Postgraduate Diploma
Clinical Veterinary Cardiology in Small Animals

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Postgraduate Diploma
Clinical Veterinary Cardiology in Small Animals

- Modality: **online**
- Duration: **6 months**
- Certificate: **TECH Global University**
- Credits: **18 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/veterinary-medicine/postgraduate-diploma/postgraduate-diploma-clinical-veterinary-cardiology-small-animals

Index

01

Introduction

This Postgraduate Diploma in Clinical Veterinary Cardiology in Small Animals is a program developed by Veterinary Professionals with extensive experience in the Medicine and Surgery of Small Animal Cardiovascular Conditions both in the clinical and teaching areas.

Develop the basis of cardiology and delve into the most up to date and advanced techniques that exist today, with this high level training developed with the best didactic resources and taught by practicing professionals.

This training is the best option you can find to specialize in veterinary cardiology and make more accurate diagnoses"

Cardiology of Small Animals is a subspecialty of Internal Medicine with a great development in the last decades. The teachers of this Postgraduate Diploma are at the forefront of the latest diagnostic techniques and treatment of cardiovascular diseases in small animals. Thanks to their specialized training, they have developed a useful, practical program adapted to the current reality, a reality that is becoming more and more demanding.

This comprehensive program compiles the different cardiovascular diseases affecting small animals. It starts with a solid development of the basics of cardiovascular physiology, pathophysiology and pharmacology, so often forgotten and so important and useful in daily clinical practice, followed by the optimization of clinical examination and diagnostic tests, and ending with the latest therapeutic protocols and patient monitoring procedures.

This training specializes the general practitioner in an area that is increasingly in demand, partly because of its frequency, partly because of the need for specialization that this area demands.

In all the modules, a gradual exposition of knowledge at the physiological and pathophysiological level has been established, a development of the protocols for approaching patients with cardiovascular diseases with diagnostic and treatment algorithms, as well as the monitoring that should be done in these patients, since many of these diseases are chronic. It compiles the author's experience, without forgetting scientific rigor and the most important updates based on evidence. It develops the diseases, the action protocols and takes into account the integral approach to the patient, considering the disease, the patient and the owner in line with evidence-based medicine.

All topics incorporate numerous multimedia material: photos, videos and diagrams, so important in a specialty where imaging techniques are of great importance. Finally, as it is an online Postgraduate Diploma, the students are not conditioned by fixed schedules, nor do they need to move to another physical location. All of the content can be accessed at any time of the day, so you can balance your working or personal life with your academic life.

This **Postgraduate Diploma in Clinical Veterinary Cardiology in Small Animals** contains the most complete and up to date educational program on the market. The most important features of the program include:

- The development of case studies presented by experts in Clinical Veterinary Cardiology in Small Animals
- The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- New developments in Clinical Veterinary Cardiology in Small Animals
- Practical exercises where self assessment can be used to improve learning
- Its special emphasis on innovative methodologies in Clinical Veterinary Cardiology in Small Animals
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection work
- Content that is accessible from any fixed or portable device with an Internet connection

Don't miss the opportunity to take this program with TECH. It's the perfect opportunity to advance your career and stand out in an industry with high demand for professionals"

This Postgraduate Diploma is the best investment you can make in selecting a refresher program to update your veterinary knowledge in cardiology"

This training comes with the best didactic 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.

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 training programmed to train in real situations.

This program is designed around Problem Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned experts with extensive experience in Clinical Veterinary Cardiology in Small Animals.

02

Objectives

The Postgraduate Diploma in Clinical Veterinary Cardiology in Small Animals is aimed at facilitating the performance of the professional dedicated to Veterinary Medicine with the latest advances and newest treatments in the sector.

