Postgraduate Certificate
Osteogenesis

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Postgraduate Certificate
Osteogenesis

- Modality: **Online**
- Duration: **6 weeks**
- Certificate: **TECH Global University**
- Accreditation: **6 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/veterinary/postgraduate-certificate/osteogenesis

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01

Introduction

Bone is a complex tissue and requires specialized knowledge to understand the fundamental activities it carries out which is why it is important for veterinary professionals to update their knowledge with the latest developments in this field.

This program is the best option you can find to specialize in Osteogenesis"

The teaching team of this Postgraduate Certificate in Osteogenesis has made a careful selection of the different state-of-the-art techniques for experienced professionals working in the veterinary field.

This program addresses the most relevant and significant osteology topics for the specialist in order to achieve specialization in bone diseases due to malformations, aberrations in function and alterations due to forces causing fractures.

To achieve this specialized knowledge of bone we must emphasize the key points of osteogenesis, i.e. bone formation.

This program consists of two parts: one that highlights the importance of orthopedics and traumatology in the world and lays the foundations of surgery (focused on the study of bone); and another in which we analyze how hormones influence its system, the forces acting on the bone and the process of bone recovery after trauma.

The objective of this Postgraduate Certificate is for veterinary surgeons to specialize and develop their surgical skills and theoretical and practical knowledge useful in their professional practice.

The teachers in this programs are university professors with between 10 and 50 years of classroom and hospital experience. They are professors from schools on different continents, with different ways of doing surgery and with world-renowned surgical techniques. This makes this a unique specialization program, different from any other that may be offered at this time in the rest of the universities.

As it is an online program, the student is not constrained by fixed schedules or the need to move to another physical location, but rather, they can access the contents at any time of the day, allowing them to balance their professional or personal life with their academic life as they please.

This **Postgraduate Certificate in Osteogenesis** contains the most complete and up-to-date educational program on the market. The most important features of the program include:

- The development of practical cases presented by experts in Osteogenesis
- 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
- Practical exercises where self-assessment can be used to improve learning
- Special emphasis on innovative methodologies in Osteogenesis
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection

Do not miss the opportunity to take this Postgraduate Certificate in Osteogenesis. It's the perfect opportunity to advance your career"

This Postgraduate Certificate is the best investment you can make in the selection of a refresher program to update your knowledge in Osteogenesis"

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

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

Its teaching staff includes professionals belonging to the veterinary field who contribute their work experience to this program, in addition to recognized specialists from prestigious reference societies and universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn 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 throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts in Osteogenesis with extensive experience.

02

Objectives

The Postgraduate Certificate in Osteogenesis is oriented to facilitate the performance of the professional dedicated to veterinary medicine with the latest advances and newest treatments in the sector.

This is the best option to learn about the latest advances in Osteogenesis"

General Objectives

- Substantiate knowledge of cytology and bone histology
- Develop bone physiology and its influence on the hormonal system governing bone in a patient with bone disease
- Determine how to carry out bone repair, clinical radiographic assessment and fracture
- Analyze the forces acting on the skeletal body causing stress and the absorption of that force depending on the magnitude and direction of the force absorbed by the body
- Examine the different types of bone repair that exist in a bone depending on the method of fixation

Specific Objectives

- Develop knowledge of bone cytology
- Determine the formation of the structures and the difference between immature bone and genuine bone
- Examine the hormonal influence on bone development
- Detail the resistance of the bone to trauma, differentiate between a stable fracture and an unstable fracture by the appearance of the callus in an X-ray

Make the most of the opportunity and take the step to get up-to-date on the latest developments in Osteogenesis"

03

Course Management

The teaching staff of the program includes leading experts in Veterinary Traumatology and Orthopedic Surgery, who bring their years of experience to this program. They are world-renowned doctors from different countries with proven theoretical and practical professional experience.

