
    - 6.8.1.3. Effects From a Neurological Perspective
  - 6.8.2. Two-Track Work: Biomechanical Aspects to Be Considered in Re-Education
  - 6.8.3. Work With Bars and Cavalettis: Biomechanical Aspects to Be Considered in Re-Education
  - 6.8.4. Slope Work: Biomechanical Aspects to Be Considered in Re-Education
  - 6.8.5. Footwork and Use of Auxiliary Renderings: Biomechanical Aspects to be Considered in Re-Education
- 6.9. Training and Active Rehabilitation Programs III
  - 6.9.1. Considerations and Objectives in the Design of an Active Rehabilitation Program
  - 6.9.2. Considerations of the Effect of Training on Muscle Physiology
  - 6.9.3. Consideration of the Effect of Training on the Cardiorespiratory System
  - 6.9.4. Considerations of Specific Active Rehabilitation Programs

- 6.9.5. Effect of the Rider on Posture and Movement
- 6.10. Hydrotherapy
  - 6.10.1. Therapeutic Properties of Water
  - 6.10.2. Resting and Exercise Hydrotherapy Modalities
  - 6.10.3. Physiological Adaptations to Exercise in Water, With Special Emphasis on Locomotor Adaptations
  - 6.10.4. Use of Water Exercise in the Rehabilitation of Tendon Ligament Injuries
  - 6.10.5. Use of Water Exercise in the Rehabilitation of pathologies of Dorsal Pathologies
  - 6.10.6. Use of Water Exercise in the Rehabilitation of Joint Pathologies
  - 6.10.7. Precautions and General Considerations When Designing a Water-Based Exercise Protocol in Musculoskeletal Rehabilitation

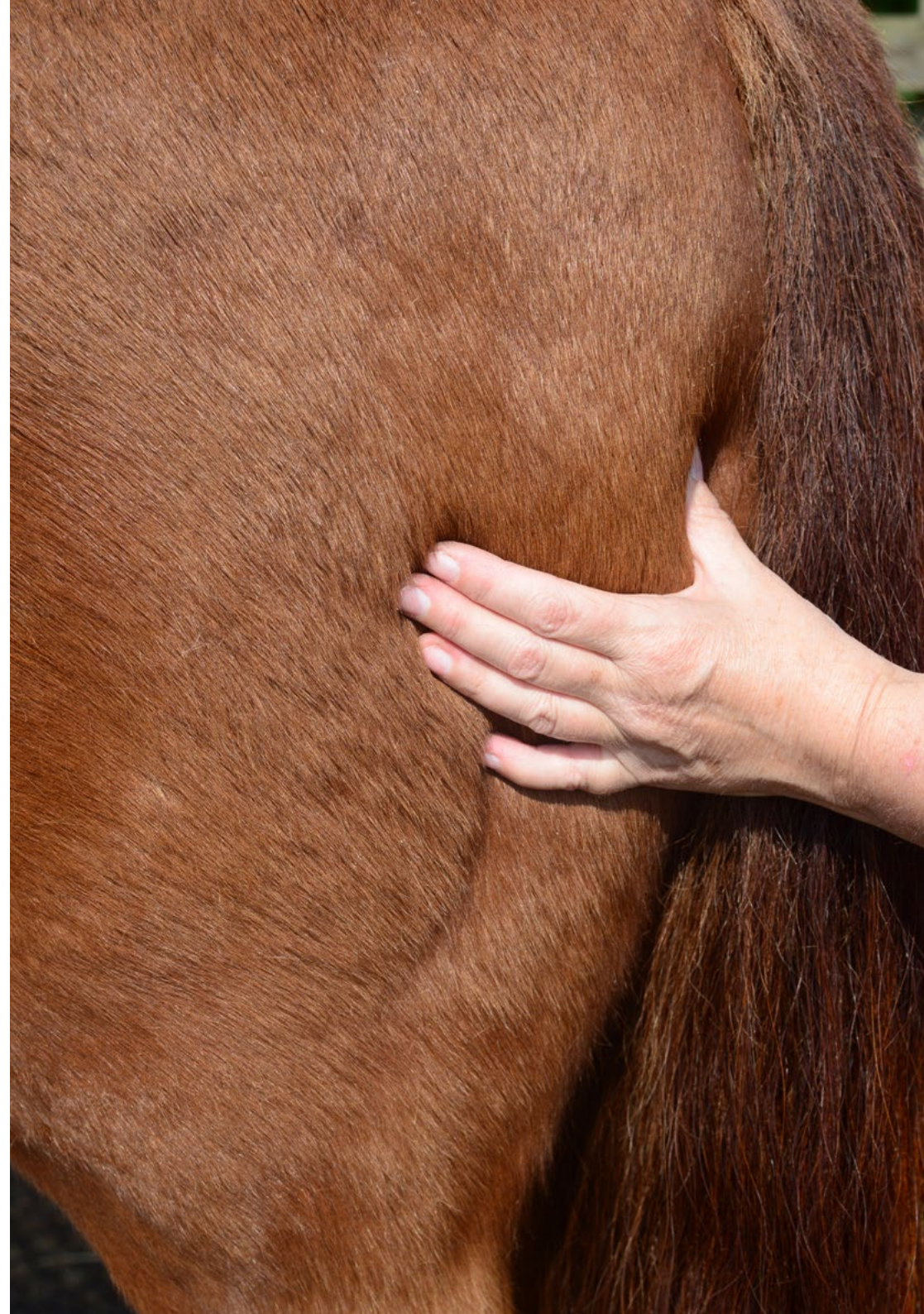
## Module 7. Complementary Modalities: Neuromuscular Taping and Acupuncture