Learn about the latest advances in the field from the comfort of your home, thanks to the online mode on which this program is based"

General Objectives

- Examine the stages of embryonic development of the cardiovascular system
- Analyze cardiac and vascular anatomy
- Develop the normal function of the cardiovascular system
- Examine the main pathophysiological mechanisms of cardiac diseases in small animals
- Examine the pathophysiology of heart failure as the main paradigm of cardiology
- Assess the hygienic-dietary management of cardiovascular disease
- Analyze the key aspects of owner communication about cardiovascular disease in small animals
- Determine the drugs available for the treatment of cardiovascular diseases in small animals
- Determine the performance of a correct anamnesis focused on the cardiovascular and respiratory systems
- Analyze in detail the fundamentals, technique and information provided by cardiorespiratory auscultation
- Develop the main clinical pictures of cardiorespiratory diseases in small animals
- Analyze the diagnostic tests involved in the diagnosis and assessment of the cardiovascular system such as laboratory tests, cardiac markers and blood pressure measurement

Specific Objectives

Module 1 Cardiac Embryology, Anatomy, Physiology and Pathophysiology

- Compile the chronology of embryonic and fetal development of the cardiovascular system in small animals
- Examine cardiac macro and microstructural morphology and vascular macro and microstructural morphology.
- Develop the fundamental hemodynamic principles underlying cardiac physiology
- Determine the functions and design of the cardiovascular system
- Examine the contractile function of the heart
- Establish the parts of the cardiac cycle
- Analyze the factors on which cardiac output depends and the main mechanisms of cardiovascular regulation
- Assess the main pathophysiological mechanisms involved in diseases of the endocardium, myocardium and pericardium
- Generate specialized knowledge on cardiogenic pulmonary edema

Module 2 Heart Failure Cardiac Pharmacology

- Analyze the pathophysiological mechanisms of heart failure and its repercussions on the rest of the systems and apparatuses
- Compile the existing evidence on the dietary management of cardiovascular disease in small animals
- Establish guidelines to provide correct information to the owner about the pet's cardiovascular disease
- Establish the mechanism of action, indications, adverse effects and contraindications of the main drugs used in the treatment of heart failure such as ACE inhibitors, diuretics and Pimobendan
- Examine the mechanism of action, indications, posology, adverse effects and contraindications of the main drugs used in the treatment of arrhythmias
- Determine the mechanism of action, indications, posology, adverse effects and contraindications of anticoagulant drugs

Module 3 Anamnesis and Cardiovascular Examination

- Establish the key questions and their epidemiological and pathophysiological correlates of cardiorespiratory anamnesis in small animals
- Develop the fundamentals of cardiopulmonary auscultation and its implication in the clinic
- Examine cardiac and pulmonary auscultation technique
- Analyze the information that cardiac and pulmonary auscultation can provide in the differential diagnosis
- Identify the key aspects for the diagnosis of the clinical picture of cough and dyspnea
- Establish the key aspects for the diagnosis of the clinical picture of cyanosis and the clinical picture of syncope
- Determine the proper technique for measuring blood pressure and the information it provides in cardiovascular diseases
- Examine the proper technique for measuring central venous pressure and the information it provides in patients in critical care units
- Analyze basic blood count and biochemistry parameters that may be altered in cardiovascular disease
- Compile specialized knowledge to interpret the information provided by the assessment of cardiac markers in cardiorespiratory disease

03

Course Management

The program includes in its teaching staff experts of reference in Clinical Veterinary Cardiology in Small Animals, who bring to this training the experience of their work. They are world renowned veterinarians from different countries with proven theoretical and practical professional experience.

