Postgraduate Diploma

Small Animal Neurology: Neurological Examination and Neurolocalization

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Postgraduate Diploma
Small Animal Neurology: Neurological Examination and Neurolocalization

- Modality: **online**
- Duration: **6 months**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/us/veterinary-medicine/postgraduate-diploma/postgraduate-diploma-small-animal-neurology-neurological-examination-neurolocalization**

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01

Introduction

A deep and complete knowledge of the embryology, physiology and anatomy of the nervous system in small animals is the theoretical basis from which the professional can develop his ability to approach neurological pathologies. This Postgraduate Diploma will specialize students in all these aspects and in those necessary to perform a thorough and accurate neurological examination of their patients, knowing how to determine the suitability of each diagnostic test or treatment and, of course, interpret their results so that they become the beginning of the most up-to-date intervention protocols in the neurological care of small animals.

With this high-level program you will learn to determine the different bones and joints that protect the brain and spinal cord"

This Postgraduate Diploma addresses the embryology, anatomy and physiology of the nervous system. For a correct understanding of the pathologies that cause nervous system disorders, it is essential to know how the structures that compose it are formed embryologically, to see which are its components and how they function and interrelate with each other.

The study of embryology and the process of nervous system structure formation in the embryo is fundamental for the knowledge of congenital pathologies that can be explained by malformation.

It is important to know the bony structures that protect the central nervous system of the different regions of the brain and spinal cord, which are key to a correct interpretation of the imaging tests. As well as the exhaustive knowledge of the essential anatomy that focuses the practitioner on the surgical procedures and in the approach and techniques that neurosurgery demands.

Depending on where the problem is located: in the central nervous system or in the peripheral nervous system, the clinical and diagnostic tests will be very different, being very important its recognition to reach definitive conclusions.

This Postgraduate Diploma addresses how to correctly perform a neurological examination, the collection of data such as medical history and review, a correct physical examination of the patient and a methodical and systemic evaluation of the neurological examination. The emphasis will also be placed on everything necessary to carry it out and collect the data.

Just as important as a correct neurological examination and a detailed outline of the list of possible problems for each case, is the assessment of the diagnostic tests that should be considered, most of them being complementary, since on rare occasions a final diagnosis will be reached by performing only one of them

Diagnostic tests will give not only an almost certain diagnosis, but also a structuring and an approach to the therapy used in each case, as well as the prognosis that each pathological entity has in order to advise the owner in the best possible way.

This **Postgraduate Diploma in Small Animal Neurology**: **Neurological Examination and Neurolocalization** offers the characteristics of a high level scientific, educational and technological program. 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 program
- Content that is accessible from any fixed or portable device with an Internet connection

Learn how to guide and interpret the appropriate diagnostic tests for each situation and patient, applying new technologies in the search for the most appropriate data and therapeutic pathways"

A structured and intensive study that will go through all the points of interest you need to update your intervention in small animal neurology"

TECH's teaching staff is made up of professionals from different fields related to this specialty. In this way TECH makes sure to offer the student the training update objective they are looking for. A multidisciplinary team with training and experience in different environments, who will develop the theoretical knowledge in an efficient way, but, above all, will bring their practical knowledge derived from their own experience to the program: one of the differential qualities of this Postgraduate Diploma.

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* , the student will be able to acquire the knowledge as if they were facing the scenario being learned at that moment. A concept that will allow students to integrate and memorize what they have learnt in a more realistic and permanent way.

A high-quality Postgraduate Diploma created to facilitate dynamic and effective learning, allowing you to manage your studies according to your circumstances.

You will learn everything you need to understand the pathologies of the nervous system, take a correct medical history, detect the site of the lesion and intervene in the most efficient way.

02

Objectives

The objective of this complete Postgraduate Diploma is to generate specialized knowledge in the student by creating a well-structured basis to identify the clinical signs associated with each neurological location and to be able to establish a list of differential diagnoses, acting correctly to achieve the best possible prognosis in patients.

