

Hybrid Master's Degree Veterinary Traumatology and Orthopedic Surgery



Hybrid Master's Degree Veterinary Traumatology and Orthopedic Surgery

Modality: Hybrid (Online + Clinical Internship)

Duration: 12 months

Certificate: TECH Global University

60 + 5 ECTS Credits

Website: www.techtitude.com/us/veterinary-medicine/hybrid-master-degree/hybrid-master-degree-veterinary-traumatology-orthopedic-surgery

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01

Introduction

The Hybrid Master's Degree in Veterinary Traumatology and Orthopedic Surgery is a program taught from a theoretical and practical methodology that develops knowledge based on the latest scientific evidence and the best daily practice at veterinary level. This perfect combination will allow the professionals to specialize in animal traumatology in an optimal way, having deep competences that will position them as a reference in the sector. It is, therefore, an optimal academic opportunity that will improve the veterinarian's professional perspective.



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This Hybrid Master's Degree is the best option you can find to specialize in Veterinary Traumatology and Orthopedic Surgery and make effective diagnoses and treatments"

Veterinarians face new challenges every day in treating their patients. This Hybrid Master's Degree specializes the veterinary professional in Traumatology and Orthopedic Surgery through a theoretical and practical training provided by professionals with extensive experience and worldwide recognition in this field.

The teaching team of this program in Veterinary Traumatology and Orthopedic Surgery has made a careful selection of the different state-of-the-art surgical techniques for experienced professionals working in the veterinary field, focusing also on anamnesis, physical examination of the patient, complementary veterinary tests and interpretation, differential diagnoses and treatment.

This program provides students with specialized tools and skills to successfully develop their professional activity in the wide environment of Traumatology and Orthopedic Surgery, working key skills such as knowledge of the reality and daily practice of the veterinary hospital, and develops responsibility in the monitoring and supervision of their work, as well as communication skills within the essential teamwork.

Faced with this scenario TECH presents this program that will allow you to develop, in real patients and in a hospital setting with state-of-the-art resources, your maximum potential and growth in the area. You will approach real patients using the latest techniques based on scientific evidence and achieving results previously difficult to achieve.

This **Hybrid Master's Degree in Veterinary Traumatology and Orthopedic Surgery** contains the most complete and up-to-date scientific program on the market. Its most outstanding features are:

- ♦ Development of more than 120 clinical cases presented by experts in veterinary medicine and other specialties. Its graphic, schematic and eminently practical contents, with which they are conceived, gather scientific and assistance information on those veterinary disciplines that are essential for professional practice
- ♦ Presentation of practical workshops on procedures and techniques
- ♦ An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course
- ♦ Action protocols and clinical practice guidelines, which cover the most important latest developments in this specialist area
- ♦ All of this will be complemented by theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ♦ With a special emphasis on evidence-based veterinary and research methodologies in anesthesiology and pain management
- ♦ Content that is accessible from any fixed or portable device with an Internet connection
- ♦ In addition, you will be able to carry out a clinical internship in one of the best hospitals in the world



*Constant updating of knowledge
is key to provide better patient care"*

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This Hybrid Master's Degree is the best investment you can make in selecting a refresher program to update your knowledge in Veterinary Traumatology and Orthopedic Surgery"

In this proposal for a Hybrid Master's Degree, of a professionalizing nature and blended learning modality, the program is aimed at updating veterinary professionals who perform their functions in the Veterinary Traumatology and Orthopedic Surgery unit, and who require a high level of qualification. The contents are based on the latest scientific evidence, and oriented in a didactic way to integrate theoretical knowledge in veterinary practice, and the theoretical-practical elements will facilitate the updating of knowledge and will allow decision making in patient management.

Thanks to their multimedia content developed with the latest educational technology, they will allow the veterinary professionals to learn in a contextual and situated learning environment, that is, a simulated environment that will provide immersive learning programmed to train in real situations. This program is designed around Problem-Based Learning, whereby the physician must try to solve the different professional practice situations that arise during the course. For this reason, you will be assisted by an innovative, interactive video system created by renowned and experienced experts in the field of Intensive Care units who also have extensive teaching experience.

This innovative program offers training in simulated environments, which provides an immersive learning experience designed to train for real-life situations.

Add to your online study the realization of clinical practices with the highest standards of quality and technological level in a first level veterinary clinical center.



02

Why Study this Hybrid Master's Degree?

This program allows you to perform a 100% online theoretical training with the most efficient methodology for agile and dynamic learning: Relearning, through TECH's exclusive study system. You will have a complete and specific content that condenses the novelties in terms of diagnostic methods and veterinary orthopedic surgical treatments, designed by experts in the area with an outstanding profile in this sector of veterinary medicine. At the end of the theoretical part, the students must apply themselves to the practical activity in order to retain the knowledge even more. Undoubtedly, a new teaching model achieved through agreements with prestigious companies that will allow the students to stay in the classroom for 3 weeks, in 8-hour shifts from Monday to Friday.





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You will learn the most specific and effective techniques for bone repair and care of the animal in case of injuries and fractures, in a practical activity that will increase the loyalty of the knowledge obtained"

1. Updating from the latest technology available

Handling the techniques, diagnostic methods and all the advances that have emerged in terms of the effectiveness of materials and veterinary medical equipment, will make the professional stand out in their environment by offering a high level of service. This will be possible in only 12 months with this theoretical-practical study available thanks to the innovation of TECH, always at the forefront of higher education.

2. Gaining In-Depth Knowledge from the Experience of Top Specialists

TECH chooses the best teachers for each of its programs. In this case, TECH has joined the clinical centers where veterinarians experts in Veterinary Traumatology and Orthopedic Surgery make life. The students will be able to deepen and update all their knowledge with an expanded vision, during the 12 months of this Hybrid Master's Degree and, in addition, thanks to the experiences that will pour teammates for 3 weeks in the specialized center.

3. Entering First-Class Clinical Environments

The specialist will have guaranteed access to a prestigious clinical environment in the area of veterinary medicine by enrolling in this Hybrid Master's Degree. During the internship in a center of great relevance, they will be able to see the day to day of a demanding, rigorous and exhaustive area of work, always applying the latest theses and scientific postulates in their work methodology.



4. Combining the Best Theory with State-of-the-Art Practice

Students will not find another program like this one that allows them to choose a prestigious center in their country or another part of the world to carry out 100% practical training. TECH keeps innovating and with this program will provide an unparalleled experience that will improve your professional profile immediately.

5. Expanding the Boundaries of Knowledge

This program opens the door to a new possibility for its students, with the choice of a veterinary clinical center of national or international relevance. This way, the specialist will be able to expand their frontiers and catch up with the best professionals, who practice in first class centers and in different continents. A unique opportunity that only TECH, the largest online university in the world, could offer.

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*You will have full practical immersion
at the center of your choice"*

03 Objectives

TECH strengthens its commitment in the global educational market with new models of professional training. Thanks to its interest in providing quality education, it has designed this Hybrid Master's Degree plus Internship Program that offers students a high level content and the possibility of knowing the reality of work in Veterinary Traumatology and Orthopedic Surgery *In Situ*. To do this, it has a number of centers endorsed with high level of relevance in the veterinary clinical sector for the professional to acquire the skills and new skills that will differentiate it in their work environment. Undoubtedly a unique opportunity of expansion for those who bet on the success of their career.