- 7.1. Proprioceptive Elastic Bandage (Neuromuscular or Kinesiotape)
  - 7.1.1. Introduction and History
  - 7.1.2. Description and Characteristics
  - 7.1.3. Physiological Basis
  - 7.1.4. Types of Applications
- 7.2. Application Techniques I: General Considerations and Muscular Techniques
  - 7.2.1. General Application Considerations and Animal Specific Considerations
  - 7.2.2. Effects on the Muscular System
  - 7.2.3. Muscular Techniques
- 7.3. Application Techniques II: Tendinoligamentous and Fascial Techniques
  - 7.3.1. Effects on the Tendinoligamentous System
  - 7.3.2. Tendinoligament Techniques
  - 7.3.3. Effects on the Fascial System
  - 7.3.4. Fascial Techniques
- 7.4. Application Techniques III: Lymphatic Techniques
  - 7.4.1. Lymphatic System
  - 7.4.2. Effects on the Lymphatic System
  - 7.4.3. Lymphatic Techniques
- 7.5. Incorporation of Proprioceptive Elastic Taping in the Rehabilitation Program
  - 7.5.1. Integration of Exercise and Taping Techniques
  - 7.5.2. Precautions and Contraindications
  - 7.5.3. Regulation of Sporting Events
  - 7.5.4. Scientific Evidence for the Use of Bandaging
- 7.6. Acupuncture and Traditional Chinese Medicine (TCM) Bases
  - 7.6.1. Definition and Historical Background of Acupuncture
  - 7.6.2. Scientific Foundations of Acupuncture
    - 7.6.2.1. 24 Hour Clock
      - 7.6.2.1.1. Physiological Mechanisms and Their Effects
      - 7.6.2.1.2. Basic Theories of TCM
- 7.7. Acupuncture Points and Meridians
  - 7.7.1. The Meridian System
  - 7.7.2. Acupuncture Points in Horses
  - 7.7.3. General Rules of Acupuncture
- 7.8. Acupuncture Techniques
  - 7.8.1. Dry Needling
  - 7.8.2. Electroacupuncture
  - 7.8.3. Aquapuncture
  - 7.8.4. Other Techniques of Acupuncture
- 7.9. Pre-treatment Diagnosis
  - 7.9.1. How to Make a Diagnosis According to Veterinary TCM?
  - 7.9.2. Four Diagnostic Methods
  - 7.9.3. Inspection
  - 7.9.4. Perception of Body Sounds and Smells
  - 7.9.5. Research
  - 7.9.6. Palpitation
  - 7.9.7. General Physical Examination and Pre-treatment Scanning in Horses
- 7.10. Acupuncture in Horses
  - 7.10.1. Acupuncture Point Selection Based on a Conventional Diagnosis
  - 7.10.2. Orthopedic Problems
  - 7.10.3. Musculoskeletal Pain
  - 7.10.4. Neurological Problems
  - 7.10.5. Respiratory Problems
  - 7.10.6. Other Pathologies