Boost your intervention capacity by incorporating the most updated knowledge in this field, learning in a realistic and effective way to grow as a professional"

General Objectives

- Examine the embryonic development of the nervous system in its different phases and the mechanisms involved in its training
- Determine, in an exhaustive manner, the different regions of the central nervous system, peripheral nervous system and musculoskeletal system
- Analyze the physiology and mechanism of the functioning of the central nervous system.
- Identify the different vascular structures of clinical importance to identify possible vascular pathologies and learn about these structures in surgical procedures.
- Perform a correct anamnesis and data collection.
- Determine the steps of the neurological examination and its correct performance.
- Identify the characteristic clinical signs depending on the site of the lesion.
- Define the list of problems depending on the program, clinical history and patient review.
- Identify the most common laboratory tests
- Compile the indications, performance and interpretation of advanced imaging tests
- Develop the principles of electrophysiology, the different tests and their interpretation
- Determine the correct performance of muscle and nerve biopsy

Specific Objectives

Module 1. Nervous System Embryology, Anatomy and Physiology

- Identify the different stages of embryonic development of the nervous system.
- Present, in a clear and concise manner, the anatomy and physiology of the brain and the anatomy and physiology of the spinal cord.
- Develop the mechanisms of nerve impulse transmission
- Determine the different bones and joints that protect the brain and spinal cord.
- Examine the characteristics of the arterial and venous blood supply to the brain and spinal cord.

Module 2. Neurological Examination and Neurolocalization

- Structure the steps to follow for a correct neurological evaluation
- Analyze the different differential diagnoses depending on each case
- Identify the characteristic clinical signs of a lesion in the forebrain, brainstem and cerebellum
- Identify the clinical signs characteristic of a lesion in the different segments of the spinal cord and of a peripheral nervous system involvement

Module 3. Diagnostic Tests

- Interpret the various parameters in blood and CSF tests that are of clinical significance
- Structuring the correct performance and interpretation of myelography, CT and MRI scans
- Justify the different electrophysiological tests and their interpretation
- Present the performance of muscle and nerve biopsy and its interpretation
- Identify the different genetic tests in dogs and cats

Stay ahead of the competition with a comprehensive update that is of maximum interest to veterinary professionals"

03

Course Management

TECH has chosen the most competent professionals in this field for this Postgraduate Diploma, to offer students the opportunity to study under the guidance of a teaching staff of the highest level. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.

Specialists from different areas of expertise will be your teachers during the Postgraduate Diploma a unique occasion not to be missed"

Director Invitado Internacional

Dr. Steven de Decker's interest in the field of Veterinary Neurology has led him to be one of the most important figures in this area worldwide. He has participated in several international congresses, including the Singapore Vet Show, the largest veterinary conference in the Asian continent.

Such is his relevance that he has become president of the British Society of Veterinary Neurology. He is also a senior lecturer and head of the Neurology and Neurosurgery service at the Royal Veterinary College, considered one of the best veterinary institutions in the world.

His main area of research is spinal disorders and neurosurgery, having delved into the diagnosis and treatment of cervical disc-associated spondylomyelopathy or Wobbler's syndrome in dogs. His most cited studies deal with the prevalence of thoracic vertebral malformations, meningoencephalomyelitis of unknown origin and spinal arachnoid diverticula in dogs.