Our teaching team, experts in cardiology in small animals, will help you achieve success in your profession"

Management

Dr. Martínez Delgado, Rubén

- Since 2017, he has headed the Cardiology service at the Estoril Veterinary Hospital, Móstoles
- Collaborates with the Veterinary Hospital of the UCM developing the part of minimally invasive interventional cardiology
- From 2010 to the present, he has been working as an ambulatory Cardiologist in many centers in Madrid and surrounding areas
- Graduated in Veterinary Medicine in 2008 from the Complutense University of Madrid (UCM)
- Internships in Surgery (2006) and in Cardiology (2007-2008) at UCM
- 2008 collaboration project in minimally invasive interventional cardiology in the cardiology service of the UCM.
- From 2009 to 2010 he completed the Intership of the official internship of the European College of Internal Medicine (ECVIM) at the Gran Sasso Veterinary Clinic in Milan (a reference center in cardiology and ultrasound diagnosis and a center specialized in interventional cardiology)
- He is a member of AVEPA and GECAR and a regular attendee of congresses in the specialty of Cardiology and Diagnostic Imaging. He has also presented several lectures on electrocardiography and echocardiography

Professors

Dr. Ortiz Díez, Gustavo

- Associate Professor, Department of Animal Medicine and Surgery, Faculty of Veterinary Medicine, Complutense University of Madrid
- Head of Small Animal Unit at Complutense Clinical Veterinary Hospital
- Head of the Department of Soft Tissue Surgery and Minimally Invasive Procedures at the Veterinary Specialties Hospital 4 Octubre (Arteixo, La Coruña, Spain)
- PhD and Undergraduate Degree in Veterinary Medicine from the UCM
- AVEPA Accredited Soft Tissue Surgery
- Member of the scientific committee and current president of GECIRA (AVEPA's Soft Tissue Surgery Specialty Group)
- Master's Degree in Research Methodology in Health Sciences from the UAB
- ICT competencies course for teachers by UNED
- Specialist in Traumatology and Orthopedic Surgery in Companion Animals by the UCM. Degree in Small Animal Cardiology from the UCM
- Courses of laparoscopic and thoracoscopic surgery at the Minimally Invasive Center Jesús Usón. Accredited in functions B, C, D and E of Experimentation Animals by the Community of Madrid
- Degree in Emotional Intelligence by UR. Completed training in Gestalt psychology

Dr. Mateos Pañero, María

- Associate Professor since 2021 at the University of Liverpool (UK) in the Cardiology Department
- Degree in Veterinary Medicine from the University of Extremadura (2005)
- Certified General Parctioner in Cardiology
- Rotational Intership at Novara Veterinary Institute
- Intersectorial in cardiology at the Veterinary Institute of Novara

Our teaching team will provide you with all their knowledge so that you are up to date with the latest information on the subject"

04

Structure and Content

The structure of the contents has been designed by the best professionals in the field of clinical veterinary cardiology in small animals, with extensive experience and recognized prestige in the profession, backed by the volume of cases reviewed, studied and diagnosed, and with extensive knowledge of new technologies applied to veterinary medicine.

This Postgraduate Diploma contains the most complete and up to date scientific program on the market"

Module 1. Cardiac Embryology, Anatomy, Physiology and Pathophysiology

1.1. Cardiac and Vascular Embryology
- 1.1.1. Cardiac Embryology
- 1.1.2. Vascular Embryology

1.2. Cardiac and Vascular Anatomy and Histology
- 1.2.1. Cardiac Anatomy
- 1.2.2. Vascular Anatomy
- 1.2.3. Cardiac Histology
- 1.2.4. Vascular Histology

1.3. Normal Cardiovascular Physiology
- 1.3.1. Functions
- 1.3.2. Circulation Design
- 1.3.3. Contractibility

1.4. Normal Cardiovascular Physiology
- 1.4.1. Cardiac Cycle

1.5. Normal Cardiovascular Physiology
- 1.5.1. Blood Vessel Physiology
- 1.5.2. Systemic and Pulmonary Circulation

1.6. Cardiac Physiopathology
- 1.6.1. Cardiovascular Regulation

1.7. Cardiac Physiopathology
- 1.7.1. Hemodynamic Concepts
- 1.7.2. Cardiac Output. What Does it Depend On?

1.8. Cardiac Physiopathology
- 1.8.1. Valvulopathies

1.9. Cardiac Physiopathology
- 1.9.1. Pericardium
- 1.9.2. Cardiomyopathies
- 1.9.3. Vascular Physiopathology

1.10. Cardiac Physiopathology
- 1.10.1. Pulmonary Edema

Module 2. Heart Failure Cardiac Pharmacology

2.1. Congestive Heart Failure
- 2.1.1. Definition
- 2.1.2. Physiopathological Mechanisms
- 2.1.3. Pathophysiological Consequences