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You will learn to develop bone physiology and the influence of the same in a patient with bone diseases in the hormonal system that governs the bone"



General Objective

- The general objective of the Hybrid Master's Degree in Veterinary Traumatology and Orthopedic Surgery is to achieve that the professionals update the diagnostic and therapeutic procedures of the specialty in a theoretical-practical way, through a hospital stay designed with clinical and academic rigor, under the guidance of renowned professionals in a hospital center of the highest scientific quality and technological innovation. In this program the professionals will address the main interventions of the specialist that will allow them to improve and enhance their skills in the veterinary care of their patients



You will be provided with multimedia tools meticulously designed by experts, which will favor assimilation and learning"





Specific Objectives

Module 1. Osteogenesis

- ♦ 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 and differentiate between a stable fracture and an unstable fracture by the appearance of the callus in an X-ray

Module 2. Orthopedic Physical Examination

- ♦ Identify abnormalities in the patient by means of the medical history review
- ♦ Establish the management of a patient on arrival at the hospital for a static and dynamic orthopaedic physical examination
- ♦ Determine the importance in the orthopedic physical examination of observation, inspection, palpation, tenderness and listening for joint crepitus, as well as measurement of joint range of motion
- ♦ Recognized the 20 most commonly encountered diseases in dogs
- ♦ Develop the necessary skills and ability to perform a good orthopaedic clinical examination in order to make a decisive diagnosis
- ♦ Develop the ability to establish possible diagnoses by detailing the supporting diagnostic methods to obtain a definitive diagnosis

Module 3. Skeletal External Fixators and Circular Fixators

- ♦ Analyze the behaviour of different configurations of linear, hybrid and circular stakes
- ♦ Compile the use of external tutors in cases of non-unions
- ♦ Propose the use of external fixation as the first option for tibia and radius fractures

- ♦ Concretize the use of tutors as a first option for open or infected fractures
- ♦ Demonstrate that external tutors can be used in felines
- ♦ Establish guidelines for the choice of use of each of the configurations
- ♦ Assess the importance of the quality of materials
- ♦ Examine the behaviour of the use of acrylic for long bone fractures
- ♦ Justify the advantages of the use of circular arthrodesis tutors
- ♦ Generate curiosity about the use of external tutors

Module 4. Intramedullary Nailing

- ♦ Establish the uses of intramedullary and locking nail applications in fractures of the femur, tibia and humerus
- ♦ Define the biomechanics and rotational stability of the intramedullary nail applied to the long bones of the dog and cat
- ♦ Identify the normograde and retrograde insertion forms for intramedullary nailing of long bones in dogs and cats
- ♦ Identify the use of intramedullary nailing and auxiliary fixation as cerclages and external fixators in fractures in dogs and cats
- ♦ Establish fracture repair times, radiographic follow-up and removal of intramedullary nails and ancillary methods used in fractures in dogs and cats
- ♦ Identify the use of the tension band applied to avulsion fractures in dogs and cats
- ♦ Evaluate the use of cross pins in metaphyseal, supracondylar and physal fractures of the long bones of dogs and cats

Module 5. Bone Plates and Screws

- ♦ Develop specialist judgement in the use of any of the systems covered in this module to decide which is the optimal fracture verification system for daily practice in dogs and cats
- ♦ Identify the main advantages and disadvantages of each of the plate fixation methods
- ♦ Evaluate the rope or conical locking systems in each of the plate fastening systems
- ♦ Determine the instrumentation required for the application of each implant
- ♦ Make the best decision for each of the most common fractures on the best plate fixation system
- ♦ Decide on the optimal system to be used for different developmental conditions that cause angulations or abnormalities of bones and joints

Module 6. Pelvis Fractures

- ♦ Analyze and identify the clinical features associated with a pelvic fracture
- ♦ Recognize and evaluate the different factors in patients with pelvic fractures that allow us to make an accurate prognosis
- ♦ Perform surgical approaches in the various anatomical regions where therapeutic procedures are carried out
- ♦ Apply the various conservative therapies in patients with pelvic fractures, both in the initial stages and in the subsequent weeks of recovery
- ♦ Specialize the veterinary professional in the performance of standard and proper manoeuvres in the reduction of pelvic fractures
- ♦ Select the appropriate surgical implant for each type of pelvic pathology, identifying the advantages and disadvantages of each case

- ♦ Specialize the veterinary professional in the surgical techniques characteristic of specific pelvic pathologies
- ♦ Perform a correct analgesic management of patients in their immediate and medium and long-term post-surgery
- ♦ Develop the main methods of rehabilitation and return to function of patients with pelvic fractures

Module 7. Pelvic Limb Fractures

- ♦ Establish the classification of proximal femoral fractures and develop expertise on the most recommended fixation methods for successful fracture repair
- ♦ Compile the different systems and combinations of osteosynthesis systems in the repair of mid-femoral weight-bearing fractures
- ♦ Analyze the different methods of fixation and specialize in those that offer the highest success rate of fixation of knee fractures
- ♦ Determine the different fractures involving the tibia and specialise in the most recommended fixation methods for the solution of their fractures
- ♦ Examine the most common fractures encountered in daily practice, their diagnosis and surgical resolution

Module 8. Thoracic Limb Fractures

- ♦ Analyze the fractures of the scapula and how to fix each one of them
- ♦ Examine the classification of distal humerus fractures
- ♦ Determine the most recommended methods of fixation for successful fracture repair
- ♦ Develop specialized education in the different combinations of osteosynthesis systems for the repair of mid-humeral fractures

- ♦ Study the different methods of fixation and refine knowledge in those methods that have the highest success rate among the different methods of elbow fracture fixation
- ♦ Specify the different fractures involving the radius and ulna
- ♦ Analyze the different methods of fixation most recommended for the solution of fractures of the radius and ulna
- ♦ Detail the most common fractures of the region, diagnosis and surgical resolution
- ♦ Examine fractures and dislocations of the carpus and phalanges and the most effective fixation of these
- ♦ Determine forelimb growth abnormalities, origin and treatment by means of angular corrections through osteotomies and associated treatment methods
- ♦ Determine the most common fractures of the mandible and maxilla, as well as the different ways of solving them

Module 9. Arthroscopy

- ♦ Describe the history and evolution of arthroscopy in human and veterinary medicine
- ♦ Assess arthroscopy equipment and instruments and their handling
- ♦ Examine the advantages of arthroscopy compared to conventional open surgery
- ♦ Analyse arthroscopy as a method of diagnosing intra-articular pathologies of each joint
- ♦ Provide a rationale for arthroscopy as a method of surgical treatment of intra-articular pathologies
- ♦ Develop arthroscopically assisted surgical techniques for the treatment of periarticular pathologies
- ♦ Establish the contraindications of arthroscopy, assess the complications of this technique and how to resolve them

Module 10. Orthopedic Diseases

- ♦ Examine and analyze each of the diseases
- ♦ Carry out a correct assessment process in order to reach a definitive diagnosis for each of the diseases mentioned
- ♦ Improve therapeutic practice in each of these diseases
- ♦ Assess how best to prevent these diseases
- ♦ Identify early symptoms of diseases for early treatment
- ♦ Methodically analyze the main developmental diseases taking into account differences of age, sex, size, forelimb and hind limb



Boost your career path with holistic teaching, allowing you to advance both theoretically and practically"

04 Skills

After passing the evaluations of the Hybrid Master's Degree in Veterinary Traumatology and Orthopedic Surgery, the professionals will have acquired the necessary skills for quality veterinary care and updated on the basis of the latest scientific evidence. This will help them to position themselves as a reference in a sector that increasingly demands more specialized professionals.



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A path to achieve education and professional growth that will propel you towards a greater level of competitiveness in the employment market"



General Skills

- Diagnose the different traumatological problems in animals and use the necessary techniques for their treatment
- Assessing different traumatological pathologies using audiovisual methods
- Perform post-surgical care
- Utilize the most modern methods of Orthopedic Surgery

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You will master the new therapeutic formulas to treat the veterinary patient affected with fracture”





Specific Skills

- ♦ Apply the necessary techniques for the treatment of these pathologies
- ♦ Perform the necessary post-surgical care for this type of fracture
- ♦ Know the characteristics of fractures of the femur, tibia and knee
- ♦ Use the most appropriate fixation methods for these fractures
- ♦ Identify and analyze fractures of the scapula, radius and ulna, as well as the carpus, phalanges, mandible and maxilla
- ♦ Use the most appropriate methods in each case
- ♦ Know the advantages of arthroscopy and use it in appropriate cases
- ♦ Know the contraindications of arthroscopy
- ♦ Evaluate animals to effectively diagnose their pathology
- ♦ Perform the best therapeutic practice in each case
- ♦ Prevent certain diseases in pets
- ♦ Knowledge of bone cytology
- ♦ Differentiate the different types of bone fractures
- ♦ Perform an orthopedic physical examination to reach definitive diagnoses
- ♦ Know the most common diseases in this area in dogs
- ♦ Know the best procedures for treating fractures
- ♦ Use the best devices for bone fixation after a fracture
- ♦ Apply the most appropriate mechanisms for femur, tibia and humerus fractures in dogs and cats
- ♦ Manage recovery times after a fracture
- ♦ Use the optimal fracture verification system in the daily practice of dogs and cats
- ♦ Know the advantages and disadvantages of the use of plates, and use them if necessary
- ♦ Identify all characteristics associated with pelvic fractures

05

Course Management

Within the concept of total quality of this program, TECH is proud to offer a teaching staff of the highest level, chosen for their proven experience; professionals from different areas and skills that make up a complete multidisciplinary cast. A unique opportunity to learn from the best.