Dr. De Decker, Steven

- Head of Neurology and Neurosurgery Service, Royal Veterinary College - Hertfordshire, United Kingdom
- Head and Professor of the Neurology and Neurosurgery Service of the Royal Veterinary College - Hertfordshire, UK
- Past President of the British Veterinary Neurological Society.
- Doctor of Veterinary Neurology and Neurosurgery, University of Ghent, Belgium
- Graduate of the University of Ghent, Belgium

Gracias a TECH podrás aprender con los mejores profesionales del mundo"

Management

Dr. Moya García, Sergio

- Doctoral candidate with the Chair of Surgery at the Faculty of Veterinary Medicine of Córdoba
- Miembro de Royal Collage Veterinary Surgeon (MRCVS)
- Member of the Endoscopy Group (GEA) of the Association of Veterinary Specialists in Small Animals (GEA-AVEPA) and of the Association of Veterinary Specialists in Minimally Invasive Medicine (AEVMI)
  and of the Neurology Group of AVEPA
- Vocal of Small Animals of the Official College of Veterinarians of Malaga since 2014
- Headof ATV training for AVEPA. Postgraduate in Neurology by the European School of Veterinary Studies Postgraduate (ESVP)
  Master's Degree in Clinical and Therapeutic Research from the University of Las Palmas de Gran Canaria
- Veterinary Specialist Degree in Endoscopy and Minimally Invasive Surgery by the University of Extremadura
- Assistance Director of the Vetersalud Dr. Moya Day Hospital and Head of the Neurology Department of the Bluecare Animal Hospital
- Currently pursuing neurology accreditation by AVEP

Professors

Dr. Ródenas González, Sergio

- Graduated from the Veterinary University of Cáceres (Uex), he did an internship in the Surgery Department of the same faculty..
- Doctorate in Neurology at the Veterinary Faculty of Maisons Alfor;
- Stays in American Universities and European reference centers in Neurology and Neurology services (University of Davis California, Pennsylvania, Guelph (OVC), Animal Health Trust, etc)..
- ECVN Diplomate and European specialist in veterinary neurology.
- 2 years in a referral center in England (SCVS) in the Neurology and Neurosurgery service
- One year clinical instructor in Neurology and Neurosurgery at the Faculty of Veterinary Medicine of the University of Montreal (Canada)
- In Canada, head of Neurology and Neurosurgery in two referral centers while continuing his work in England for two years.
- Numerous national and international publications, as well as speaker at numerous international congresses on veterinary neurology and neurosurgery.

Dr. Gómez Álvarez, Christian Mauricio

- Veterinarian Doctor Universidad de La Salle (ULS)
- More than 10 years of experience in Clinical Neurology.
- Master's Degree (MSc) in Physiology UNAL
- ACVIM-Neurology Course Neuroimaging, Neuropathology and Electrophisiology 2020
- Ohio State University Braincamp Course in Neurología y Neurociencias 2016.
- Postgraduate Course in Advanced Clinical Neurology, UCASAL, Argentina
- Clinical Neurology Fellowship, University of Montreal, Canada.

04

Structure and Content

Through a comprehensive syllabus, the student will cover all the essential topics proposed, gradually acquiring the skills required to put the necessary knowledge into practice. A well-developed learning scheme that will allow you to learn in a continuous, efficient and customized way.

Learn through didactic units organized to foster greater understanding and integration of knowledge"

Module 1. Nervous System Embryology, Anatomy and Physiology

1.1. Nervous System Embryology
- 1.1.1. Brain Embryology
- 1.1.2. Spinal Cord Embryology

1.2. Basic and Functional Anatomy of the Brain
- 1.2.1. Anatomy of the Prosencephalon
- 1.2.2. Anatomy of the Brain Stem
- 1.2.3. Anatomy of the Cerebellum