Our teaching team, experts in Osteogenesis, will help you achieve success in your profession"

Management

Dr. Soutullo Esperón, Ángel

- Veterinarian Specialist in Animal Traumatology
- Responsible for the Orthopedic Surgery Service in the Hospitals Fuente el Saz, Prïvet, Alcor, Velázquez, Valdemoro and Felino Gattos
- Owner of ITECA Veterinary Clinic
- Degree in Veterinary Medicine from the Complutense University of Madrid
- Master's Degree in Surgery and Traumatology from the Complutense University of Madrid
- Diploma of advanced studies in Veterinary Medicine from the Complutense University of Madrid
- Member of GEVO and AVEPA Scientific Committee
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-

Professors

Dr. Borja Vega, Alonso

- Head of the Surgery and Ophthalmology Department at Vet 2.0 Veterinary Clinic
  Founder of Vet 2.0 Veterinary Clinic
- Degree in Veterinary Medicine from the Alfonso X El Sabio University
- Master's Degree in Veterinary Ophthalmology, UAB
- Advanced General Practitioner Certificate (GPAdvCert) in Small Animal Orthopedic Surgery
  Practical initiation course in Osteosynthesis, SETOV

Dr. García Montero, Javier

- Surgeon in the Traumatology and Orthopedics Service at the Cruz Verde Vetsum Veterinary Hospital
  Veterinary specialist at El Pinar Veterinary Clinic
- Degree in Veterinary Medicine from the University of Cordoba
  Postgraduate Degree in Traumatology and Orthopedics in Small Animals at the Complutense University of Madrid
- Postgraduate Degree in Surgery and Anesthesia at the Autonomous University of Barcelona
  Member of AO VET Foundation

Dr. Guerrero Campuzano, María Luisa

- Director of the Veterinary Clinic Petiberia
  Bird Veterinarian at Puy du Fou Spain
  Veterinarian at Oasis Wildlife Fuerteventura Zoo
- Animal Technician at the Spanish National Cancer Research Center (CNIO)
  Volunteer in the Feline Colony Spay/Neuter Campaign at ALBA Animal Protection Society
  Co-author of clinical trials and scientific knowledge pills
- Degree in Veterinary Medicine from the University Alfonso X El Sabio
  Master's Degree in Soft Tissue Surgery and Anesthesia in Small Animals from the Autonomous University of Barcelona
  Master's Degree in Exotic and Wild Animal Medicine and Surgery from the Complutense University of Madrid
  Member of AVEPA and GMCAE

Dr. Monje Salvador, Carlos Alberto

- Head of Endoscopy and Minimally Invasive Surgery Service at ECCOA Veterinary Diagnostics
  Veterinary Surgeon in Dopplervet
  Responsible for Surgery and Diagnostic Imaging at Gattos Feline Clinical Center
- Veterinarian at Openvet Veterinary Hospital
  Veterinary Surgeon at Unzeta Veterinary Clinic
  Degree in Veterinary Medicine from the University of Santiago de Compostela
- Master's Degree in Endoscopy and Minimally Invasive Surgery in Small Animals from the University of Extremadura
  Postgraduate Degree in Small Animal Surgery from the Autonomous University of Barcelona
  Member of the Association of Veterinarians Specialists in Small Animals (AVEPA), the Group of Specialists in Feline Medicine AVEPA (GEMFE) and the Group of Veterinary Specialists in Traumatology and Orthopedics (GEVO)