## Module 8. Diagnostic Imaging Oriented to the Diagnosis of Problems Susceptible to Physiotherapy Treatment

- 8.1. Radiology. Radiology of the Phalanges I
  - 8.1.1. Introduction
  - 8.1.2. Radiographic Technique
  - 8.1.3. Radiology of the Phalanges II
    - 8.1.3.1. Radiographic Technique and Normal Anatomy
    - 8.1.3.2. Incidental Findings
    - 8.1.3.3. Significant Findings
- 8.2. Radiology of the Phalanges II. Navicular Disease and Laminitis
  - 8.2.1. Radiology of the Third Phalanx in Cases of Navicular
    - 8.2.1.1. Radiologic Changes in Navicular Disease
  - 8.2.2. Radiology of the Third Phalanx in Cases of Laminitis
    - 8.2.2.1. How to Measure Changes in the Third Phalanx with Good Radiographs
    - 8.2.2.2. Evaluation of Radiographic Alterations
    - 8.2.2.3. Assessment of Corrective Hardware
- 8.3. Radiology of the Fetlock and Metacarpus/Metatarsus
  - 8.3.1. Radiology the Fetlock
    - 8.3.1.1. Radiographic Technique and Normal Anatomy
    - 8.3.1.2. Incidental Findings
    - 8.3.1.3. Significant Findings
  - 8.3.2. Radiology of the Metacarpus/Metatarsus
    - 8.3.2.1. Radiographic Technique and Normal Anatomy
    - 8.3.2.2. Incidental Findings
    - 8.3.2.3. Significant Findings
- 8.4. Radiology of the Carpus and Proximal Area (Elbow and Shoulder)
  - 8.4.1. Radiology the Carpus
    - 8.4.1.1. Radiographic Technique and Normal Anatomy
    - 8.4.1.2. Incidental Findings
    - 8.4.1.3. Significant Findings
  - 8.4.2. Radiology of the Proximal Area (Elbow and Shoulder)
    - 8.4.2.1. Radiographic Technique and Normal Anatomy
    - 8.4.2.2. Incidental Findings
    - 8.4.2.3. Significant Findings



- 8.5. Radiology the Hock and Stifle
  - 8.5.1. Radiology of the Hock
    - 8.5.1.1. Radiographic Technique and Normal Anatomy
    - 8.5.1.2. Incidental Findings
    - 8.5.1.3. Significant Findings
  - 8.5.2. Radiology of the Stifle
    - 8.5.2.1. Radiographic Technique and Normal Anatomy
    - 8.5.2.2. Incidental Findings
    - 8.5.2.3. Significant Findings
- 8.6. Radiology of the Spine
  - 8.6.1. Radiology the Neck
    - 8.6.1.1. Radiographic Technique and Normal Anatomy
    - 8.6.1.2. Incidental Findings
    - 8.6.1.3. Significant Findings
  - 8.6.2. Radiology the Dorsum
    - 8.6.2.1. Radiographic Technique and Normal Anatomy
    - 8.6.2.2. Incidental Findings
    - 8.6.2.3. Significant Findings
- 8.7. Musculoskeletal Ultrasound General aspects
  - 8.7.1. Obtaining and Interpretation of Ultrasound Images
  - 8.7.2. Ultrasound of Tendons and Ligaments
  - 8.7.3. Ultrasound of Joints, Muscles and Bone Surfaces
- 8.8. Thoracic Limb Ultrasound
  - 8.8.1. Normal and Pathologic Images in the Thoracic Limb
    - 8.8.1.1. Hoof, Pastern and Fetlock
    - 8.8.1.2. Metacarpus
    - 8.8.1.3. Carpus, Elbow and Shoulder
- 8.9. Ultrasound of the Pelvic Limb, Neck and Dorsum
  - 8.9.1. Normal and Pathological Images in the Pelvic Limb and Axial Skeleton
    - 8.9.1.1. Metatarsus and Tarsus
    - 8.9.1.2. Stifle, Thigh and Hip
    - 8.9.1.3. Neck, Dorsum and Pelvis
- 8.10. Other Diagnostic Imaging Techniques: Magnetic Resonance Imaging, Computed Axial