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*Experienced professionals have
formed the veterinary medical
office that manages this program”*

Management



Dr. Soutullo Esperón, Ángel

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

Professors

Dr. Borja Vega, Alonso

- ♦ Chief of the Surgery and Ophthalmology Service of the Veterinary Clinic Vet 2.0
- ♦ Founder of Vet 2.0 Veterinary Clinic
- ♦ Degree in Veterinary Medicine from the Alfonso X El Sabio University.
- ♦ Master's Degree in Veterinary Ophthalmology at the UAB
- ♦ Advanced General Practitioner Certificate (GPAdvCert) in Small Animal Orthopedic Surgery
- ♦ Practical course of initiation to osteosynthesis in SETOV

Dr. García Montero, Javier

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

Dr. Guerrero Campuzano, María Luisa

- ♦ Director of Petiberia Veterinary Clinic
- ♦ Bird Veterinarian at Puy du Fou Spain
- ♦ Veterinarian at the zoo Oasis Wildlife Fuerteventura
- ♦ 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
- ♦ Graduate in Veterinary Medicine from the Alfonso X El Sabio University.
- ♦ Master in Soft Tissue Surgery and Anesthesia in Small Animals by the Autonomous University of Barcelona
- ♦ Master in Medicine and Surgery of Exotic and Wild Animals by the Complutense University of Madrid
- ♦ Member of: AVEPA, GMCAE

Dr. Flores Galán, José A

- ♦ Head of the Traumatology, Orthopedics and Neurosurgery Service at Privet Veterinary Hospitals
- ♦ PhD from the Complutense University of Madrid.
- ♦ Degree in Veterinary Medicine from the Complutense University of Madrid
- ♦ Specialist in Traumatology and Orthopedic Surgery in Companion Animals, Complutense University of Madrid

Dr. Monje Salvador, Carlos Alberto

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



An impressive teaching staff, made up of professionals from different areas of expertise, will be your teachers during your training: a unique opportunity not to be missed"

06

Educational Plan

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. This assures the students that, by studying here, they will find not only the best teaching staff in the sector, but also the best syllabus on the market.



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*In a completely practical and dynamic way
you will validate what you have learned in
the theoretical syllabus 100% online"*

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. Biomechanics of Fractures
 - 1.9.1. Bone as a Material
 - 1.9.2. The Role of Bone in Bone Fracture. Basic Mechanical Concepts
- 1.10. Clinical-Imaging Evaluation of Fracture Repair
 - 1.10.1. Basic Fracture Repair
 - 1.10.1.1. Callus formation
 - 1.10.1.1.1. Misty Callus
 - 1.10.1.1.2. Stratified Callus
 - 1.10.1.1.3. Fracture Healing
 - 1.10.2. Bone Response to Trauma
 - 1.10.2.1. Inflammatory Phase
 - 1.10.2.2. Repair Phase
 - 1.10.2.3. Remodelling Phase
 - 1.10.3. First Intention Repair
 - 1.10.4. Second Intention Repair
 - 1.10.5. Clinical Union
 - 1.10.5.1. Clinical Union Ranges
 - 1.10.5.2. Repair by Third Intention (delayed joining)
 - 1.10.5.3. Lack of Unity

- 1.10.6. Bone Behaviour with Different Fixation Methods
 - 1.10.6.1. Bone Behaviour with the Use of External Fixation (splints and bandages)
 - 1.10.6.2. Bone Behaviour with the use of External Fixators
 - 1.10.6.3. Bone Behaviour with the Use of Steinmann Intramedullary Nailing
 - 1.10.6.4. Bone Behaviour with the Use of Plates and Screws
 - 1.10.6.5. Bone Behaviour with the Use of Prosthesis
 - 1.10.6.5.1. Cemented
 - 1.10.6.5.2. Biological
 - 1.10.6.5.3. Blocked

Module 2. Orthopedic Physical Examination

- 2.1. The Owner's First Contact with the Hospital
 - 2.1.1. Questions to Be Asked at Reception
 - 2.1.2. Appointment with the Patient
 - 2.1.3. Age, Sex, Race
- 2.2. Dynamic Orthopedic Physical Examination
 - 2.2.1. Capturing Images and Video
 - 2.2.2. Slow Motion Video
 - 2.2.3. Front, Rear and Side Views
 - 2.2.4. Walking, Trotting, Running
- 2.3. Static Orthopaedic Physical Examination
 - 2.3.1. Methodology for its Implementation
 - 2.3.2. Degrees of Claudication
 - 2.3.3. Superficial Palpation
 - 2.3.4. Superficial Palpation
 - 2.3.5. The Anatomy that One Should Know in Each Palpated Region
 - 2.3.6. Joint Ranges of Motion and the Goniometer
 - 2.3.7. According to Breed and Age Which Are the 5 Most Commonly Encountered Diseases
- 2.4. The 20 Most Commonly Encountered Orthopedic Diseases and the Clinical Symptomatology Encountered I
 - 2.4.1. Rupture of the Anterior Cruciate Ligament
 - 2.4.2. Patellar Dislocation
 - 2.4.3. Elbow Dysplasia
 - 2.4.4. Hip Dysplasia
 - 2.4.5. Osteochondritis *Dissecans* of the Shoulder, Tarsus, Femur
 - 2.4.6. Canine Panosteitis
- 2.5. Orthopedic Diseases II
 - 2.5.1. Radius Curvature
 - 2.5.2. Hypertrophic Osteodystrophy
 - 2.5.3. Hypertrophic Osteoarthropathy
 - 2.5.4. Contracture of the Carpal Flexor Tendon
 - 2.5.5. Scapulohumeral Instability
 - 2.5.6. Wobbler Syndrome
 - 2.5.7. Intervertebral Disc Disease
- 2.6. Orthopedic Diseases III
 - 2.6.1. Hemivertebra
 - 2.6.2. Lumbosacral Instability
 - 2.6.3. Elbow Dislocation
 - 2.6.4. Dislocation of the Hip
 - 2.6.5. Avascular Necrosis of the Femoral Head (legg perthes)
 - 2.6.6. Polyarthritis (Autoimmune, I-cell, *Ehrlichia*, *Rickettsia*)
 - 2.6.7. Osteoarthritis as a Result of Disease
- 2.7. Performance of the Dynamic and Static Orthopedic Physical Examination for the Second Time
- 2.8. The Three Presumptive Diagnoses and How to Differentiate Them
- 2.9. Diagnostic Work
 - 2.9.1. Radiology
 - 2.9.2. Ultrasound
 - 2.9.3. Laboratory Clinic
 - 2.9.4. Tomography
 - 2.9.5. Magnetic Resonance
- 2.10. Arthrocentesis
 - 2.10.1. Preparation for Arthrocentesis
 - 2.10.2. Arthrocentesis Approach in Different Regions
 - 2.10.3. Sending of Samples
 - 2.10.4. Physical Examination of Synovial Fluid
 - 2.10.5. Histochemistry of Synovial Fluid
 - 2.10.6. Osteoarthritis and Prognosis to Its Treatment by Synovial Fluid Assessment

