

**Postgraduate Certificate**  
Neurology, Ophthalmology  
and Expanded Therapeutic  
Protocols in Equine  
Ambulatory Practice



## Postgraduate Certificate Neurology, Ophthalmology and Therapeutic Protocols in Equine Ambulatory Practice

- » Course Modality: **Online**
- » Duration: **12 weeks**
- » Certificate: **TECH Technological University**
- » **12 ECTS Credits**
- » Teaching Hours: **300 hours**

Website: [www.techtute.com/pk/veterinary-medicine/Postgraduate Certificate/neurology-ophthalmology-therapeutic-protocols-equine-ambulatory-practice](http://www.techtute.com/pk/veterinary-medicine/Postgraduate%20Certificate/neurology-ophthalmology-therapeutic-protocols-equine-ambulatory-practice)

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# 01

# Introduction

Dermatological alterations represent one of the main causes of consultation in equine clinics. Neurological diseases, on the other hand, represent a real challenge for the clinical veterinarian. Knowledge of the basic functioning of all these systems is necessary in order to understand the pathophysiological changes that occur during the disease and thus correctly approach the diagnosis and treatment of these processes. A training that will be completed with the knowledge of the most advanced anesthesiology area.

A high-quality program that will drive you to the highest levels of competence in the industry.





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*A complete and comprehensive update in Neurology, Ophthalmology and Extended Therapeutic Protocols in Equine Ambulatory Practice with the most complete and effective preparatory program in the online training market"*

This course will review the most important aspects of neurological and ophthalmological pathologies.

The acute onset of many of the neurological conditions requires decisions to be made in a short time. Therefore, it is necessary to master the neurological examination to extract as much information as possible from our patient and work on the basis of the clinical pictures and their differential diagnoses to effectively deal with these processes in the field.

Sedation and anesthesia in the field is a common clinical practice that requires a certain degree of specialization in order to be able to adapt it to the patient being treated at any given moment. The chapter will provide the clinician with the necessary technical skills to be able to induce, maintain and reverse anesthesia in the field from beginning to end, ensuring the lowest possible risks for the patient and guaranteeing the smooth running of the surgical procedure.

On the other hand, topics specific to hospital intensive care units will be addressed, such as pain management, correction of hydro-electrolyte and acid-base balance, intensive care in neonates and adults, with the aim of providing the student with the necessary skills to enable him/her to treat a patient with ICU requirements while outside a hospital setting.



*Join the elite, with this highly efficient specialization and open new paths to your professional progress"*

This **Postgraduate Certificate in Neurology, Ophthalmology and Expanded Therapeutic Protocols in Equine Ambulatory Practice** offers you the characteristics of a high-level scientific teaching and technological course. These are some of its most notable features:

- ◆ The latest technology in online teaching software
- ◆ A highly visual teaching system, supported by graphic and schematic contents that are 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-evaluation 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 the course.

“ *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 training update we are aiming for. A multidisciplinary team of professionals trained and experienced in different environments, who will develop the theoretical knowledge in an efficient way, but, above all, will put at your disposal their practical knowledge from their own experience: one of the differential qualities of this specialization.

The efficiency of the methodological design of this Postgraduate Certificate, enhances the student's understanding of the subject. 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 training.

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: 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 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.*

*Our innovative telepractice concept will give you the opportunity to learn through an immersive experience, which will provide you with a faster integration and a much more realistic view of the contents: “learning from an expert”*



# 02 Objectives

Our goal 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, in just a few months you will be able to achieve, with a high intensity and effective training.







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*If your objective is to reorient your capacity towards new paths of success and development, this is your place: a training 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 equines.
- ◆ 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 broodmare, 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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- Recognize Neurological Equine Diseases
- Distinguish the Etiological Conditions that Causes
- Know the Etiological Agents that Originates Them
- Early detection and management of equine acular conditions
- Diagnose and Treat Corneal Ulcers
- Diagnose and Treat Uveitis
- Diagnose and Treat Stromal Abscesses
- Diagnose and Treat Immune-Mediated Keratitis
- Diagnose and Treat Retinal Detachment
- Diagnose and Treat Cataracts
- Diagnose and Treat and Glaucoma
- Prescribe Appropriate Diagnostic Tests for Each Case
- Analyze the new alternatives in terms of drugs used in sedation and anesthesia for outpatient use, as well as to deepen in the most established protocols in order to optimize this type of procedures.
- Train 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.
- Train 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 case of possible positive results in control tests for biological substances in competitions.