- Tomography, Gammagraphy and PET
- 8.10.1. Description and Uses of Different Techniques
- 8.10.2. Magnetic Resonance
  - 8.10.2.1. Acquisition Technique Cuts and Sequences
  - 8.10.2.2. Image Interpretation
  - 8.10.2.3. Artifacts in Interpretation
  - 8.10.2.4. Significant Findings
- 8.10.3. CAT
  - 8.10.3.1. Uses of CT in the Diagnosis of Musculoskeletal System Injuries
- 8.10.4. Gammagraphy
  - 8.10.4.1. Uses of Gammagraphy in the Diagnosis of Musculoskeletal System Injuries
- 8.10.5. Gammagraphy
  - 8.10.5.1. Uses of Gammagraphy in the Diagnosis of Musculoskeletal System Injuries

## Module 9. Common Injuries in Sport Horses: Diagnosis, Conventional Treatment, Rehabilitation Programs and Physiotherapy. Thoracic Limb Part I

- 9.1. Introduction
- 9.2. Hoof
  - 9.2.1. Capsule: Laminitis, Quarters, Cancker
  - 9.2.2. Arthrosis
  - 9.2.3. Collateral
  - 9.2.4. Deep Flexor
  - 9.2.5. Podotrochlear Apparatus
  - 9.2.6. Phalanges
- 9.3. Metacarpo-Phalangeal Joint
- 9.4. Digital Sheath
- 9.5. Metacarpal Region
  - 9.5.1. Superficial Digital Flexor
  - 9.5.2. Deep Digital Flexor
  - 9.5.3. *Ligament Check*
  - 9.5.4. Suspensory Ligament
- 9.6. Pathology of the Carpus



- 9.7. Carpal Sheath
- 9.8. Radius, Elbow and Shoulder Pathology
- 9.9. Conventional Treatments of the Most Frequent Pathologies of the Thoracic Limb and Their Monitoring
- 9.10. Physiotherapeutic Treatments, Rehabilitation Protocols and Physiotherapy Treatment of the Most Frequent Pathologies of the Thoracic Limb
  - 9.10.1. Particularities According to Sport Discipline: Dressage/Jumping/Raid/Complete/Speed Races

## Module 10. Common Injuries in Sport Horses: Diagnosis, Conventional Treatment, Rehabilitation Programs and Physiotherapy. Pelvic Limb Part II

- 10.1. Introduction
- 10.2. Common Pathologies Distal to the Tarsus in the Pelvic Limb
  - 10.2.1. Hoof
  - 10.2.2. Metacarpo-Phalangeal Joint
  - 10.2.3. Sheath and Tendons
- 10.3. Suspensory Ligament of the Fetlock
- 10.4. Tarsal Pathology
- 10.5. Tibia and Stifle Pathology
- 10.6. Hip and Pelvis Pathology
- 10.7. Spine Pathology
  - 10.7.1. Cervical Pathology
  - 10.7.2. Toracic Pathology
    - 10.7.2.1. Spinal Processes
    - 10.7.2.2. Joint Facets
    - 10.7.2.3. Vertebral Bodies
  - 10.7.3. Lumbo-Sacral-Iliac
- 10.8. Conventional Treatments of the Most Frequent Pathologies of the pelvic Limb and Spine
  - 10.8.1. Arthrosis
  - 10.8.2. Bone Tissue
  - 10.8.3. Soft Tissues
- 10.9. Physiotherapeutic Treatments, Rehabilitation Protocols of the Most Frequent Pathologies of the Pelvic Limb and Spine
  - 10.9.1. Particularities According to Sports Discipline
- 10.10. Monitoring of Pelvic Limb and Spine Injuries







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*This specialization will allow you to comfortably advance in your career ”*