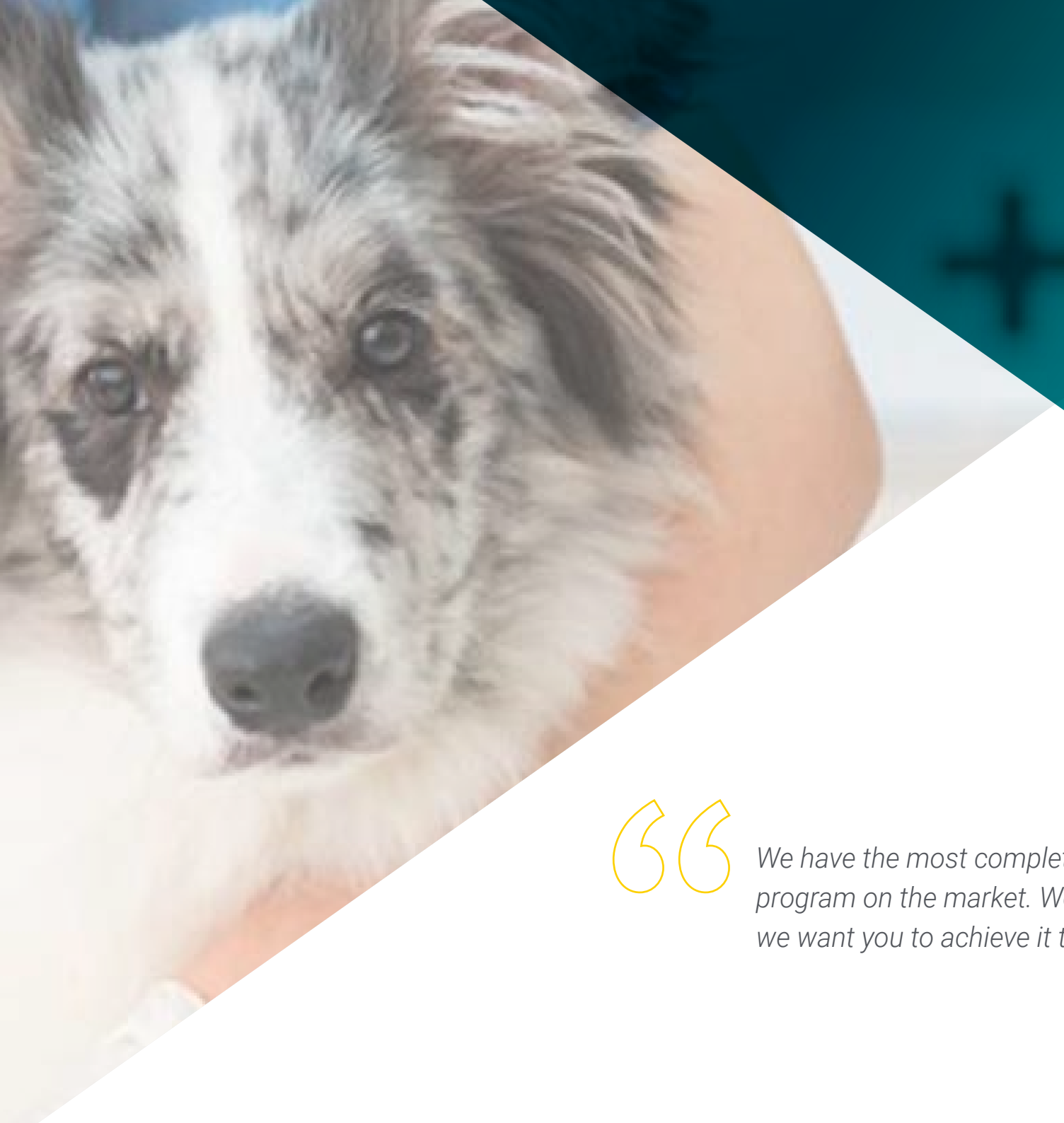
Dr. Flores Galán, José Antonio

- Head of the Traumatology, Orthopedics and Neurosurgery Service at the Prïvet Veterinary Hospitals
- Doctor by the Complutense University of Madrid
- Degree in Veterinary Medicine from the Complutense University of Madrid
- Specialist in Traumatology and Orthopedic Surgery in Companion Animals by the Complutense University of Madrid

04

Structure and Content

The structure of the content has been designed by the best professionals in Veterinary Traumatology and Orthopedic Surgery sector, with extensive experience and recognized prestige in the profession, backed by the volume of cases reviewed, studied, and diagnosed, and with extensive knowledge of new technologies applied to veterinary.