- Generate advanced knowledge on equine toxicology, ensuring training for the recognition of toxic symptoms as well as the identification of plants and agents harmful to equines.
- 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 of preparation and professional growth that will propel you towards greater competitiveness in the labor market"*

03

# Course Management

Within the concept of total quality of our program, we are proud to put at your disposal 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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*Leading professionals in the field have come together to teach you the latest advances in Neurology, Ophthalmology and Extended Therapeutic Protocols in Equine Ambulatory Practice”*

## International Guest Director

As one of the foremost veterinary surgeons in equine patient 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. Thus, 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 evaluation 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 Society for the Protection of Animals Abroad. Morocco
- Graduate of 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



### Dña. Varela del Arco, Marta

- Clinical Veterinarian in Equine Medicine, Surgery and Sports Medicine
- Head of the Large Animals Area of the Complutense Veterinary Clinic Hospital of Madrid (UCM).
- Associate Professor, Department of Animal Medicine and Surgery, Complutense University of Madrid (UCM)
- Head of Large Animal Unit at Complutense Clinical Veterinary Hospital of Madrid
- Assistant Professor in the Department of Animal Medicine and Surgery at UCM in 2007, she has been an Associate Professor in that Department from 2015 to the present.
- She teaches in different undergraduate and graduate courses, university specialization programs and Professional Master's Degrees.
- She actively participates as director of final projects in the Veterinary Degree and as a member of the tribunal of different doctoral theses.



### Dña. De la Cuesta Torrado, María

- Veterinarian with clinical specialty in Equine Internal Medicine
- Associate Professor, Department of Equine Medicine and Surgery, Cardenal Herrera Ceu University of Valencia since 2012.
- Member of the Organizing Committee of the "12th European College of Equine Internal Medicine Congress 2019 (ECEIM)".
- Member of the Board of Directors of Spanish Society of Ozone Therapy
- Member of the Equine Clinicians Commission of the Official College of Veterinarians of Valencia.
- Member of the Spanish Association of Equine Veterinarians (AVEE).
- Member of the scientific committee and coordinator of courses and congresses in the area of ozone therapy, supported by continuing education credits (CEC) granted by the National Health System.



## Professors

### Dr. Aguirre Pascasio, Carla

- ◆ Degree in Veterinary Medicine from Santiago de Compostela University (1995-2000)
- ◆ Doctor in Veterinary Medicine from the University of Murcia (2009). After obtaining the Certificate of Advanced Studies (2005), he concluded his doctorate at the same university with the thesis "Doppler in digital ultrasonography in horses with laminitis", obtaining a grade of Outstanding Cum Laude.
- ◆ Certified in Internal Medicine by the Royal Veterinary College of London, University of Liverpool, 2012 (CertAVP EM - Equine Medicine).

### Dña. Barba Recreo, Martha

- ◆ Head of the Equine Internal Medicine Service, Clinical Veterinary Hospital, CEU Cardenal Herrera University, Valencia.
- ◆ Degree in Veterinary Medicine from the University of Zaragoza in 2009
- ◆ D. in Biomedical Sciences, Auburn University, Alabama, USA, in 2016.
- ◆ Diplomate of the American College of Internal Medicine, Large Animal in 2015.
- ◆ 2010 - 2011: Rotating internship in Equine Medicine and Surgery at the University of Lyon, VetAgro-Sup, France.
- ◆ 2012 - 2015: Residency in Equine Internal Medicine, "J.T. Vaughan Large Animal Teaching Hospital, Auburn University, Alabama, U.S.A.
- ◆ Assistant Professor, Department of Animal Medicine and Surgery, Faculty of Veterinary Medicine, CEU Cardenal Herrera University, Valencia.
- ◆ 2016: Professor and veterinary specialist in Equine Internal Medicine and research associate, Weipers Centre Equine Hospital, University of Glasgow, Scotland, United Kingdom.
- ◆ 2016-Present: lecturer, researcher and clinical veterinarian in the Equine Internal Medicine service, Faculty of Veterinary Medicine, CEU Cardenal Herrera University, Valencia.
- ◆ 2011 - 2012: Mobile equine veterinary clinic, Gres-Hippo, St. Vincent de Mercuze, France