Module 3. Skeletal External Fixators and Circular Fixators

- 3.1. External Fixators
 - 3.1.1. History of the External Skeletal Fixator
 - 3.1.2. Description of the External Fixator
- 3.2. Parts Constituting the Kirschner-Ehmer Apparatus
 - 3.2.1. Nails
 - 3.2.1.1. Fixators
 - 3.2.2. Connecting Bar
- 3.3. Settings of the External Skeletal Fixator
 - 3.3.1. Half Skeletal Fixation Device
 - 3.3.2. Standard Kirschner-Ehmer Apparatus
 - 3.3.3. Modified Kirschner-Ehmer Apparatus
 - 3.3.4. Bilateral External Fixator Model
- 3.4. Mixed Skeletal Fixator Apparatus
- 3.5. Methods of Application of the Kirschner-Ehmer Apparatus
 - 3.5.1. Standard method
 - 3.5.2. Modified Method
- 3.6. External Fixators with Dental Acrylic
 - 3.6.1. The Use of Epoxy Resin
 - 3.6.2. The Use of Dental Acrylics
 - 3.6.2.1. Preparation of Acrylics
 - 3.6.2.2. Application and Setting Time
 - 3.6.2.3. Post-Surgery Care
 - 3.6.2.4. Removal of the Acrylic
 - 3.6.3. Bone Cement for Use in Fractures of the Spine
- 3.7. Indications and Uses of External Fixators
 - 3.7.1. Femur
 - 3.7.2. Tibia
 - 3.7.3. Tarsus
 - 3.7.4. Humerus
 - 3.7.5. Radio and Ulna
 - 3.7.6. Carpus
 - 3.7.7. Jaw
 - 3.7.8. Pelvis
 - 3.7.9. Spinal Column

- 3.8. Advantages and Disadvantages of Using External Fixators
 - 3.8.1. Acquisition of Acrylic Material
 - 3.8.2. Care in the Application of Acrylics
 - 3.8.3. Toxicity of Acrylic
- 3.9. Postoperative Care
 - 3.9.1. Cleaning of the Acrylic Fixator
 - 3.9.2. Post-Operative Radiographic Studies
 - 3.9.3. Gradual Removal of the Acrylic
 - 3.9.4. Care when Removing the Fixator
 - 3.9.5. Repositioning of the Acrylic Fixator
- 3.10. Circular Fixators
 - 3.10.1. History
 - 3.10.2. Components
 - 3.10.3. Structure
 - 3.10.4. Application
 - 3.10.5. Advantages and Disadvantages

Module 4. Intramedullary Nailing

- 4.1. History
 - 4.1.1. Kuntcher's Nail
 - 4.1.2. The First Canine Patient with an Intramedullary Nail
 - 4.1.3. The Use of the Steinmann Nail in the 1970s
 - 4.1.4. The Use of the Steinmann Nail Today
- 4.2. Principles of Intramedullary Nail Application
 - 4.2.1. Type of Fractures in Which it Can Be Exclusively Placed
 - 4.2.2. Rotational Instability
 - 4.2.3. Length, Tip and Rope
 - 4.2.4. Normograde and Retrograde Application. Nail Diameter to Medullary Canal Ratio
 - 4.2.5. Principle of the 3 Points of the Cortex
 - 4.2.6. Behaviour of the Bone and its Irrigation after Intramedullary Nail Fixation. The Steinmann Nail and the Radius
- 4.3. The Use of Locks with the Steinmann Intramedullary Nail
 - 4.3.1. Principles of Application of Fastenings and Lashings
 - 4.3.2. Barrel Principle
 - 4.3.3. Type of Fracture Line

- 4.4. Principles of Application of the Tension Band
 - 4.4.1. Pawel's Principle
 - 4.4.2. Application of Engineering to Orthopedics
 - 4.4.3. Bone Structures where the Tension Band is to Be Applied
- 4.5. Normograde and Retrograde Application Method of the Steinmann Nail
 - 4.5.1. Proximal Normograde
 - 4.5.2. Distal Normograde
 - 4.5.3. Proximal Retrograde
 - 4.5.4. Distal Retrograde
- 4.6. Femur
 - 4.6.1. Proximal Femoral Fractures
 - 4.6.2. Fractures of the Distal Third of the Femur
 - 4.6.3. Supracondylar Fractures or Fracture-Separation of the Distal Epiphysis
 - 4.6.4. Intercondylar Femoral Fracture
 - 4.6.5. The Steinmann Intramedullary Nail and Half Kirschner Device
 - 4.6.6. The Steinmann Intramedullary Nail with Locks or Screws
- 4.7. Tibia
 - 4.7.1. Avulsion of the Tibial Tubercle
 - 4.7.2. Fractures of the Proximal Third
 - 4.7.3. Fractures of the Middle Third of the Tibia
 - 4.7.4. Fractures of the Distal Third of the Tibia
 - 4.7.5. Fractures of the Tibial Malleoli
 - 4.7.6. The Steinmann Intramedullary Nail and Half Kirschner Device
 - 4.7.7. The Steinmann Intramedullary Nail with Locks or Screws
- 4.8. Humerus
 - 4.8.1. Steinmann Intramedullary Nail in the Humerus
 - 4.8.2. Fractures of the Proximal Fragment
 - 4.8.3. Fractures of the Middle Third or Body of the Humerus
 - 4.8.4. Steinmann Intramedullary Nail Fixation
 - 4.8.5. Steinmann Intramedullary Nail and Auxiliary Fixation
 - 4.8.6. Supracondylar Fractures
 - 4.8.7. Fractures of the Medial or Lateral Epicondyle
 - 4.8.8. Intercondylar T or Y Fractures

- 4.9. Ulna
 - 4.9.1. Acromion
- 4.10. The Extraction of the Steinmann Intramedullary Nail
 - 4.10.1. X-ray Monitoring
 - 4.10.2. Callus Formation in Steinmann Nail Fractures
 - 4.10.3. Clinical Union
 - 4.10.4. How to Remove the Implant

Module 5. Bone Plates and Screws

- 5.1. History of Metal Plates in Internal Fixing
 - 5.1.1. The Initiation of Plates for Fracture Fixation
 - 5.1.2. The World Association of Orthopedic Manufacturers (AO/ASIF)
 - 5.1.2.1. Sherman and Lane Plates
 - 5.1.2.2. Steel Plates
 - 5.1.2.3. Titanium Plates
 - 5.1.2.4. Plates of Other Materials
 - 5.1.2.5. Combination of Metals for New Plate Systems
- 5.2. Different Fixing Systems with Plate 8 (AO/ASIF, ALPS, FIXIN)
 - 5.2.1. AO/ASIF Plates
 - 5.2.2. Advanced Locked Plate System. (ALPS)
 - 5.2.2.1. FIXIN and Its Conical Block
- 5.3. Instrument Care
 - 5.3.1. Disinfection
 - 5.3.2. Cleaning
 - 5.3.3. Rinsing
 - 5.3.4. Drying
 - 5.3.5. Lubrication
- 5.4. Instruments Used for the Fixation of Plates and Screws
 - 5.4.1. Self-Tapping Screws and Tap Removal
 - 5.4.2. Depth Gages
 - 5.4.3. Drilling Guides
 - 5.4.4. Plate Benders and Plate Twisters
 - 5.4.5. Screw Heads
 - 5.4.6. Screws/Bolts