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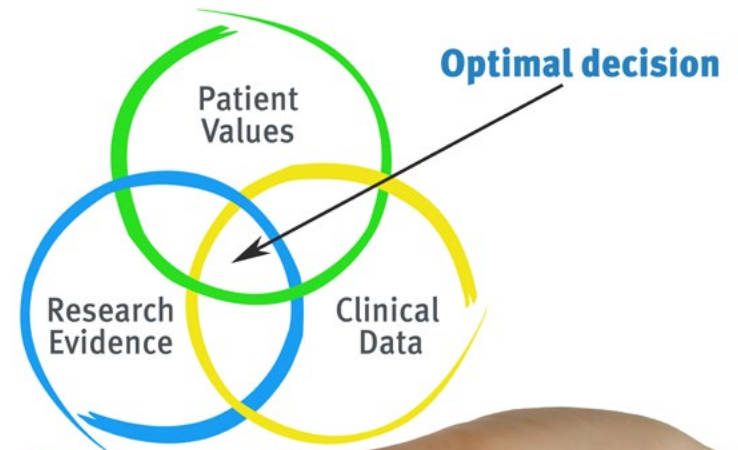
*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*



## At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Physiotherapists/kinesiologists 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, trying to recreate the real conditions of professional physiotherapy 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. Physiotherapists/kinesiologists who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on practical skills that allow the physiotherapist/kinesiologist 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 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.



*The physiotherapist/kinesiologist will learn through real cases and by solving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.*



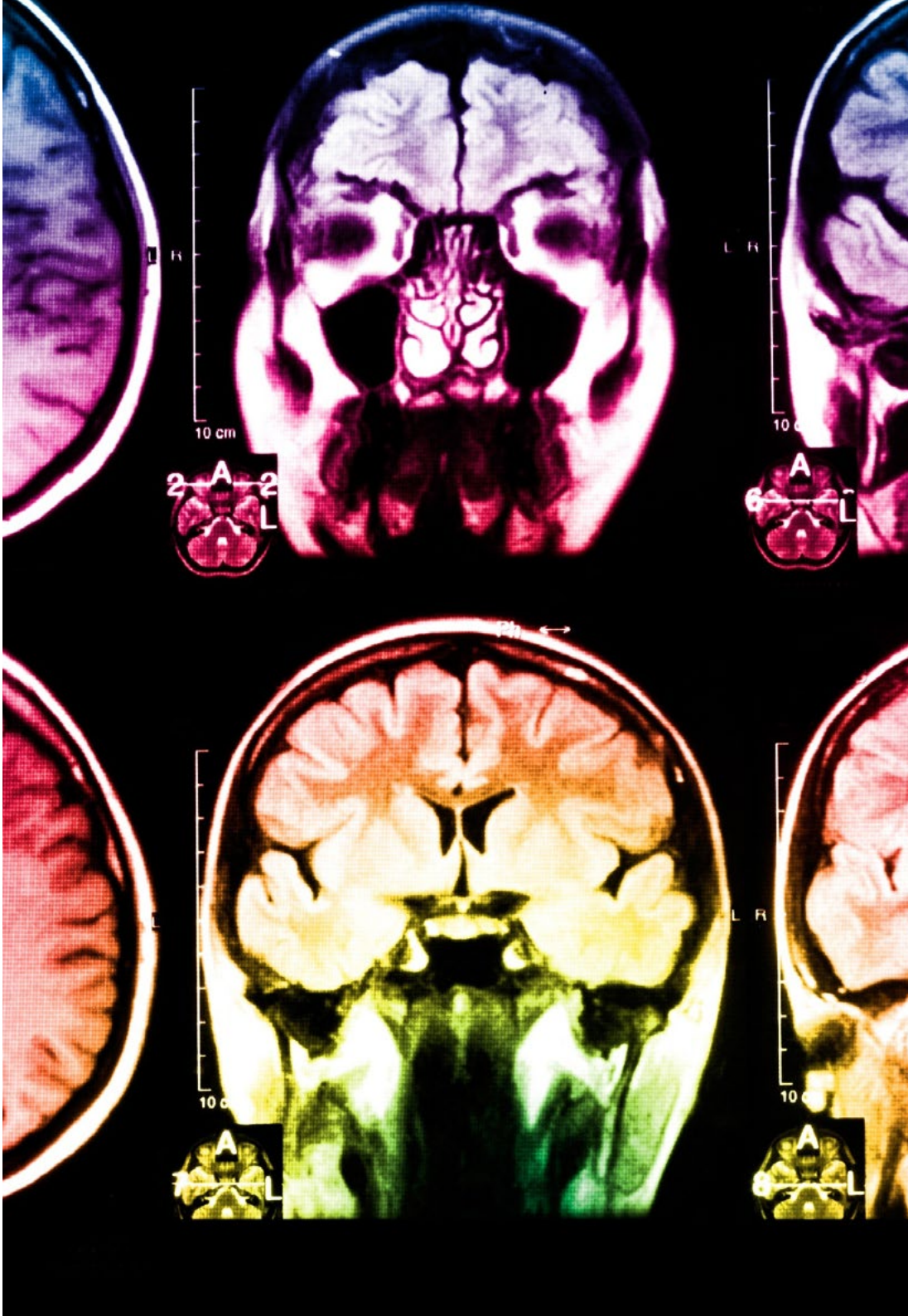
At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology we trained more than 65,000 physiotherapists/kinesiologists with unprecedented success in all clinical specialties, regardless of the workload. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