### Dña. Forés Jackson, Paloma

- ◆ Vice-Dean of Students and Professional Orientation (Faculty of Veterinary Medicine, Complutense University of Madrid)
- ◆ Member of the Equine Medicine Service of the Complutense Clinical Veterinary Hospital (HCVC).
- ◆ Graduated in Veterinary Medicine from the Complutense University of Madrid in 1986.
- ◆ D. in Veterinary Medicine by Madrid Complutense University in 1993.
- ◆ Full Professor of the Department of Animal Medicine and Surgery at UCM
- ◆ He started in 1987 as an Assistant in the Department of Animal Pathology II of the Faculty of Veterinary Medicine of the UCM.
- ◆ In 1992 he worked as Associate Professor and in 1996 he obtained a tenured position in the Department of Animal Medicine and Surgery.
- ◆ Stay in College of Veterinary Medicine, Department of Large Animal Clinical Sciences, Gainesville University, Florida (1994)
- ◆ He teaches in different undergraduate and graduate courses, university specialization programs and masters and coordinates different subjects. He has taken part in and organized national and international courses

**Rodríguez Hurtado, Isabel**

- ◆ Specialist in Internal Medicine of Horses
- ◆ Veterinary Degree from the Complutense University of Madrid.
- ◆ Doctorate in Veterinary Medicine in 2012.
- ◆ Graduate of the American College of Veterinary Internal Medicine (ACVIM) in 2007.
- ◆ Internship and Residency in Equine Internal Medicine at Auburn University (USA).
- ◆ Master's Degree in Biomedical Sciences.
- ◆ Master's Degree in Research Methodology in Health Sciences
- ◆ Professor and Coordinator of the subject "Medical Pathology" and "Nutrition" of the Veterinary Degree ( University Alfonso X el Sabio- UAX, Madrid).
- ◆ Professor of the Postgraduate Certificate Master's Degree in Equine Internal Medicine at the Alfonso X el Sabio University.
- ◆ Head of the Internal Medicine Service of Horses (UAX)
- ◆ Head of the Large Animals Area of the Clinical Veterinary Hospital (UAX)





### **Dña. Santiago Llorente, Isabel**

- ◆ Her professional career is focused on equine clinical practice and research
- ◆ Head of the Internal Equine Medicine Service of the Complutense Clinical Veterinary Hospital (HCVC UCM).
- ◆ PhD in Veterinary Medicine from the UCM (2016), obtaining the specialty CertEspCEq.
- ◆ Degree in Veterinary Medicine from the Complutense University of Madrid, 1999.
- ◆ Rotating Internship at UCM.
- ◆ Teacher training in various undergraduate and graduate courses and several university specialization programs and master's degrees.
- ◆ Professor at the Lusófona University of Lisbon (Portugal) in the Department of Medical Clinical Pathology II from 2019 to present.
- ◆ Private practice in the areas of equine internal medicine, reproduction and lameness diagnosis.
- ◆ From 2005 to the present: Hired veterinarian in the Large Animal Area at the Hospital Clínico Veterinario Complutense (HCVC UCM), performing her main professional duties in the fields of equine anesthesia, equine internal medicine and hospitalization and intensive care.
- ◆ Founding partner of "Compluvet S.L.", company responsible for the assistance and anti-doping control in horse races in Spain since 2010 until today.

# 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 that 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. Nervous System and Ophthalmology