- 5.5. Use and Classification of Screws
 - 5.5.1. Cancellous Bone Screws
 - 5.5.2. Cortical Bone Screws
 - 5.5.3. Locked Screws/Bolts
 - 5.5.4. Fastening of Screws
 - 5.5.4.1. Use of the Drill
 - 5.5.4.2. Use of the Countersink
 - 5.5.4.3. Borehole Depth Measurement
 - 5.5.4.4. Use of the Tap
 - 5.5.4.5. Introduction to Screws
- 5.6. Technical Classification of Screws
 - 5.6.1. Big Screws
 - 5.6.2. Small Screws
 - 5.6.3. Mini Screws
- 5.7. Classification of Screws According to Their Function
 - 5.7.1. Screw with Interfragmentary Compression Effect
 - 5.7.2. The Cortical Bone Screw with Interfragmentary Compression Effect
 - 5.7.3. Screw Reduction and Fixation Techniques with Interfragmentary Compression Effect
 - 5.7.4. Locked Bolts
- 5.8. Bone Plates
 - 5.8.1. Bases for Fixing with Plates
 - 5.8.2. Classification of Plates According to Their Shape
 - 5.8.3. Dynamic Compression Plates
 - 5.8.3.1. Way of Action
 - 5.8.3.2. Fixing Technique
 - 5.8.3.3. Advantages Provided by Dynamic Compression Plates (DPC)
 - 5.8.3.4. Disadvantages of Dynamic Compression Plates (DPC)
 - 5.8.4. Locked Plates
 - 5.8.4.1. Advantages and Disadvantages
 - 5.8.4.2. Types of Locks
 - 5.8.4.3. Way of Action
 - 5.8.4.4. Fixing Techniques
 - 5.8.4.5. Instruments
 - 5.8.5. Minimum Contact Plates
 - 5.8.6. Mini Plates
 - 5.8.7. Special Plates
 - 5.8.8. Classification of Plates According to Their Function
 - 5.8.8.1. Compression Plate
 - 5.8.8.2. Neutralization Plate
 - 5.8.8.3. Bridge Plate
- 5.9. Guide for Proper Selection of Implants
 - 5.9.1. Biological Factors
 - 5.9.2. Physical Factors
 - 5.9.3. Collaboration of the Owner in the Treatment
 - 5.9.4. Table of Implant Size According to Patients Weight
- 5.10. Guide to the Removal of Bone Plates
 - 5.10.1. Fulfilled Clinical Function
 - 5.10.2. Implant Ruptures
 - 5.10.3. Implant Bends
 - 5.10.4. Implant Migrates
 - 5.10.5. Rejection
 - 5.10.6. Infections
 - 5.10.7. Thermal Interference

Module 6. Pelvis Fractures

- 6.1. Anatomy of the Pelvis
 - 6.1.1. General Considerations
- 6.2. Non-Surgical Group
 - 6.2.1. Stable Fractures
 - 6.2.2. Weight of the Patient
 - 6.2.3. Age of the Patient
- 6.3. Surgical Group
 - 6.3.1. Intra-Articular Fracture
 - 6.3.2. Closure of the Pelvic Canal
 - 6.3.3. Joint Instability of a Hemipelvis
- 6.4. Fracture Separation of the Sacro-Iliac Joint
 - 6.4.1. Surgical Approach for Reduction and Fixation
 - 6.4.2. Examples of Surgically Treated Fractures

- 6.5. Fractures of the Acetabulum
 - 6.5.1. Examples of Surgically Treated Fractures
- 6.6. Fracture of the Ilium
 - 6.6.1. Surgical Approach to the Lateral Surface of the Ilium
 - 6.6.2. Examples of Surgically Treated Cases
- 6.7. Ischial Fractures
 - 6.7.1. Surgical Approach to the Body of the Ischium
 - 6.7.2. Examples of Surgically Treated Cases
- 6.8. Pubic Symphysis Fractures
 - 6.8.1. Surgical Approach to the Ventral Surface of the Pubic Symphysis
 - 6.8.2. Reparation Methods
- 6.9. Fractures of the Ischial Tuberosity
 - 6.9.1. Surgical Approach
 - 6.9.2. Healed, Non-Reduced, Compressive Fractures of the Pelvis
- 6.10. Postoperative Management of Pelvic Fractures
 - 6.10.1. The Use of the Harness
 - 6.10.2. Waterbed
 - 6.10.3. Neurological Damage
 - 6.10.4. Rehabilitation and Physiotherapy
 - 6.10.5. Radiographic Studies and Evaluation of the Implant and Bone Repair

Module 7. Pelvic Limb Fractures

- 7.1. General Overview of Pelvic Limb Fractures
 - 7.1.1. Soft Tissue Damage
 - 7.1.2. Neurological Assessment
- 7.2. Preoperative Care
 - 7.2.1. Temporary Immobilization
 - 7.2.2. Radiographic Studies
 - 7.2.3. Laboratory Exams
- 7.3. Surgical preparation
 - 7.3.1. Horos
 - 7.3.2. Vpop-Pro
 - 7.3.3. E-Clean Orthoplanner

- 7.4. Fractures of the Proximal Femoral Proximal Third
 - 7.4.1. Avulsion Fracture of the Femoral Head
 - 7.4.2. Fractures of the Femoral Head. Pre-surgical Assessment
 - 7.4.3. Fracture Separation of the Proximal Epiphysis of the Femur
- 7.5. Femoral Neck Fracture
 - 7.5.1. Fractures of the Femoral Neck, Greater Trochanter and Femoral Body
 - 7.5.2. Of the Greater Trochanter with or without Dislocation of the Femoral Head
 - 7.5.3. Surgical Procedure Using a Plate and Bone Screws for Fixation of Proximal Fractures
 - 7.5.4. Complications of Femoral Head and Femoral Neck Fractures
 - 7.5.5. Arthroplastic Excision of the Femoral Head and Neck
 - 7.5.6. Total Hip Replacement
 - 7.5.6.1. Cemented System
 - 7.5.6.2. Biological System
 - 7.5.6.3. Locked System
- 7.6. Fractures of the Middle Third of the Femur
 - 7.6.1. Fractures of the Body of the Femur
 - 7.6.2. Surgical Approach to the Femoral Body
 - 7.6.3. Femoral Body Fracture Fixation
 - 7.6.3.1. Steinmann Nail
 - 7.6.3.2. Locked Nails
 - 7.6.3.3. Plates and Screws
 - 7.6.3.3.1. External Fixators
 - 7.6.3.3.2. System Combinations
 - 7.6.4. Postoperative Care
- 7.7. Fractures of the Distal Femoral Third
 - 7.7.1. Fracture by Separation of the Distal Femoral Epiphysis or Supracondylar Fracture
 - 7.7.2. Intercondylar Fractures of the Femur
 - 7.7.3. Fracture of the Femoral Condyles. "T- or "Y-Fractures"
- 7.8. Fractures of the Patella
 - 7.8.1. Surgical Technique
 - 7.8.2. Post-Surgical Treatment

- 7.9. Fractures of the Tibia
 - 7.9.1. Classification of Fractures of the Tibia and Fibula
 - 7.9.1.1. Avulsion of the Tibial Tubercle
 - 7.9.1.2. Fracture Separation of the Proximal Tibial Epiphysis
 - 7.9.1.3. Fractures of the Proximal Tibia and Fibula
 - 7.9.1.4. Fractures of the Body of the Tibia and Fibula
 - 7.9.2. Internal Fixation
 - 7.9.2.1. Intramedullary Nails
 - 7.9.2.2. Intramedullary Nail and Supplementary Fixation
 - 7.9.2.3. External Skeletal Fixator
 - 7.9.2.4. Bone Plates
 - 7.9.2.5. Mipo
 - 7.9.3. Fractures of the Distal Portion of the Tibia
 - 7.9.3.1. Separation Fracture of the Distal Epiphysis of the Tibia
 - 7.9.3.2. Fractures of the Lateral or Medial Malleolus or Both
 - 7.9.3.2.1. Treatment
- 7.10. Fractures and Dislocations of the Tarsus, Metatarsus and Phalanges
 - 7.10.1. Calcaneal Fracture
 - 7.10.2. Dislocation of the Intertarsal and Metatarsal Joint
 - 7.10.3. Fracture or Dislocation of the Central Bone of the Tarsus
 - 7.10.4. Fractures of the Metatarsal Bones and Phalanges

Module 8. Thoracic Limb Fractures

- 8.1. Scapula
 - 8.1.1. Classification of Fractures
 - 8.1.2. Conservative Treatment
 - 8.1.3. Surgical Approach
 - 8.1.3.1. Reduction and Fixation
- 8.2. Dorsal Dislocation of the Scapula
 - 8.2.1. Diagnosis
 - 8.2.2. Treatment
- 8.3. Humerus Fractures
 - 8.3.1. Fractures of the Proximal Humerus
- 8.4. Humeral Body Fractures