*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 our 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 really 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.



#### Physiotherapy Techniques and Procedures on Video

TECH brings students closer to the latest techniques, the latest educational advances and to the forefront of current Physiotherapy techniques and procedures. 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 them as many times as you want.



#### Interactive Summaries

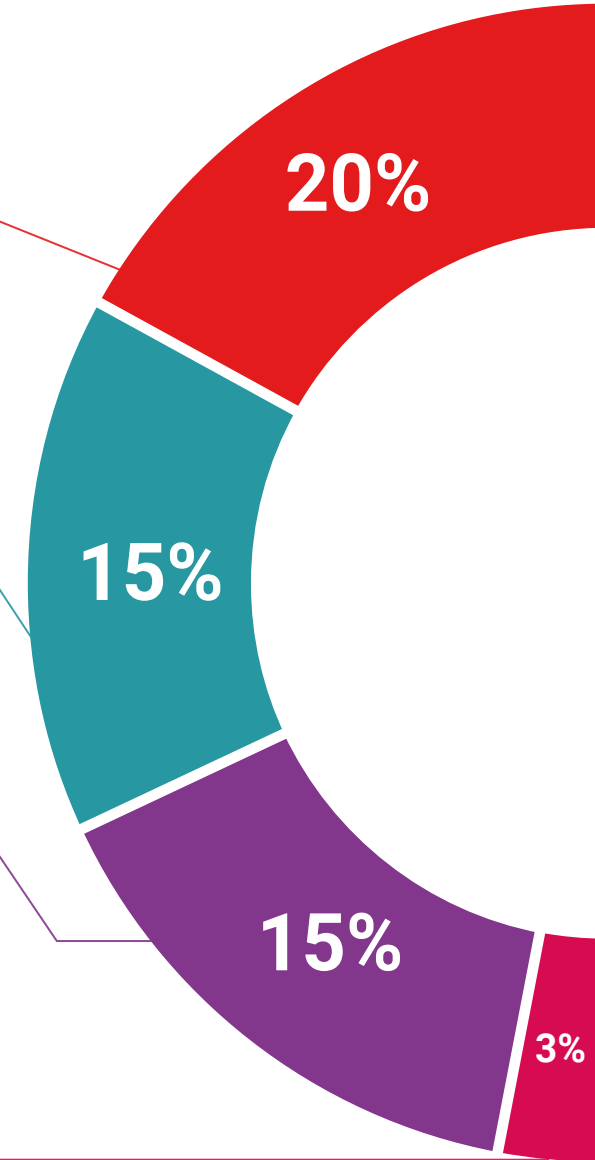
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