We have the most complete and up-to-date scientific program on the market. We strive for excellence and we want you to achieve it too"

Module 1. Osteogenesis

1.1. Biomechanics of Fractures
- 1.1.1. Bone as a Material
- 1.1.2. The Role of Bone in Bone Fracture. Mechanical Concepts

1.2. Osteogenic Cells
- 1.2.1. Osteoblasts
- 1.2.2. Osteocytes
- 1.2.3. Osteoclasts

1.3. The Bone Matrix

1.4. The Growth Plate
- 1.4.1. Organization of the Growth Plate
- 1.4.2. Blood Supply of the Growth Plate
- 1.4.3. Structure and Function of the Growth Plate
- 1.4.4. Cartilaginous Components
  - 1.4.4.1. Reserve Zone
  - 1.4.4.2. Proliferative Zone
  - 1.4.4.3. Hypertrophic Zone
- 1.4.5. Bone Components (Metaphysis)
- 1.4.6. Fibrous and Fibrocartilaginous Components

1.5. Diaphyseal Bone Formation

1.6. Cortical Remodelling

1.7. Bone Irrigation
- 1.7.1. Normal Irrigation of Young Bone
- 1.7.2. Normal Irrigation of Mature Bone
  - 1.7.2.1. Afferent Vascular System
    - 1.7.2.1.1. Physiology of the Afferent Vascular System
  - 1.7.2.2. Efferent Vascular System
    - 1.7.2.2.1. Physiology of the Efferent Vascular System
  - 1.7.2.3. Intermediate Vascular System of Compact Bone
    - 1.7.2.3.1. Physiology Intermediate Vascular System of Compact Bone
    - 1.7.2.3.2. Bone Cell Activity

1.8. Calcium-Regulating Hormones
- 1.8.1. Parathyroid Hormone
  - 1.8.1.1. Anatomy of the Parathyroid Glands
  - 1.8.1.2. Parathyroid Hormone Biosynthesis
  - 1.8.1.3. Control of Parathyroid Hormone Secretion
  - 1.8.1.4. Biological Action of Parathyroid Hormone