- 8.5. Supracondylar Fractures
 - 8.5.1. Open Reduction
 - 8.5.1.1. Medial Approach
 - 8.5.1.2. Lateral Approach
 - 8.5.2. Fixation of Supracondylar Fractures
 - 8.5.3. Post-Surgical
 - 8.5.4. Fractures of the Medial or Lateral aspect of the Humeral Condyle
 - 8.5.4.1. Surgical Procedure
 - 8.5.4.2. Post-Surgical
- 8.6. Intercondylar Fractures, Condylar t-fractures, and Y-Fractures
 - 8.6.1. Surgical Procedure for the Reduction and Fixation of Intercondylar Fractures
 - 8.6.2. Post-Operative
- 8.7. Fractures of the Radius and Ulna
 - 8.7.1. Ulna Fracture Involving the Lunate Curvature
 - 8.7.1.1. Post-Surgical
 - 8.7.2. Separation Fracture of the Proximal Radial Epiphysis
 - 8.7.2.1. Surgical Procedure
 - 8.7.3. Fracture of the Proximal Third of the Ulna and Dislocation of the Radial Head and Distal portion of the Ulna
 - 8.7.4. Fractures of the Proximal Third of the Ulna, Dislocation of the Radial Head and Separation of the Radius and Ulna (Monteggia Fracture)
 - 8.7.5. Fractures of the Radius and Ulna
 - 8.7.5.1. Closed Reduction and External Fixation of the Radius and Ulna
 - 8.7.5.1.1. Masson Splint and Other Coaptation Splints
 - 8.7.5.1.2. Acrylic Splints or Similar Moulds
 - 8.7.5.2. Surgical Approach to the Radius and Ulna Body
 - 8.7.5.2.1. Craniomedial Approach to the Radius
 - 8.7.5.2.2. Craniolateral Approach (Radius and Ulna)
 - 8.7.5.2.3. Caudal or Post-Ulna Approach
 - 8.7.6. Fixation
 - 8.7.6.1. External Fixators
 - 8.7.6.2. Circular Fixators
 - 8.7.6.3. Intramedullary Nails
 - 8.7.6.4. Bone Screws
 - 8.7.6.5. Bone Plates

- 8.8. Fractures of the Maxilla and Mandible
 - 8.8.1. Fixation of the Mandibular Symphysis
 - 8.8.2. Fixation of Fractures of the Mandibular Body
 - 8.8.2.1. Orthopedic Wire Around the Teeth
 - 8.8.2.2. Orthopedic Wire Ties
 - 8.8.2.3. Intramedullary Nailing
 - 8.8.2.4. External Skeletal Fixator
 - 8.8.2.5. Bone Plates
 - 8.8.2.6. Fractures of the Maxilla
 - 8.8.2.6.1. Treatment of Fractures in Young Growing Animals
 - 8.8.2.6.2. Some Characteristic Aspects of Immature Bone
 - 8.8.2.6.3. Primary Indications for Surgery
 - 8.8.2.6.3.1. Intramedullary Nails
 - 8.8.2.6.3.2. External Skeletal Fixator
 - 8.8.2.6.3.3. Bone Plates
- 8.9. Distal Fractures
 - 8.9.1. Of the Carpus
 - 8.9.2. Of the Metacarpals
 - 8.9.3. Of the Phalanges
 - 8.9.4. Reconstruction of Ligaments
- 8.10. Fractures Resulting in Incongruence of the Articular Surface
 - 8.10.1. Fractures Affecting the Growth Nucleus
 - 8.10.2. Classification of the Epiphysis Based on its Type
 - 8.10.3. Classification of Slipped or Split Fractures Involving the Growth Nucleus and Adjacent Epiphyseal Metaphysis
 - 8.10.4. Clinical Assessment and Treatment of Damage to Nucleus Growth
 - 8.10.5. Some of the Most Common Treatments for Premature Physis Closure

Module 9. Arthroscopy

- 9.1. History of Arthroscopy
 - 9.1.1. Beginning of Arthroscopy in Human Medicine
 - 9.1.2. Start of Veterinary Arthroscopy
 - 9.1.3. Dissemination of Veterinary Arthroscopy
 - 9.1.4. Future of Arthroscopy
- 9.2. Advantages and Disadvantages of Arthroscopy
 - 9.2.1. Open Surgery vs. Minimally Invasive Surgery
 - 9.2.2. Economic Aspects of Arthroscopy
 - 9.2.3. Arthroscopy Techniques Training
- 9.3. Arthroscopy Instruments and Equipment
 - 9.3.1. Endoscopy Equipment
 - 9.3.2. Arthroscopy Specific Material
 - 9.3.3. Instruments and Implants for Intra-Articular Surgery
 - 9.3.4. Cleaning, Disinfection and Maintenance of Arthroscopy Instruments
- 9.4. Elbow Arthroscopy
 - 9.4.1. Patient Preparation and Positioning
 - 9.4.2. Joint Anatomy of the Elbow
 - 9.4.3. Arthroscopic Approach to the Elbow
 - 9.4.4. Fragmentation of the Medial Coronoid Process
 - 9.4.5. Osteochondrosis-Osteochondritis Dissecans of the Humeral Condyle
 - 9.4.6. Medial Compartment Syndrome
 - 9.4.7. Other Pathologies and Indications for Elbow Arthroscopy
 - 9.4.8. Contraindications and Complications in Elbow Arthroscopy
- 9.5. Shoulder Arthroscopy
 - 9.5.1. Patient Preparation and Positioning
 - 9.5.2. Joint Anatomy of the Shoulder
 - 9.5.3. Lateral and Medial Shoulder Approach with the Limb Hanging
 - 9.5.4. Osteochondrosis-Osteochondritis Dissecans of the Shoulder
 - 9.5.5. Bicipital Tendinitis
 - 9.5.6. Shoulder Instability
 - 9.5.7. Other Pathologies and Indications for Shoulder Arthroscopy
 - 9.5.8. Contraindications and Complications in Shoulder Arthroscopy
- 9.6. Knee Arthroscopy
 - 9.6.1. Patient Preparation and Positioning
 - 9.6.2. Joint Anatomy of the Knee
 - 9.6.3. Arthroscopic Approach of the Knee
 - 9.6.4. Cranial Cruciate Ligament Injury
 - 9.6.5. Meniscopathies
 - 9.6.6. Osteochondrosis-Osteochondritis Dissecans
 - 9.6.7. Other Pathologies and Indications for Knee Arthroscopy
 - 9.6.8. Contraindications and Complications in Knee Arthroscopy

- 9.7. Hip Arthroscopy
 - 9.7.1. Patient Preparation and Positioning
 - 9.7.2. Approach to the Hip
 - 9.7.3. Pathologies and Indications for Hip Arthroscopy
 - 9.7.4. Contraindications and Complications in Hip Arthroscopy
- 9.8. Tarsal Arthroscopy
 - 9.8.1. Articular Anatomy of the Tarsus
 - 9.8.2. Preparation and Positioning of the Patient
 - 9.8.3. Arthroscopic Approach to the Tarsus
 - 9.8.4. Pathologies and Indications for Tarsal Arthroscopy
 - 9.8.5. Contraindications and Complications in Tarsal Arthroscopy
- 9.9. Carpal Arthroscopy
 - 9.9.1. Anatomy of the Carpal Joint
 - 9.9.2. Preparation and Positioning of the Patient
 - 9.9.3. Arthroscopic Approach to the Carpus
 - 9.9.4. Pathologies and Indications for Carpal Arthroscopy
 - 9.9.5. Contraindications and Complications in Carpal Arthroscopy
- 9.10. Arthroscopy-Assisted Surgery
 - 9.10.1. Bone Anchors and Other Implants for Joint Stabilisation Surgery
 - 9.10.2. Arthroscopically Assisted Shoulder Stabilisation Surgery