- 1.1. Neuroanatomical Localization of Neurological Injuries in the Horse
  - 1.1.1. Neuroanatomical Peculiarities of the Horse
  - 1.1.2. Medical History
  - 1.1.3. Neurological Examination Protocol
    - 1.1.3.1. Head Assessment Behavior, Consciousness, Positioning and Cranial Nerves
    - 1.1.3.2. Posture and Motor Function Assessment Gradation of Alterations
    - 1.1.3.3. Neck and Thoracic Limb Evaluation
    - 1.1.3.4. Evaluation of the Trunk and Pelvic Limb
    - 1.1.3.5. Evaluation of Tail and Anus
  - 1.1.4. Complementary Methods of Diagnostic
- 1.2. Disorders Affecting the Cerebral Cortex and Brainstem
  - 1.2.1. Consciousness State Regulation
  - 1.2.2. Cranial Trauma
    - 1.2.2.1. Aetiopathogenesis.
    - 1.2.2.2. Symptoms and Syndromes
    - 1.2.2.3. Diagnosis
    - 1.2.2.4. Treatment
    - 1.2.2.5. Prognosis
  - 1.2.3. Metabolic Encephalopathy
    - 1.2.3.1. Hepatic Encephalopathy
  - 1.2.4. Seizures and Epilepsy
    - 1.2.4.1. Types of Seizure Disorders
    - 1.2.4.2. Types of Epilepsy (ILAE Classification) (International League Against Epilepsy)
    - 1.2.4.3. Treatment
  - 1.2.5. Narcolepsy
- 1.3. Cerebellar or Vestibular Alterations
  - 1.3.1. Coordination and Balance
  - 1.3.2. Cerebellar Syndrome
    - 1.3.2.1 Cerebellar Abiotrophy
  - 1.3.3. Vestibular Syndrome
    - 1.3.3.1. Peripheral Vestibular Syndrome
    - 1.3.3.2. Central Vestibular Syndrome
    - 1.3.3.3. Head Trauma and Vestibular Syndrome
    - 1.3.3.4. Osteoarthropathy Temporoihidea
- 1.4. Spinal Alterations
  - 1.4.1. Cervical Stenotic Myelopathy
    - 1.4.1.1. Aetiopathogenesis.
    - 1.4.1.2. Symptomatology and Neurological Examination
    - 1.4.1.3. Diagnosis
    - 1.4.1.4. Radiology
    - 1.4.1.5. Myelography
    - 1.4.1.6. Magnetic Resonance Imaging, Computerized Axial Tomography, Gammagraphy.
    - 1.4.1.7. Treatment
  - 1.4.2. Equine Degenerative Myeloencephalopathy (EDM)
  - 1.4.3. Spinal Trauma
- 1.5. Bacterial, Fungal and Parasitic Infections of the Nervous System
  - 1.5.1. Bacterial Encephalitis or Encephalomyelitis
    - 1.5.1.1. Etiological Agents
    - 1.5.1.2. Symptomatology
    - 1.5.1.3. Diagnosis
    - 1.5.1.4. Treatment
  - 1.5.2. Fungal Encephalitis
  - 1.5.3. Equine Protozoal Encephalomyelitis (EPM)
    - 1.5.3.1. Aetiopathogenesis.
    - 1.5.3.2. Symptoms
    - 1.5.3.3. Diagnosis
    - 1.5.3.4. Treatment
  - 1.5.4. Meningoencefalomyelitis Verminosa
    - 1.5.4.1. Aetiopathogenesis.
    - 1.5.4.2. Symptoms
    - 1.5.4.3. Diagnosis and Treatment

- 1.6. Viral Infections of the Nervous System
  - 1.6.1. Equine Encephalomyelitis due to Herpesvirus Type -1 (EHV-1)
    - 1.6.1.1. Aetiopathogenesis.
    - 1.6.1.2. Clinical Picture
    - 1.6.1.3. Diagnosis
    - 1.6.1.4. Treatment
  - 1.6.2. West Nile Virus Encephalomyelitis
    - 1.6.2.1. Aetiopathogenesis.
    - 1.6.2.2. Clinical Picture
    - 1.6.2.3. Diagnosis
    - 1.6.2.4. Treatment
  - 1.6.3. Rabies
    - 1.6.3.1. Aetiopathogenesis.
    - 1.6.3.2. Clinical Picture
    - 1.6.3.3. Diagnosis
    - 1.6.3.4. Treatment
  - 1.6.4. Borna, Hendra and other Viral Encephalitis Viruses
- 7.7. Ocular Examination Ocular Nerve Blocks and Sub-palpebral Catheter Placement
  - 1.7.1. Anatomy and Physiology of the Eyeball
  - 1.7.2. Optic Nerve Blocks
  - 1.7.3. Ophthalmologic examination
  - 1.7.4. Basic Diagnostic Tests
  - 1.7.5. Advanced Diagnostic Tests
  - 1.7.6. Sub-palpebral Catheter Placement
- 7.8. Palpebral Pathologies Ocular Perforations Entropion Correction
  - 1.8.1. Anatomy of Adnexal Tissues
  - 1.8.2. Eyelid Alterations
  - 1.8.3. Entropion Correction
  - 1.8.4. Ocular Perforations
- 7.9. Corneal Ulcers
  - 1.9.1. General Aspects and Classification of Corneal Ulcers
  - 1.9.2. Simple, Complex and Severe Ulcers
  - 1.9.3. Indolent Ulcer
  - 1.9.4. Infectious Keratitis
  - 1.9.5 Corneal Surgery