2.2. Dietary Hygiene Management. Communication With the Owner
- 2.2.1. Communication With the Owner
- 2.2.2. Feeding in the Cardiac Patient

2.3. Angiotensin-Converting Enzyme Inhibitors (ACE Inhibitors)
- 2.3.1. Mechanism of Action
- 2.3.2. Types
- 2.3.3. Indications
- 2.3.4. Posology
- 2.3.5. Side effects:
- 2.3.6. Contraindications

2.4. Pimobendan and Other Inotropics
- 2.4.1. Pimobendan
  - 2.4.1.1. Mechanism of Action
  - 2.4.1.2. Indications
  - 2.4.1.3. Posology
  - 2.4.1.4. Side effects:
  - 2.4.1.5. Contraindications
- 2.4.2. Sympathomimetics
  - 2.4.2.1. Mechanism of Action
  - 2.4.2.2. Indications
  - 2.4.2.3. Posology
  - 2.4.2.4. Side Effects:
  - 2.4.2.5. Contraindications
- 2.4.3. Others

2.5. Diuretics
- 2.5.1. Mechanism of Action
- 2.5.2. Types
- 2.5.3. Indications
- 2.5.4. Posology
- 2.5.5. Side Effects:
- 2.5.6. Contraindications

2.6. Antiarrhythmics I
- 2.6.1. Preliminary Considerations
- 2.6.2. Classification of Antiarrhythmics
- 2.6.3. Class 1 Antiarrhythmics

2.7. Antiarrhythmics II
- 2.7.1. Class 2 Antiarrhythmics
- 2.7.2. Class 3 Antiarrhythmics
- 2.7.3. Class 4 Antiarrhythmics

2.8. Antihypertensive Drugs
- 2.8.1. Venous
- 2.8.2. Arterials
- 2.8.3. Mixed
- 2.8.4. Pulmonary

2.9. Anticoagulants
- 2.9.1. Heparins
- 2.9.2. Clopidogrel
- 2.9.3. IAAS
- 2.9.4. Others

2.10. Other Drugs Used in the Treatment of Cardiovascular Disease
- 2.10.1. Angiotensin Receptor Antagonists II
- 2.10.2. Spironolactone (Fibrosis and Antiremodeling Study)
- 2.10.3. Carvedilol
- 2.10.4. Positive Chronotropics
- 2.10.5. Atropine (Atropine Test)
- 2.10.6. Taurine in CMD
- 2.10.7. Atenolol in Stenosis
- 2.10.8. Atenolol or Diltiazem in Obstructive HCM

Module 3. Anamnesis and Cardiovascular Examination

3.1. Cardiovascular and Respiratory Anamnesis
- 3.1.1. Epidemiology of Heart Disease
- 3.1.2. Medical History
  - 3.1.2.1. General Symptoms
  - 3.1.2.2. Specific Symptoms

3.2. Cardiovascular and Respiratory Examination
- 3.2.1. Respiratory Pattern
- 3.2.2. Exploration of the Head
- 3.2.3. Neck Exploration
- 3.2.4. Examination of the Thorax
- 3.2.5. Examination of the Abdomen
- 3.2.6. Other Explorations

3.3. Auscultation I
- 3.3.1. Physical Principles
- 3.3.2. Phonendoscope
- 3.3.3. Technique
- 3.3.4. Heart Sounds

3.4. Auscultation II
- 3.4.1. Murmurs
- 3.4.2. Pulmonary Auscultation

3.5. Cough
- 3.5.1. Definition and Pathophysiological Mechanisms
- 3.5.2. Differential Diagnoses and Diagnostic Algorithm for Cough