Module 10. Orthopedic Diseases

- 10.1. Cranial Cruciate Ligament Rupture
 - 10.1.1. Definition
 - 10.1.2. Etiology
 - 10.1.3. Pathogenesis
 - 10.1.4. Clinical Signs
 - 10.1.5. Diagnosis
 - 10.1.6. Therapy
- 10.2. Patellar Dislocation and Legg Perthes Disease
 - 10.2.1. Definition
 - 10.2.2. Etiology
 - 10.2.3. Pathogenesis
 - 10.2.4. Clinical Signs
 - 10.2.5. Diagnosis
 - 10.2.6. Therapy
- 10.3. Hip Dysplasia and Traumatic Hip Dislocation
 - 10.3.1. Definition
 - 10.3.2. Etiology
 - 10.3.3. Pathogenesis
 - 10.3.4. Clinical Signs
 - 10.3.5. Diagnosis
 - 10.3.6. Therapy
- 10.4. Elbow Dysplasia
 - 10.4.1. Definition
 - 10.4.2. Etiology
 - 10.4.3. Pathogenesis
 - 10.4.4. Clinical Signs
 - 10.4.5. Diagnosis
 - 10.4.6. Therapy
- 10.5. Radius Curvature
 - 10.5.1. Definition
 - 10.5.2. Etiology
 - 10.5.3. Pathogenesis
 - 10.5.4. Clinical Signs
 - 10.5.5. Diagnosis
 - 10.5.6. Therapy
- 10.6. Wobbler Syndrome
 - 10.6.1. Definition
 - 10.6.2. Etiology
 - 10.6.3. Pathogenesis
 - 10.6.4. Clinical Signs
 - 10.6.5. Diagnosis
 - 10.6.6. Therapy
- 10.7. Lumbosacral Instability
 - 10.7.1. Definition
 - 10.7.2. Etiology
 - 10.7.3. Pathogenesis
 - 10.7.4. Clinical Signs
 - 10.7.5. Diagnosis
 - 10.7.6. Therapy



- 10.8. Osteomyelitis, Osteoarthritis and Osteosarcoma
 - 10.8.1. Definition
 - 10.8.2. Etiology
 - 10.8.3. Pathogenesis
 - 10.8.4. Clinical Signs
 - 10.8.5. Diagnosis
 - 10.8.6. Therapy
- 10.9. Osteochondrosis-Osteochondritis Discondant (Ocd) and Panosteitis
 - 10.9.1. Definition
 - 10.9.2. Etiology
 - 10.9.3. Pathogenesis
 - 10.9.4. Clinical Signs
 - 10.9.5. Diagnosis
 - 10.9.6. Therapy
- 10.10. Scapulohumeral Instability
 - 10.10.1. Definition
 - 10.10.2. Etiology
 - 10.10.3. Pathogenesis
 - 10.10.4. Clinical Signs
 - 10.10.5. Diagnosis
 - 10.10.6. Therapy

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In addition to the contents from the virtual platform, you will have a practical training for 3 weeks that will mark a before and after in your career"

07

Clinical Internship

After passing the online teaching period, the program includes a practical training period in a reference veterinary clinic. The students will have at their disposal the support of a tutor who will accompany them throughout the process, both in the preparation and in the development of the clinical 120 hours of practices.





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*Do your clinical practice in one of
the best veterinary centers in Spain"*

The Internship Program of this program in Veterinary Traumatology and Orthopedic Surgery consists of a 3-week practical stay in a prestigious veterinary center. It is therefore constituted by a refresher course with a specialist.

This stay will allow you to see real cases alongside a professional team of reference in the veterinary area, applying the most innovative procedures of the latest generation in cardiology.

In this training proposal, completely practical in nature, the activities are aimed at developing and perfecting the skills necessary for the provision of veterinary care in areas and conditions that require a high level of qualification, and are oriented to the specific training for the exercise of the activity, in an environment of safety and high professional performance.

The practical part will be carried out with the active participation of the student performing the activities and procedures of each area of competence (learning to learn and learning to do), with the accompaniment and guidance of teachers and other fellow trainees that facilitate teamwork and multidisciplinary integration as transversal competencies for Veterinary Traumatology and Orthopedic Surgery veterinary practice (learning to be and learning to relate).





The procedures described below will form the basis of the practical part of the training, and their implementation is subject to both the suitability of the patients and the availability of the center and its workload, with the proposed activities being as follows:

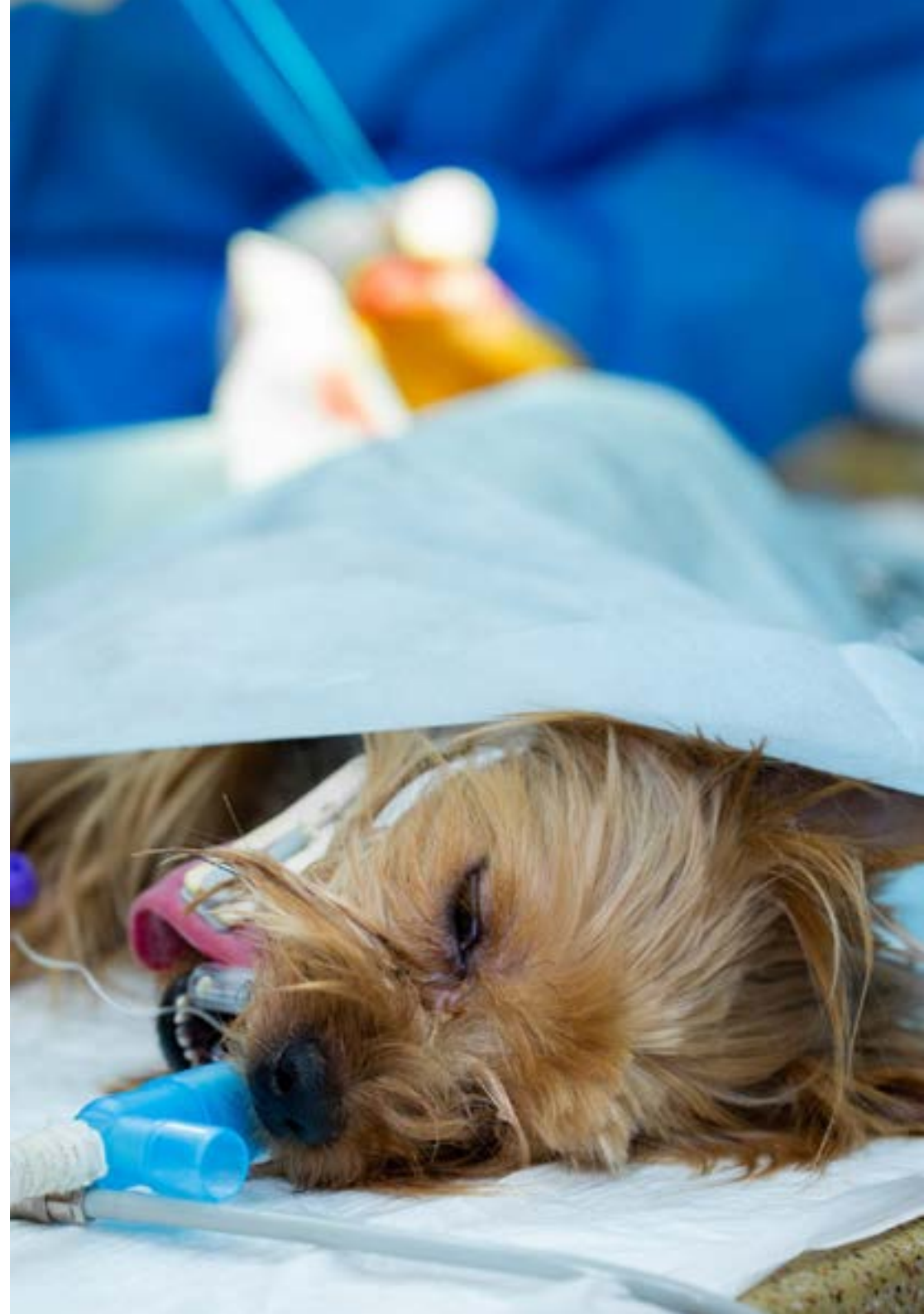
Module	Practical Activity
Advanced diagnostics methods in veterinary traumatology	Examine by means of orthopedic diagnostic technique in dynamic and static and in statics the young and mature bone structure
	Analyze through advanced methods the most commonly encountered orthopedic diseases: rupture of the anterior cruciate ligament, patellar dislocation, elbow dysplasia, hip dysplasia, shoulder osteochondritis Dissecans of the shoulder, tarsus, femur, canine panosteitis
	Verify through advanced methods other orthopedic diseases: radius curvature, hypertrophic osteodystrophy, hypertrophic osteoarthropathy, carpal flexor tendon contracture, scapulohumeral instability, Wobbler's syndrome and intervertebral disc disease, among many others
	Perform diagnostic imaging and analysis: radiology, ultrasound, clinical laboratory, CT and MRI
	Perform calcium-regulating hormone analysis and fracture biomechanics
Advances in Veterinary Orthopedic Surgery	Use different materials and tools effective in the patient's bone repair: external fixators of different types, various types of nails, connecting rod
	Practice post-surgical care: cleaning of the fixator with acrylic, postoperative radiographic studies, gradual removal of the acrylic, care after fixator removal and repositioning of the acrylic fixator
	Evaluate different types of fractures, their causes, clinical history, evolution, treatment and postoperative period
	Evaluate the different plate fixation systems 8 (AO/ASIF, ALPS, FIXIN)
	Take care of instruments and material: disinfection, cleaning, rinsing, drying and lubrication
	Practice proper selection of implants
Advanced techniques of bone and joint repair	Perform analysis and evaluation of the physiology and anatomy of the animal patient
	Differentiate between non-surgical and surgical groups
	Manage postoperative fracture management
	Perform surgical preparation
	Prepare surgical instruments and equipment
	Perform postoperative evaluations