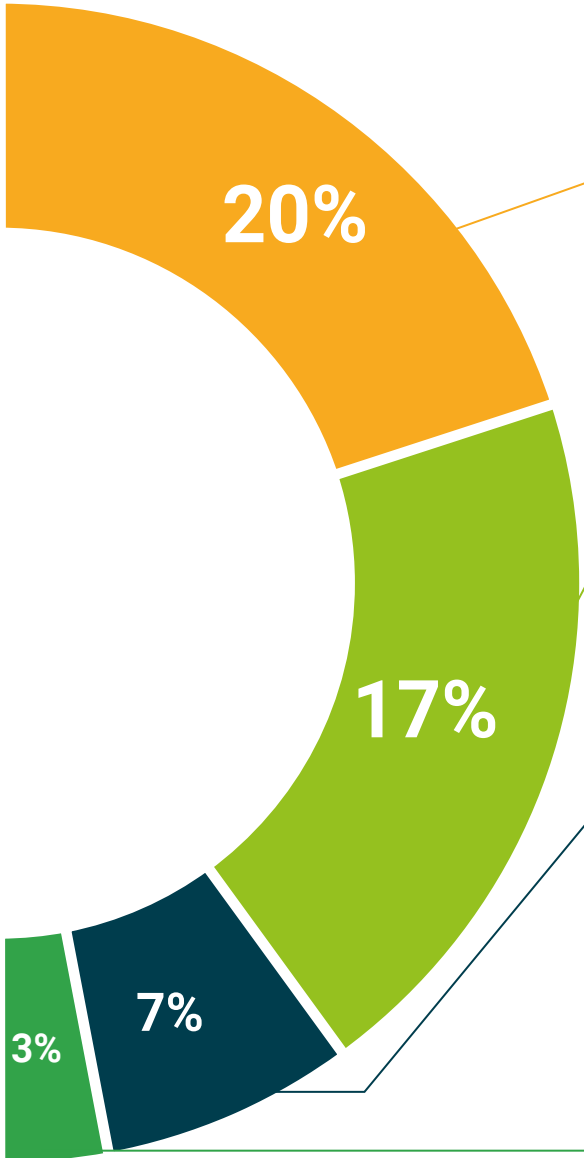
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



#### 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 on the usefulness of learning by observing experts. The system known as 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 Equine Rehabilitation guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree diploma issued by TECH Technological University.



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

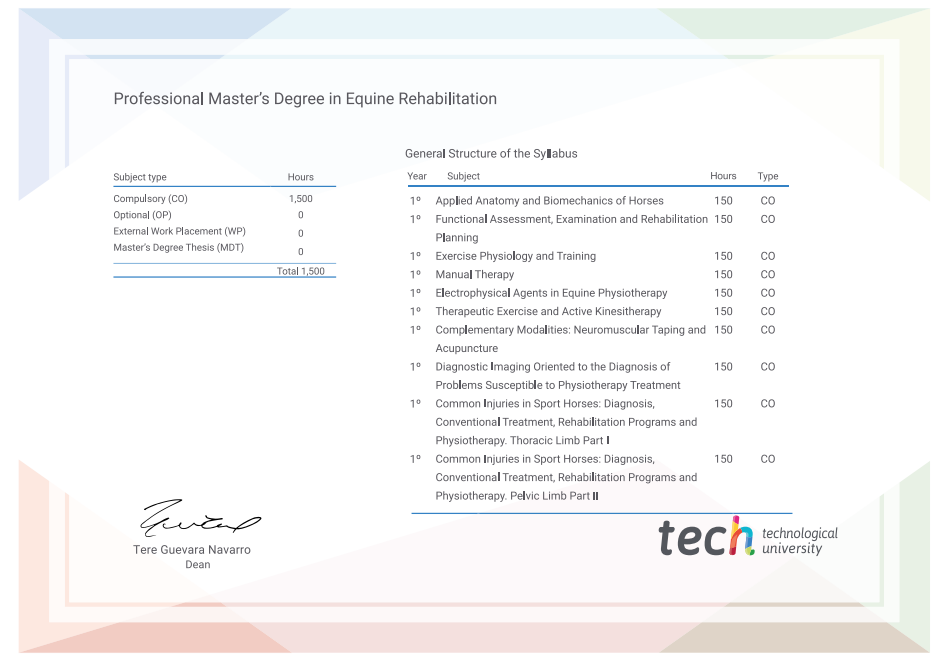
This **Professional Master's Degree in Equine Rehabilitation** contains the most complete and up-to-date educational program on the market.

After the student has passed the assessments, they will receive their corresponding **Professional Master's Degree** diploma 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 Equine Rehabilitation**

Nº 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.





## Professional Master's Degree Equine Rehabilitation

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

# Professional Master's Degree Equine Rehabilitation