3.6. Dyspnoea
- 3.6.1. Definition and Pathophysiological Mechanisms
- 3.6.2. Differential Diagnoses and Diagnostic Algorithm for Dyspnoea

3.7. Syncope.
- 3.7.1. Definition and Pathophysiological Mechanisms
- 3.7.2. Differential Diagnoses and Diagnostic Algorithm for Syncope

3.8. Cyanosis
- 3.8.1. Definition and Pathophysiological Mechanisms
- 3.8.2. Differential Diagnoses and Diagnostic Algorithm for Syncope

3.9. Arterial and Central Pressure Venous Pressure
- 3.9.1. Arterial Pressure
- 3.9.2. Central Venous Pressure

3.10. Laboratory Tests and Cardiac Markers
- 3.10.1. Laboratory Tests in Heart Disease
- 3.10.2. Cardiac Biomarkers
- 3.10.3. Genetic Tests

Achieve professional success with this high level training provided by prestigious professionals with extensive experience in the sector"

05

Methodology

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

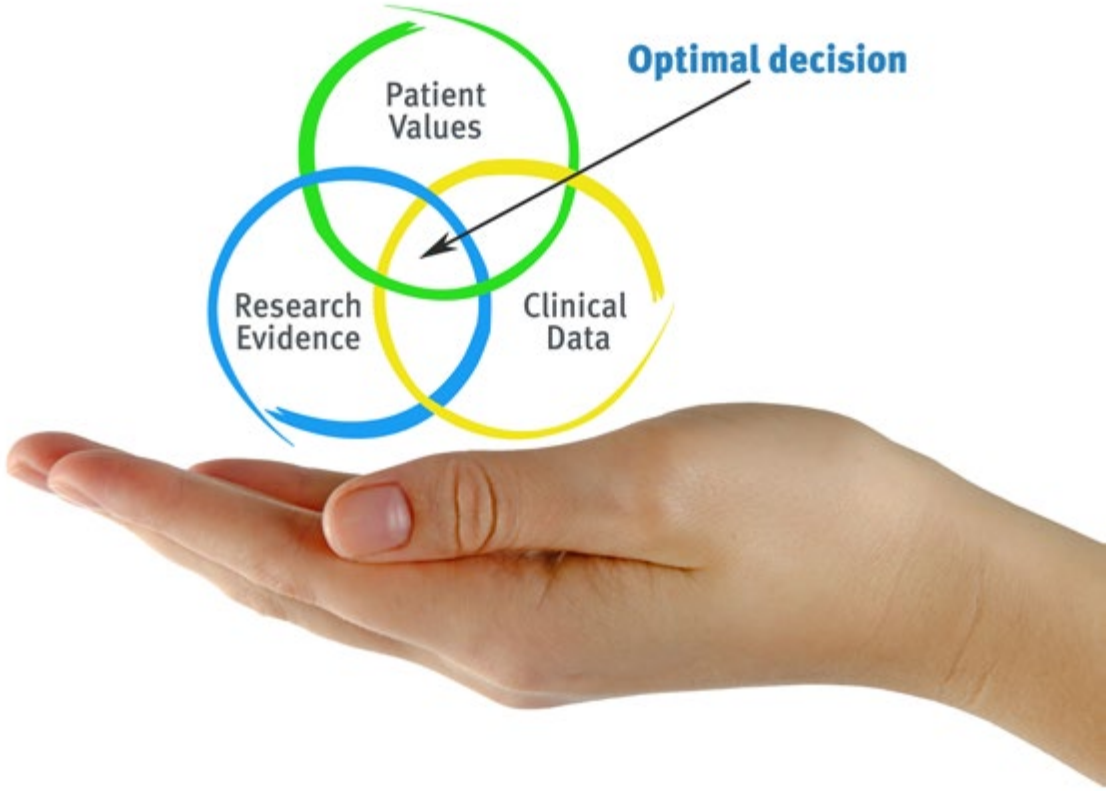
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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:

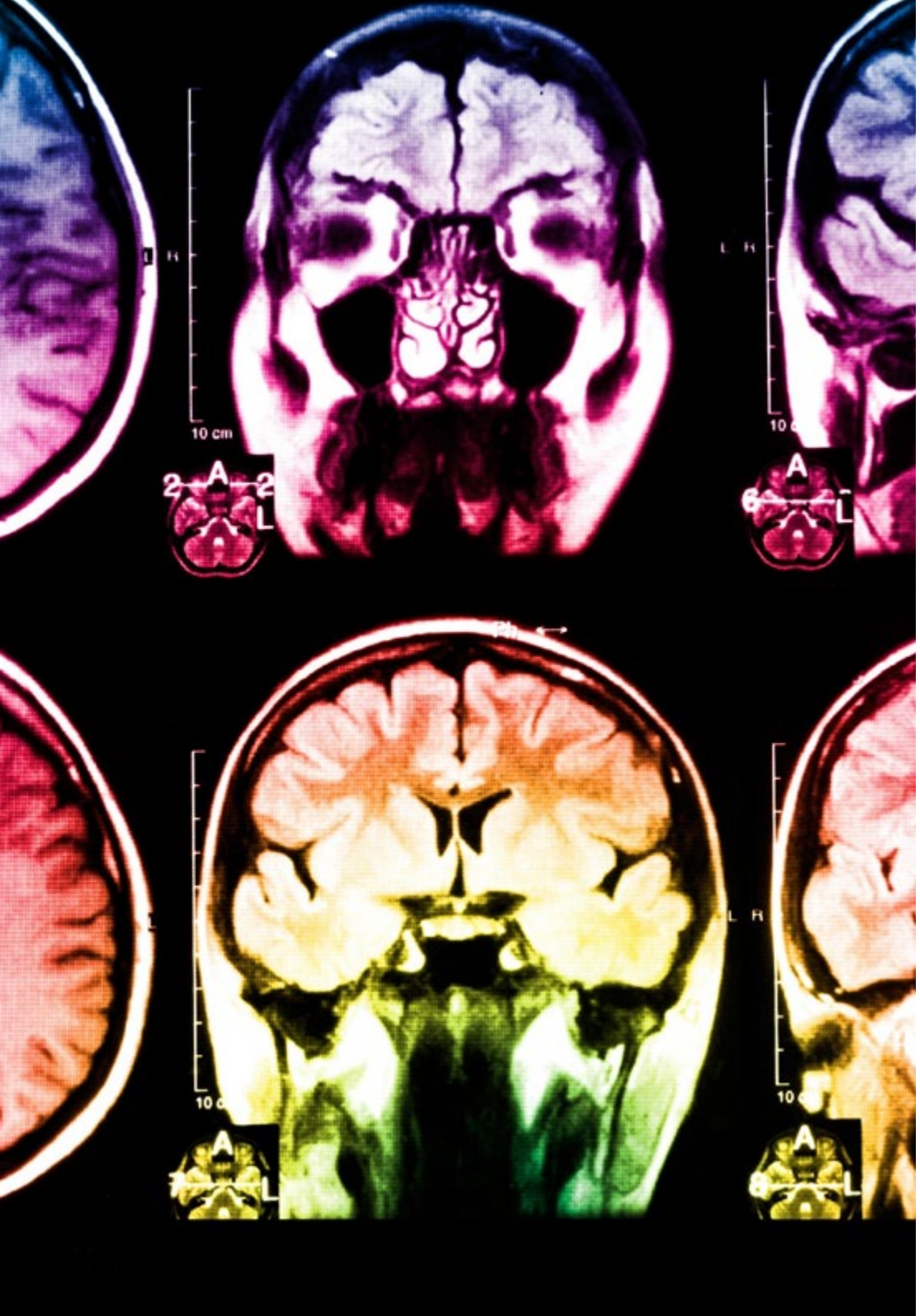
1. Veterinarians who follow this method not only manage to assimilate concepts, but also develop their mental capacity through exercises to evaluate real situations and knowledge application
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real 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 case method with the best 100% online teaching methodology available: Relearning.