- 1.10. Uveitis and Ocular Medical Pathologies
  - 1.10.1. Immune-Mediated Keratitis
  - 1.10.2. Stromal Abscess
  - 1.10.3. Equine Recurrent Uveitis
  - 1.10.4. Crystalline Lens Alterations
  - 1.10.5. Posterior Segment Alterations and Glaucoma
  - 1.10.6. Neoplasms

## 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.  $\alpha_2$  agonists and opiates
  - 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 Probes 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

05

# Methodology

This training provides you with a different way of learning. Our methodology uses a cyclical learning approach: ***Re-learning***.

This teaching system is used 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 Re-learning, 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

In a given clinical situation, what would you do? 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 abundant scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH you can 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 potential or because of its uniqueness or rarity. It is essential that the case be based on current professional life, trying to recreate the real conditions in the 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 achieve the assimilation of concepts, but also a development of their mental capacity through exercises to evaluate real situations and the application of knowledge.
2. The learning process has a clear focus on practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. The feeling that the effort invested is effective becomes a very important motivation for veterinarians, which translates into a greater interest in learning and an increase in the time dedicated to working on the course.



## Re-Learning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Re-learning.

Our 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, which represent a real revolution with respect to simply studying and analyzing cases.



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

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

With this methodology we have trained more than 65,000 veterinarians with unprecedented success, in all clinical specialties regardless of the surgical load. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

*Re-learning 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 to success.*

In our program, learning is not a linear process, but rather a spiral (we 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.



In this program you will have access to the best educational material, prepared with you 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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



### Latest Techniques and Procedures on Video

We bring you closer to the latest Techniques, to the latest Educational Advances, to the forefront of current Veterinary Techniques and Procedures. All this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



### Interactive Summaries

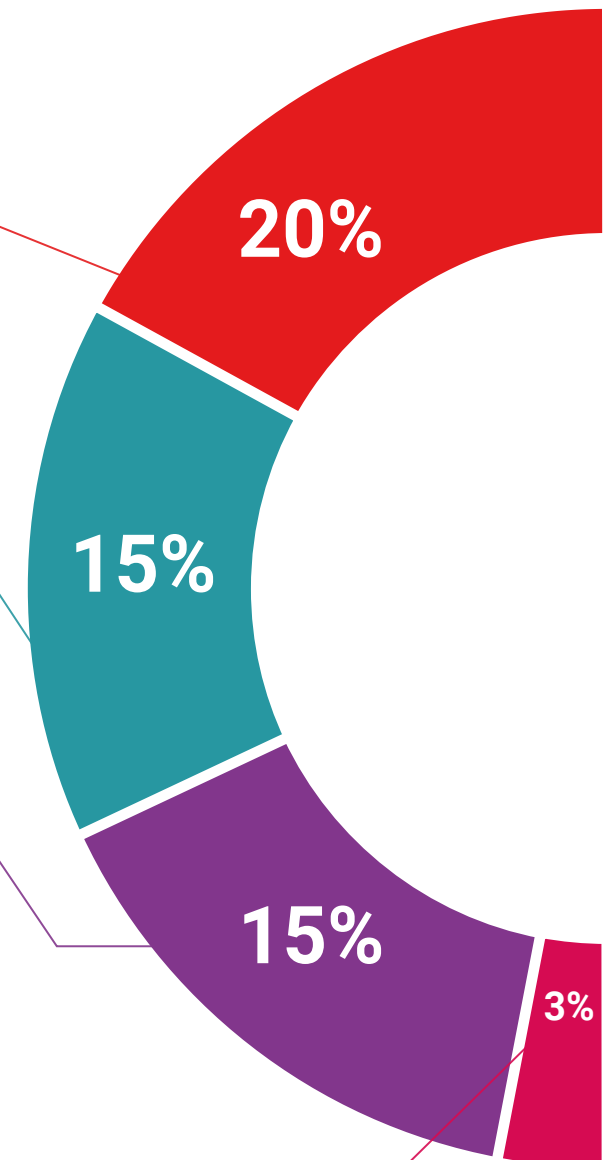
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