1.3. Basic and Functional Spinal Cord Anatomy
- 1.3.1. Spinal Cord Anatomy
- 1.3.2. Main Spinal Cord Pathways

1.4. Anatomy of the Peripheral Nerves I
- 1.4.1. Cranial Nerves
- 1.4.2. Spinal Nerves

1.5. Anatomy of the Peripheral Nerves II
- 1.5.1. Autonomic Nervous System: Sympathetic and Parasympathetic

1.6. Sensory and Motor Nervous System
- 1.6.1. Sensitive Pathways
- 1.5.2. Motor Pathways

1.7. Anatomy and Physiology of the Motor Unit
- 1.7.1. Anatomy
- 1.7.2. Physiology

1.8. Vascular Anatomy of the Brain
- 1.8.1. Arterial Irrigation
- 1.8.2. Venous Irrigation

1.9. Vascular Anatomy of the Spinal Cord
- 1.9.1. Arterial Irrigation
- 1.9.2. Venous Irrigation

1.10. Skeletal System
- 1.10.1. Cranial Bones, Joints and Cranial Nerve Outlets.
- 1.10.2. Vertebrae, Joints and Intervertebral Discs

Module 2. Neurological Examination and Neurolocalization

2.1. Review and Anamnesis
- 2.1.1. Necessary Tools for a Correct Neurological Examination
- 2.1.2. Clinical History: The Importance of a Correct Anamnesis
- 2.1.3. List of Problems

2.2. Neurological Examination Part I.
- 2.2.1. State of Mind
- 2.2.2. March
- 2.2.3. Posture

2.3. Neurological Examination Part II.
- 2.3.1. Cranial Nerves
- 2.3.2. Postural Reactions
- 2.3.3. Spinal Reflexes
- 2.3.4. Sensitivity.

2.4. Clinical Signs Associated with Prosencephalon Injuries
- 2.4.1. Blindness with Absence of Threat Response
- 2.4.2. Facial Sensitivity Deficits
- 2.4.3. Postural Reaction Deficits
- 2.4.4. Behavioral or Mental Status Disorders
- 2.4.5. Cerebral Seizures
- 2.4.6. Wandering and Walking in Circles
- 2.4.7. Head Torsion
- 2.4.8. *Head Pressing*
- 2.4.9. Decerebration Stiffness

2.5. Clinical Signs Associated with Brain Stem Injury
- 2.5.1. Deficiency of the Cranial Nerves from III to XII
- 2.5.2. Postural Reaction Deficits
- 2.5.3. Mental State Disorders
- 2.5.4. Cardiorespiratory Disorders
- 2.5.5. Narcolepsy/Cataplexy
- 2.5.6. Eye Movement Abnormalities
- 2.5.7. Central Vestibular System Disorders (Metencephalon)

2.6. Associated Clinical Signs in Cerebellum
- 2.6.1. Ataxia and Increase of Sustentation Base
- 2.6.2. Dysmetria
- 2.6.3. Tremors of Intention
- 2.6.4. Nystagmus
- 2.6.5. Deficiency or Absence of Threat Response
- 2.6.6. Decerebellation Stiffness

2.7. Associated Clinical Signs in the Spinal Cord
- 2.7.1. Spinal Cord Segment Injury C1-C5
- 2.7.2. Spinal Cord Segment Injury C6-T2
- 2.7.3. Spinal Cord Segment Injury T3-L3
- 2.7.4. Spinal Cord Segment Injury L4-S3

2.8. Clinical Signs Associated with Neuropathies
- 2.8.1. Common Clinical Signs
- 2.8.2. Clinical Signs According to the Different Neuropathies

2.9. Clinical Signs Associated with Neuromuscular Junction
- 2.9.1. Common Clinical Signs
- 2.8.2. Clinical Signs According to the Different Neuropathies

2.10. Clinical Signs Associated with Myopathies.
- 2.10.1. Common Clinical Signs
- 2.10.2. Clinical Signs According to the Different Neuropathies

Module 3. Diagnostic Tests

3.1. Blood Laboratory Tests
- 3.1.1. Cellular Count Disorders Responsible for Neurological Conditions
- 3.1.2. Biochemical Disorders Responsible for Neurological Conditions
- 3.1.3. Hormonal Disorders Responsible for Neurological Disorders
- 3.1.4. Serology and Rapid Tests