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

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



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

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

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

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

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

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

Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

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

Latest Techniques and Procedures on Video

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

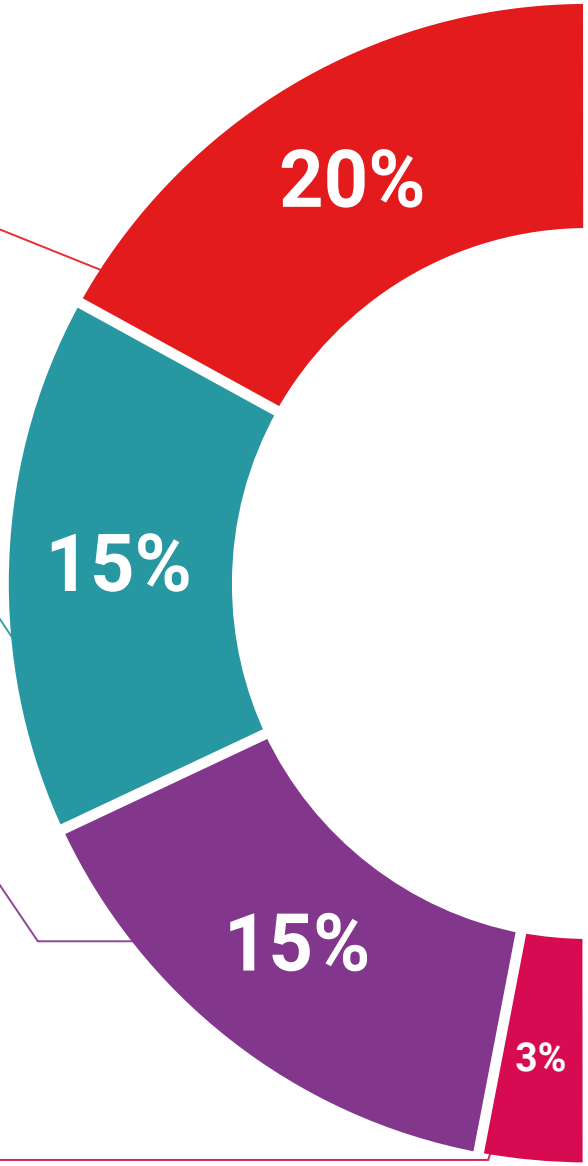
Interactive Summaries

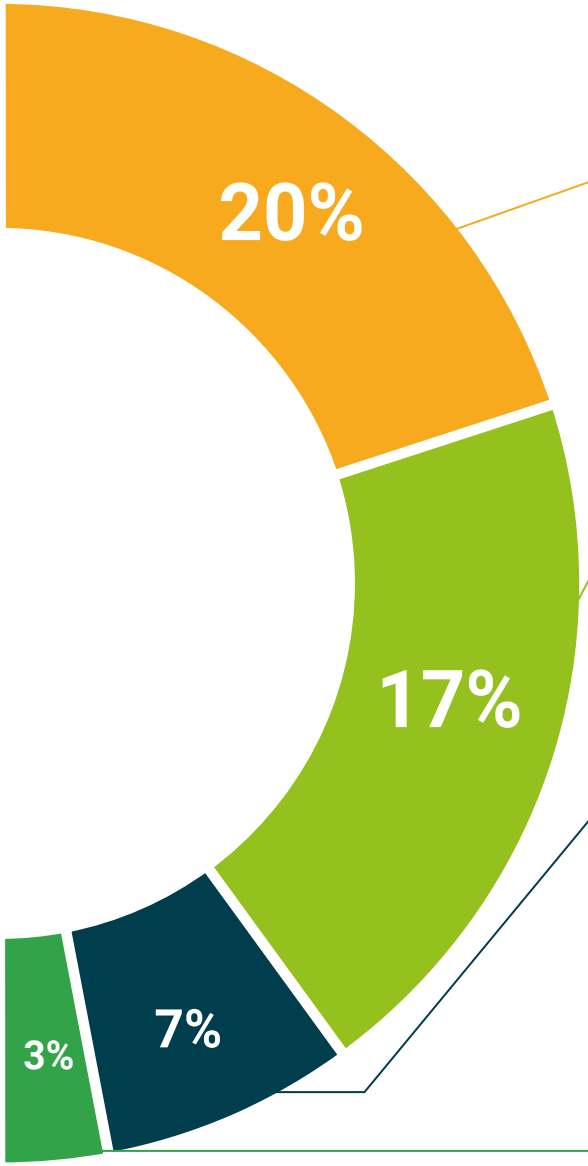
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