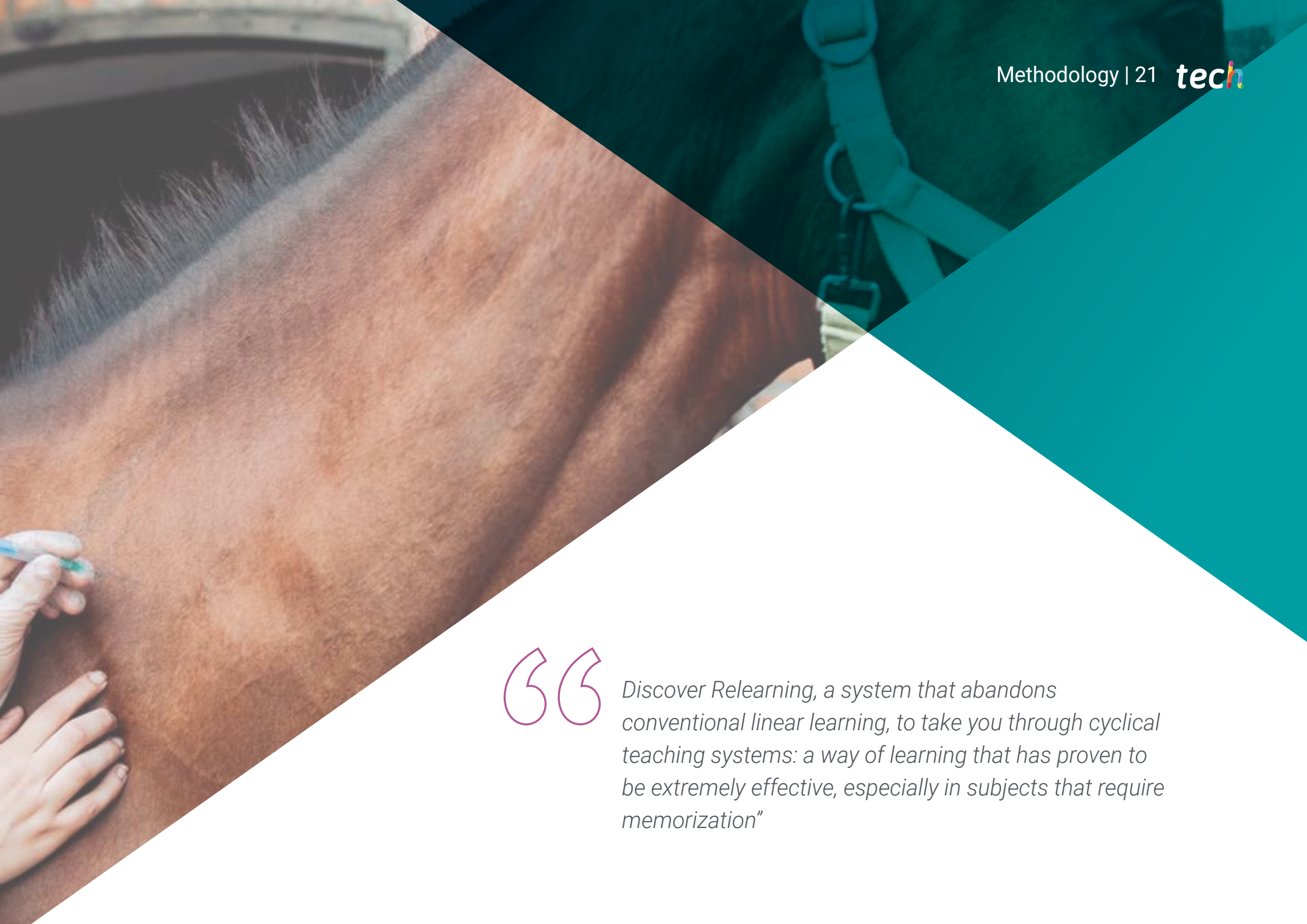
1.8.2. Calcitonin
1.8.2.1. Thyroid C (Parafollicular) Cells
1.8.2.2. Calcitonin Secretion Regulation
1.8.2.3. Biological Action and Physiological Significance of Calcitonin
1.8.2.4. Primary and Secondary Hypercalcitoninemia
1.8.3. Cholecalciferol (vitamin D)
1.8.3.1. Metabolic Activation of Vitamin D
1.8.3.2. Subcellular Mechanisms of Action of Active Vitamin Metabolites
1.8.3.3. Effects of Hormonal Alterations on the Skeleton under Pathological Conditions
1.8.3.4. Vitamin D Deficiency
1.8.3.5. Vitamin D Excess
1.8.3.6. Primary and Secondary Hyperparathyroidism
1.9. Fracture Repair
1.9.1. Bone Response to Trauma
1.9.2. Basic Fracture Repair
1.9.2.1. Inflammatory Phase
1.9.2.2. Repair Phase
1.9.2.3. Remodeling Phase
1.9.2.4. Callus Formation
1.9.2.5. Fracture Healing
1.9.2.6. First Intention Repair
1.9.2.7. Second Intention Repair
1.9.2.8. Clinical Union
1.9.2.9. Clinical Union Ranges
1.10. Fracture Complications
1.10.1. Delayed Union
1.10.2. Non-Union
1.10.3. Poor Union
1.10.4. Osteomyelitis

05

Methodology

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

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



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:

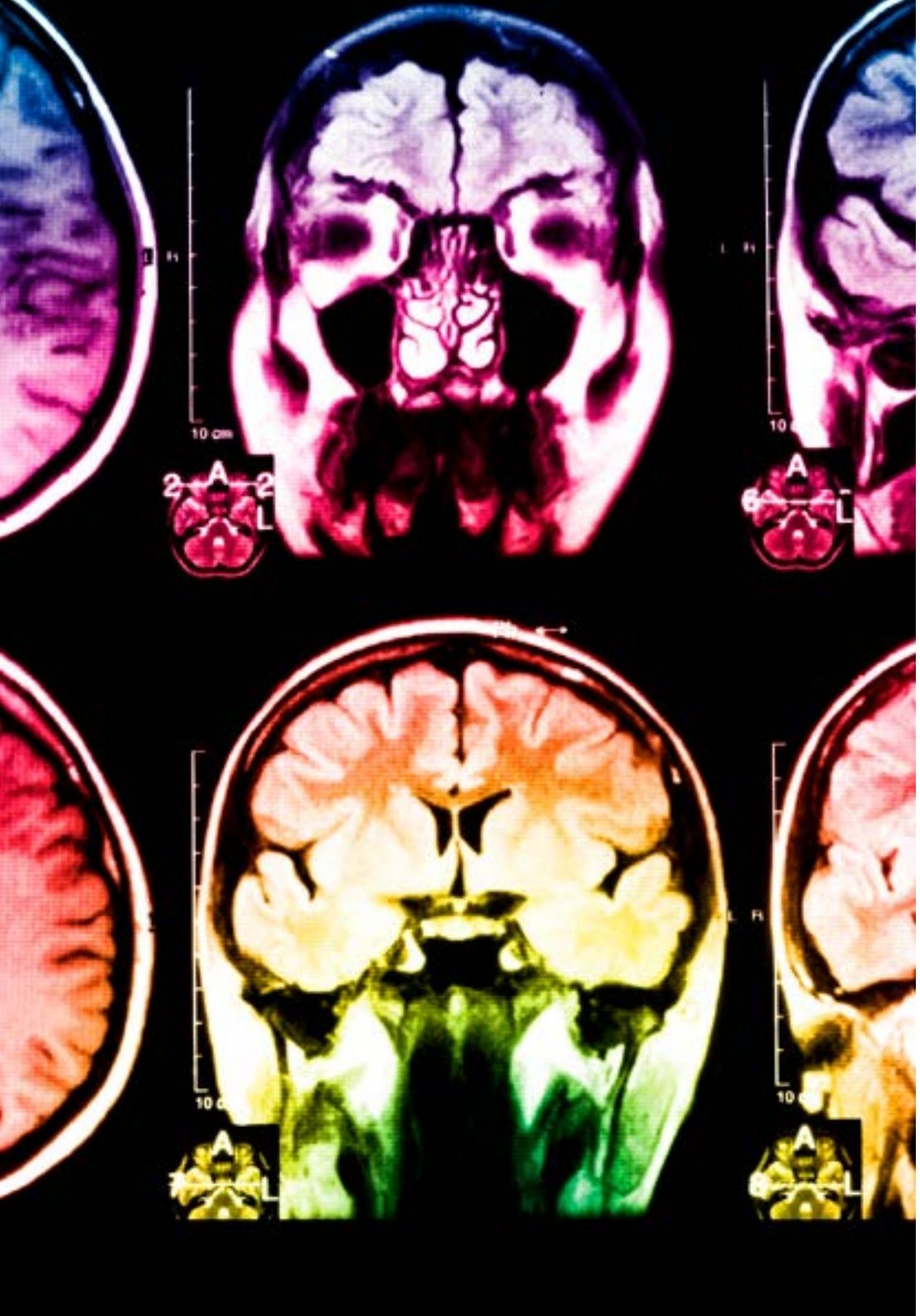
1. Veterinarians who follow this method not only manage to assimilate concepts, but also develop their mental capacity through exercises to assess real situations and knowledge application.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the program.

Relearning Methodology

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 prepared with unprecedented success in all clinical specialties, regardless of the surgical load. Our teaching method is developed in a highly demanding environment, where the students have a high socio-economic profile and an average age of 43.5 years.