3.2. Radiography
- 3.2.1. Indications
- 3.2.2. Patient Positioning to Assess Skull and Head Structural Anomalies.

3.3. Myelography
- 3.3.1. Indications
- 3.3.2. How to Perform a Correct Myelography
- 3.3.3. Interpretation

3.4. Computerized Axial Tomography
- 3.4.1. Brain CT Scan
- 3.4.2. Spinal CT Scan

3.5. Nuclear Magnetic Resonance Imaging
- 3.5.1. Sequences
- 3.5.2. Brain MRI
- 3.5.3. Spine MRI

3.6. Electrophysiology I
- 3.6.1. Electromyography
- 3.6.2. Motor Conduction Velocities
- 3.6.3. Sensitive Conduction Velocities

3.7. Electrophysiology II
- 3.7.1. F-Wave Analysis
- 3.7.2. *Cord Dorsum* Potentials

3.8. Repetitive Stimulation
- 3.8.1. BAER
- 3.8.2. Muscle, Nerve and CNS Biopsy
  - 3.8.2.1. Muscle Biopsy
  - 3.8.2.2. Nerve Biopsy
  - 3.8.2.3. CNS Biopsy

3.9. Genetic Testing
- 3.9.1. Types of Genetic Tests in Dogs
- 3.9.2. Types of Genetic Testing in Cats

3.10. CSF Analysis
- 3.10.1. Extraction
- 3.10.2. Counting Chamber
- 3.10.3. Types of Pleocytosis, Cytology

With the support of the most efficient audiovisual systems, you will be able to learn not only the theory but also the practical application of the knowledge you acquire"

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Methodology

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

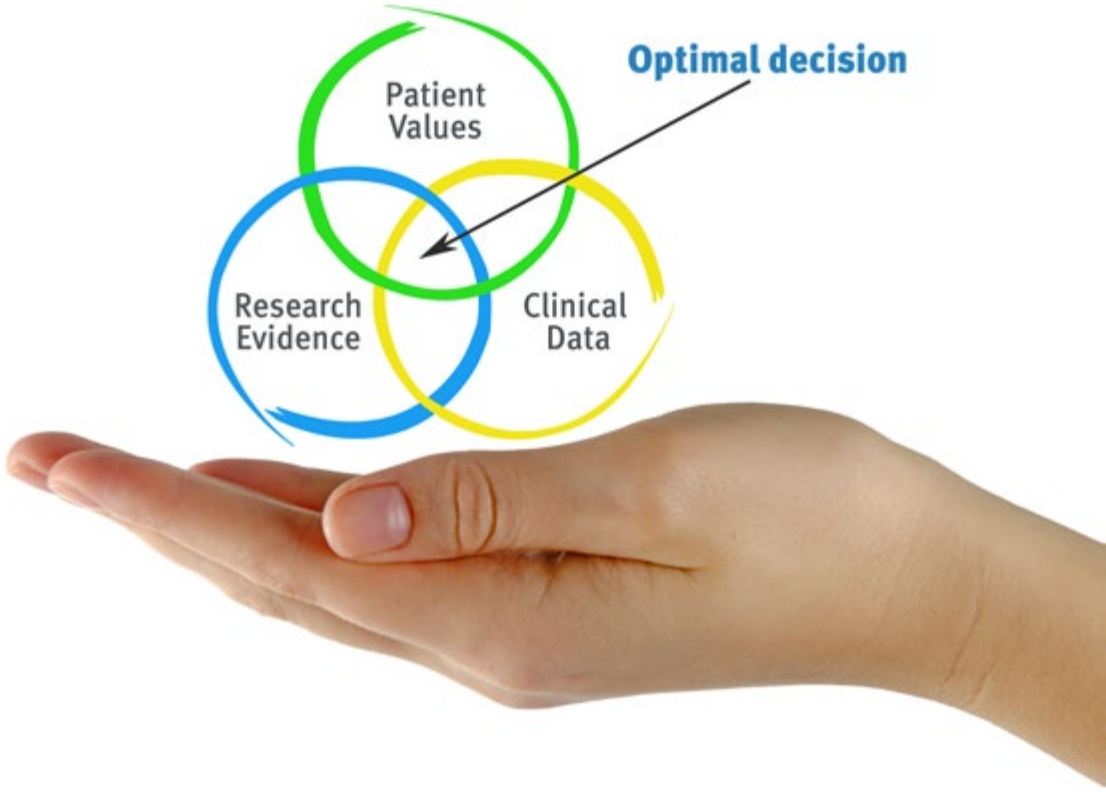
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the ***New England Journal of Medicine*** have considered it to be one of the most effective.