Additional Reading

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





Expert-Led Case Studies and Case Analysis

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

Testing & Retesting

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

Classes

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

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

Quick Action Guides

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

06

Certificate

The Postgraduate Diploma in Clinical Veterinary Cardiology in Small Animals guarantees students, in addition to the most rigorous and up to date education, access to a Postgraduate Diploma issued by TECH Global University.

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

This program will allow you to obtain your **Postgraduate Diploma in Clinical Veterinary Cardiology in Small Animals** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra (***official bulletin***). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

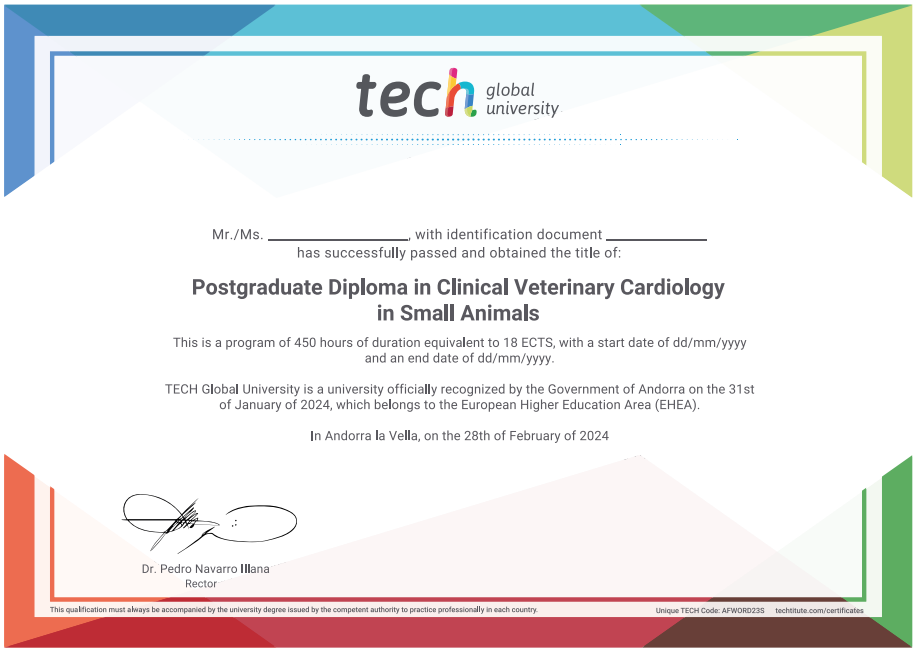
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Diploma in Clinical Veterinary Cardiology in Small Animals**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**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Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

Postgraduate Diploma in Clinical Veterinary Cardiology in Small Animals

This is a program of 450 hours of duration equivalent to 18 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country.

Unique TECH Code: AFWORD23S techtitute.com/certificates

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

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