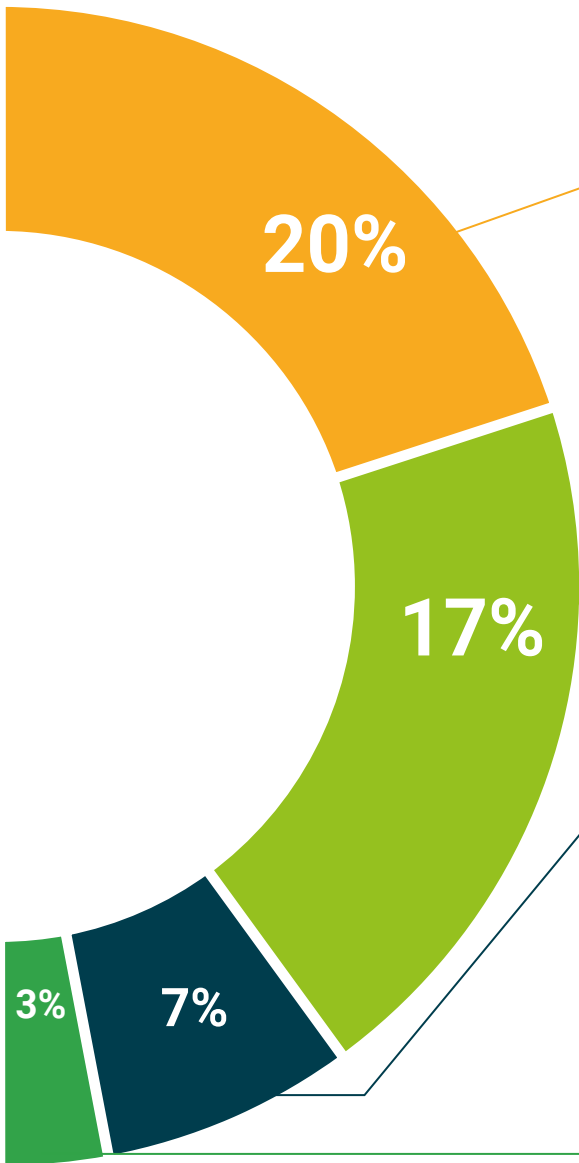


### Additional Reading

Recent articles, consensus documents, international guides. in our virtual library you will have access to everything you need to complete your training.







**Expert-Led Case Studies and Case Analysis**

Effective learning ought to be contextual. Therefore, we will present you with real case developments in which the expert will guide you through focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



**Testing & Re-testing**

We periodically evaluate and re-evaluate your knowledge throughout the program, through assessment and self-assessment activities and exercises: so that you can see how you are achieving your 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 our future difficult decisions.



**Quick Action Guides**

We offer you the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help you progress in your learning.



# 06 Certificate

The **Postgraduate Certificate in Neurology, Ophthalmology and Extended Therapeutic Protocols in Equine Ambulatory Practice** guarantees you, in addition to the most rigorous and updated training, access to a Postgraduate Certificate issued by **TECH Technological University**.



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*Include in your specialization a Postgraduate Certificate in Neurology, Ophthalmology and Extended Therapeutic Protocols in Equine Ambulatory Practice: a highly qualified added value for any professional in this area"*

This **Postgraduate Certificate in Neurology, Ophthalmology and Extended Therapeutic Protocols in Equine Ambulatory Practice** contains the most complete and up-to-date program on the market.

After students have passed the assessments, they will receive their **Postgraduate Certificate** issued by **TECH Technological University** and sent by certified mail.

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 professionals from career evaluation committees.

Title: **Postgraduate Certificate in Neurology, Ophthalmology and Expanded Therapeutic Protocols in Equine Ambulatory Practice**

ECTS: **12**

Official Number of Hours: **300**



\*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.

future

health

confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

personalized service innovation

knowledge present quality

online training

development language

virtual classroom

**tech** technological  
university

**Postgraduate Certificate**

Neurology,  
Ophthalmology  
and Therapeutic  
Protocols  
in Equine Ambulatory  
Equine Ambulatory

- » Course Modality: **Online**
- » Duration: **12 weeks**
- » Certificate: **TECH Technological University**
- » **12 ECTS Credits**
- » Teaching Hours: **300 hours**

# Postgraduate Certificate Neurology, Ophthalmology and Expanded Therapeutic Protocols in Equine Ambulatory Practice