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

At TECH, we use the Case Method

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

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



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

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

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

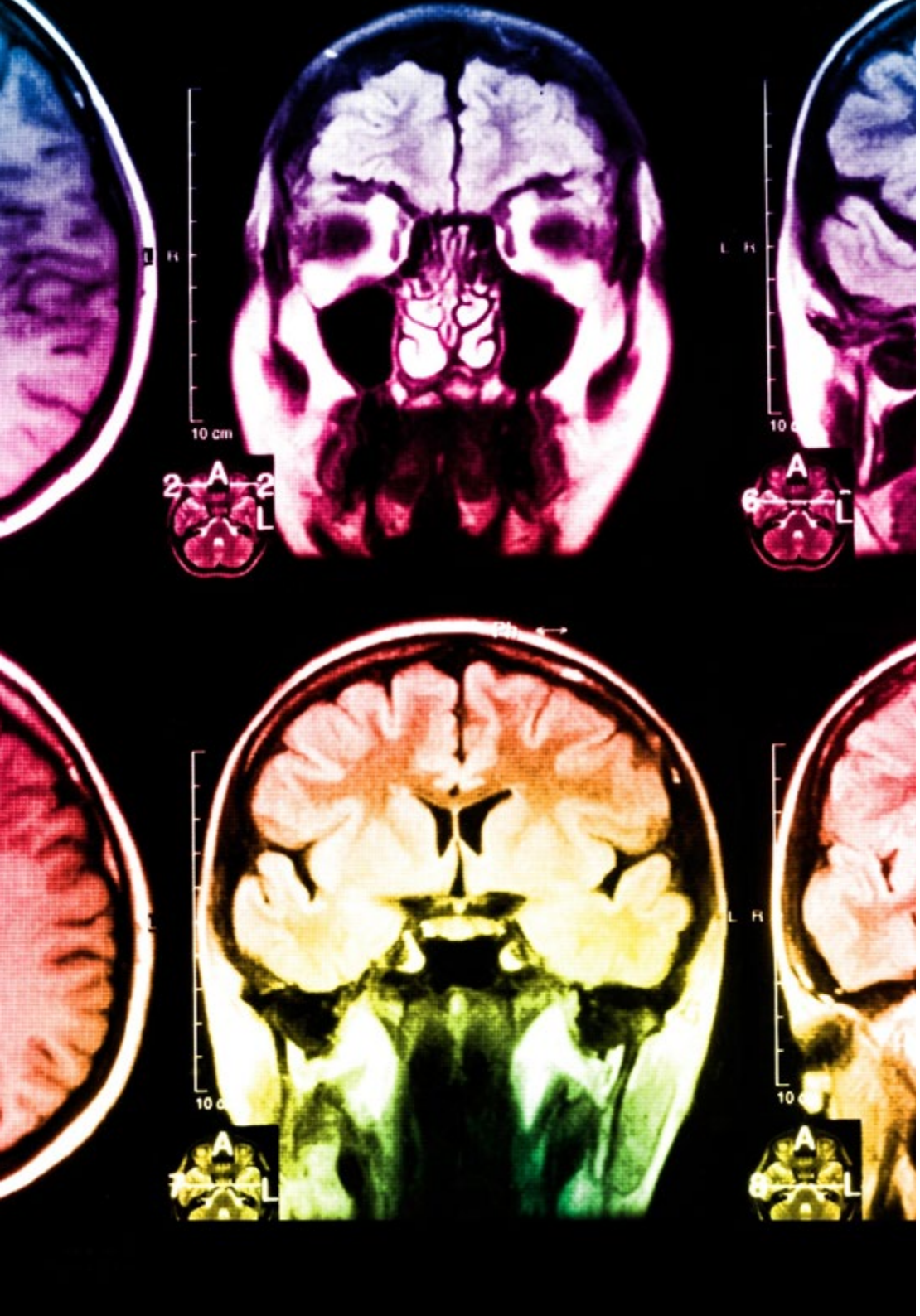
1. Veterinarians who follow this method not only manage to assimilate concepts, but also develop their mental capacity through exercises to evaluate real situations and knowledge application
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. The feeling that the effort invested is effective becomes a very important motivation for veterinarians, which translates into a greater interest in learning and an increase in the time dedicated to working on the course.