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

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

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

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

Study Material

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

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

Latest Techniques and Procedures on Video

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

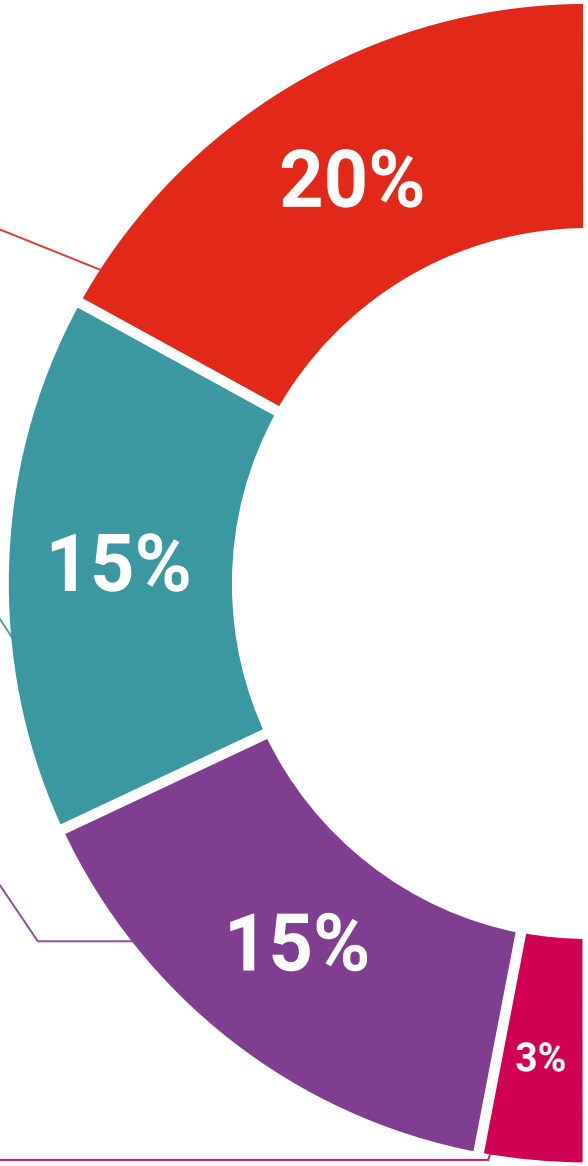
Interactive Summaries

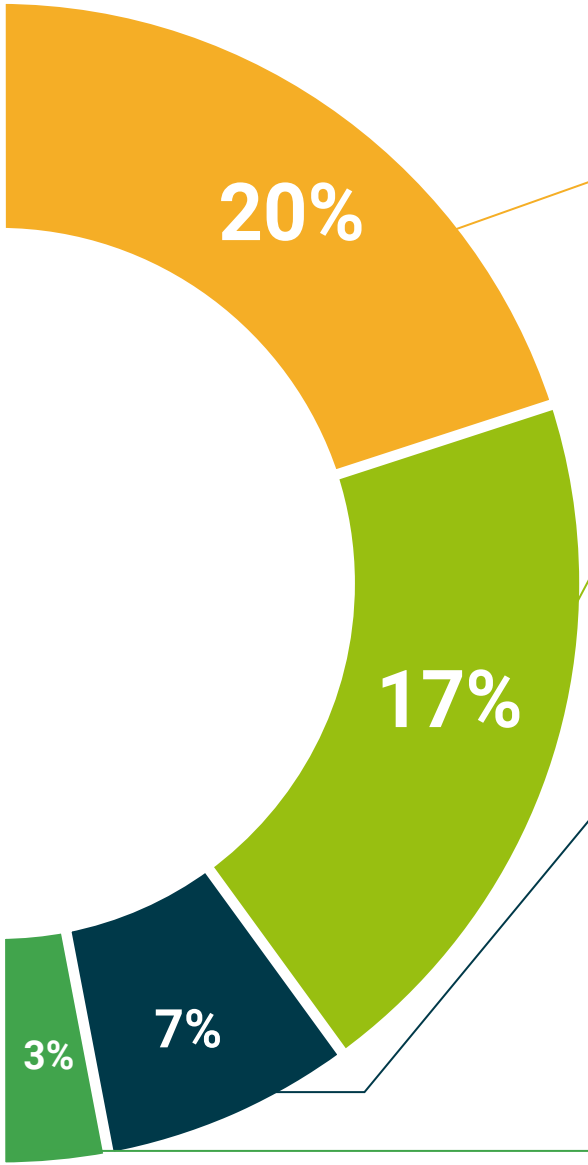
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

Additional Reading

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





Expert-Led Case Studies and Case Analysis

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

Testing & Retesting

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

Masterclasses

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

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

Quick Action Guides

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

06

Certificate

The Postgraduate Certificate in Osteogenesis guarantees, in addition to the most accurate and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.

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

This private qualification will allow you to obtain a **Postgraduate Certificate in Osteogenesis** 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 private qualification**, 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 Certificate in Osteogenesis**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**


tech global university

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

Postgraduate Certificate in Osteogenesis

This is a private qualification of 150 hours of duration equivalent to 6 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
Dean

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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