Relearning Methodology

At TECH, we enhance the Harvard case method with the best 100% online teaching methodology available: Relearning.

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.

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



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

With this methodology more than 65,000 veterinarians have been trained with unprecedented success in all clinical specialties, regardless of the surgical load. Our teaching method is developed in a highly demanding environment, where students have a high socio-economic profile and an average age of 43.5.

Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.

This program offers the best educational material, prepared with professionals in mind:

Study Material

All the teaching materials are specifically created for the course by specialists who teach on the course so that the teaching content is highly specific and precise.

These contents are then adapted in audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.

Latest Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current and procedures of veterinary techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.

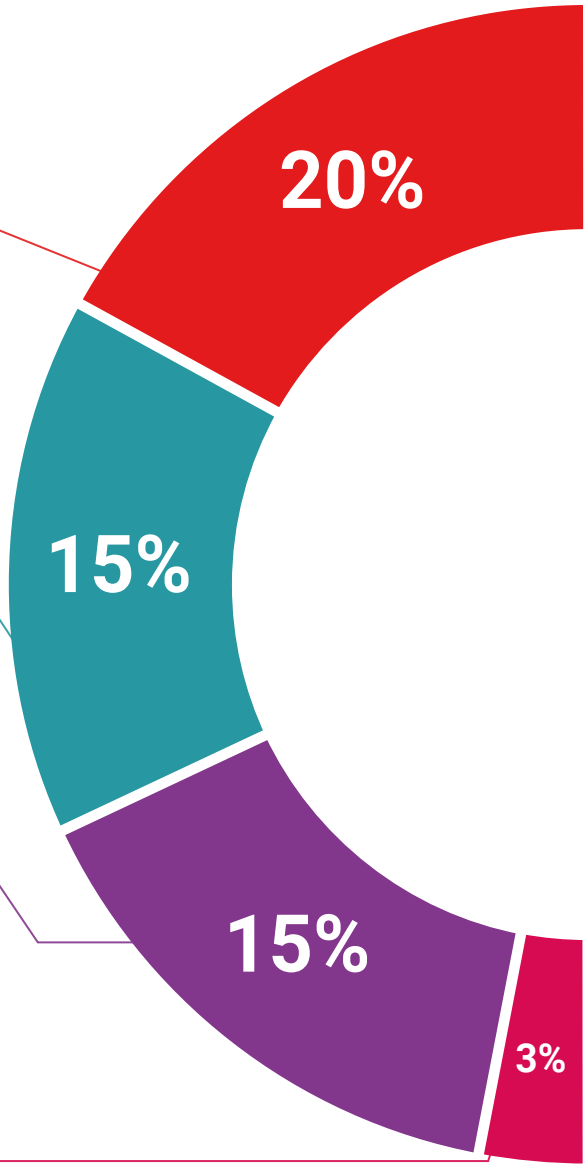
Interactive Summaries

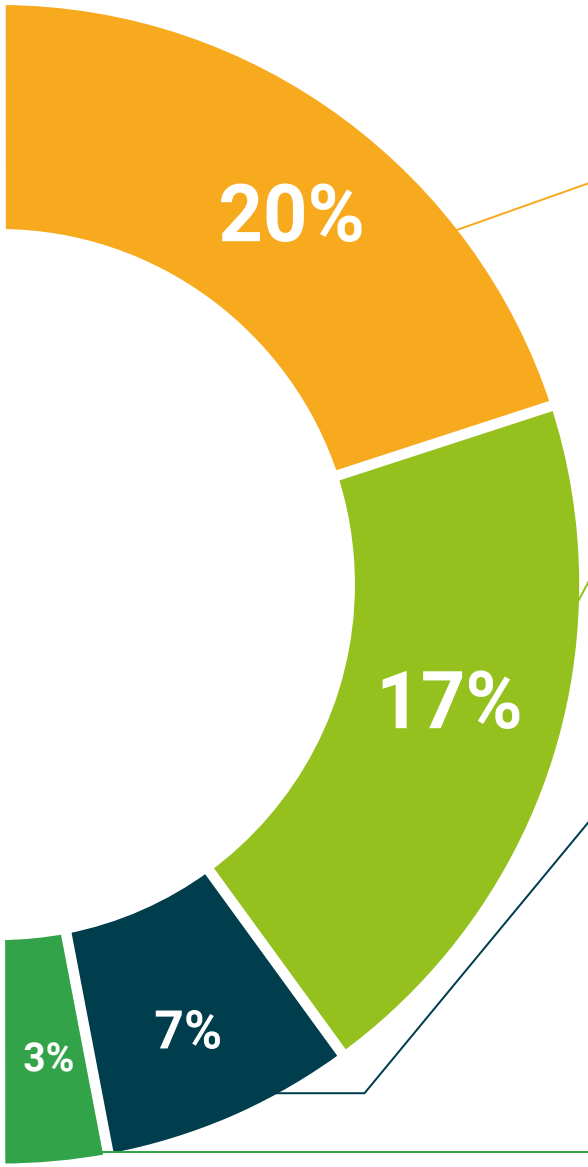
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.

Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

Quick Action Guides

TECH offers the most relevant contents of the program in the form of worksheets or quick action guides. A synthetic, practical and effective way to help students progress in their learning.

06

Certificate

Postgraduate Diploma in Small Animal Neurology: Neurological Examination and Neurolocalization guarantees students, in addition to the most rigorous and up-to-date education, access to a qualification issued by TECH Technological University.

Include a Postgraduate Diploma in Small Animal Neurology:. Neurological Examination and Neurolocalization on your professional profile: a high-quality added value for any professional in this field"

This **Postgraduate Diploma in Small Animal Neurology: Neurological Examination and Neurolocalization** contains the most complete and up-to-date scientific program on the market.

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

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

Title: **Postgraduate Diploma in Small Animal Neurology: Neurological Examination and Neurolocalization**

Official Nº of Hours: **450**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Por haber superado con éxito y acreditado el programa de

EXPERTO UNIVERSITARIO

en

Neurología de Pequeños Animales. Examen Neurológico y Neurolocalización

Se trata de un título propio de esta Universidad con una duración de 450 horas, con fecha de inicio dd/mm/aaaa y fecha de finalización dd/mm/aaaa.

TECH es una Institución Particular de Educación Superior reconocida por la Secretaría de Educación Pública a partir del 28 de junio de 2018.

A 17 de junio de 2020

Mtra. Tere Guevara Navarro
Rectora

Este título propio se deberá acompañar siempre del título universitario habilitante expedido por la autoridad competente para ejercer profesionalmente en cada país. código único TECH: AFWOR23S techtitute.com/titulos

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

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