Civil Liability Insurance

This institution's main concern is to guarantee the safety of the trainees and other collaborating agents involved in the internship process at the company. Among the measures dedicated to achieve this is the response to any incident that may occur during the entire teaching-learning process.

To this end, this entity commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the course of the internship at the center.

This liability policy for interns will have broad coverage and will be taken out prior to the start of the practical training period. That way professionals will not have to worry in case of having to face an unexpected situation and will be covered until the end of the internship program at the center.



General Conditions for Practical Training

The general terms and conditions of the internship agreement for the program are as follows:

1. TUTOR: During the Hybrid Master's Degree, students will be assigned with two tutors who will accompany them throughout the process, answering any doubts and questions that may arise. On the one hand, there will be a professional tutor belonging to the internship center who will have the purpose of guiding and supporting the student at all times. On the other hand, they will also be assigned with an academic tutor whose mission will be to coordinate and help the students during the whole process, solving doubts and facilitating everything they may need. In this way, the student will be accompanied and will be able to discuss any doubts that may arise, both clinical and academic.

2. DURATION: The Internship Program will have a duration of three continuous weeks of practical training, distributed in 8-hour days, five days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

3. ABSENCE: In case of no-show on the day of the beginning of the Hybrid Master's Degree, the students will lose the right to the same without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

4. CERTIFICATION: Professionals who pass the Hybrid Master's Degree will receive a certificate accrediting their stay at the center.

5. EMPLOYMENT RELATIONSHIP: the Hybrid Master's Degree shall not constitute an employment relationship of any kind.

6. PRIOR EDUCATION: Some centers may require a certificate of prior education for the Hybrid Master's Degree. In these cases, it will be necessary to submit it to the TECH internship department so that the assignment of the chosen center can be confirmed.

7. DOES NOT INCLUDE: the Hybrid Master's Degree will not include any element not described in the present conditions. Therefore, it does not include accommodation, transportation to the city where the internship takes place, visas or any other items not listed

However, students may consult with their academic tutor for any questions or recommendations in this regard. The academic tutor will provide the student with all the necessary information to facilitate the procedures in any case.

08

Where Can I Do the Clinical Internship?

With the aim of bringing quality education to as many professionals as possible, TECH offers students, within the syllabus of the Master, a practical stay that can be taken in various specialized centers around the country. It is, therefore, a unique opportunity to learn from the hand of prestigious professionals without having to make uncomfortable trips.



“

Put into practice everything you have learned in a veterinary center of reference and from the hand of specialized professionals"

Students will be able to take the practical part of this Hybrid Master's Degree in the following centers:



Pharmacodynamics.

Hospital Veterinario Retiro

Country City
Spain Madrid

Address: Av. de Menéndez Pelayo, 9

Veterinary hospital specialized in Nutrition and 24-hour emergency care

Related internship programs:

- Veterinary Traumatology and Orthopedic Surgery
- Veterinary Emergencies in Small Animals



Pharmacodynamics.

Hospital Artemisa Cañaveral

Country City
Spain Madrid

Address: Francisco Grande Covian, local 1, 28052 Madrid

Veterinary hospital specialized in general care and 24-hour emergency assistance

Related internship programs:

- Veterinary Anesthesiology
- Veterinary Surgery in Small Animals



Pharmacodynamics.

Animalia BCN MiVet

Country City
Spain Barcelona

Address: Carrer de la Creu Coberta, 130, Barcelona

Veterinary Hospital in Barcelona with 24h attention 365 days a year

Related internship programs:

- Small Animal Dermatology
- Physiotherapies and Rehabilitation of Small Animals



Pharmacodynamics.

Hospital Veterinario Stolz Valencia

Country City
Spain Valence

Address: C/ de Pintor Stolz, 67 Valencia

Reference clinic in the veterinary sector with more than 20 years of experience and 24 hours a day, 365 days a year service

Related internship programs:

- Veterinary Anesthesiology
- Veterinary Traumatology and Orthopedic Surgery



Pharmacodynamics.

Hospital Veterinario MiVet Faycan Catarroja

Country City
Spain Valence

Address: Carrer Charco, 15, 46470 Catarroja, Valencia

Comprehensive animal care clinic with 24-hour emergency and hospitalization service

Related internship programs:

- Veterinary Surgery in Small Animals



Pharmacodynamics.

Centro Veterinario MiVet Onteniente

Country City
Spain Valence

Address: Av. d'Albaida, 12, 46870 Ontinyent, Valencia

Veterinary Hospital with state-of-the-art facilities and specialized care 24 hours a day

Related internship programs:

- Veterinary Traumatology and Orthopedic Surgery
- Small Animal Ultrasound



Pharmacodynamics.

Centro Veterinario MiVet Faucan Cartagena

Country	City
Spain	Murcia

Address: Av. Juan Carlos I, 5, 30310
Cartagena, Murcia

Veterinary Hospital with state-of-the-art facilities
and specialized care 24 hours a day

Related internship programs:

- Veterinary Surgery in Small Animals
- Veterinary Oncology in Small Animals



Pharmacodynamics.

Hospital Veterinario Miramadrid MiVet

Country	City
Spain	Madrid

Address: 63 C. Real, Paracuellos
de Jarama, Madrid

Veterinary hospital with specialized care
24 hours a day and 7 days a week

Related internship programs:

- Veterinary Traumatology and Orthopedic Surgery
- Veterinary Surgery in Small Animals



Pharmacodynamics.

Hospital Veterinario MiVet Tomás Bustamante

Country	City
Spain	BORRAR

Address: C. Lasaga Larreta, 4, 39300
Torrelavega, Cantabria

Veterinary Clinic for general care
and emergencies 24 hours a day

Related internship programs:

- Minimally Invasive Veterinary Surgery in Small Animals



Pharmacodynamics.

Centro Veterinario Puebla

Country City
Mexico Puebla

Address: Calzada zavaleta 115 Local 1
Santa Cruz Buenavista C.P 72154

General veterinary center
with 24-hour emergency care

Related internship programs:

- Veterinary Anesthesiology
- Veterinary Cardiology in Small Animals



Pharmacodynamics.

Meds for pets

Country City
Mexico Nuevo León

Address: Av. Venustiano Carranza 429
Centro C.P 64000

Veterinary Hospital for advanced
and comprehensive care

Related internship programs:

- Veterinary Cardiology in Small Animals
- Small Animal Ultrasound



Pharmacodynamics.

Aztekan Hospital Veterinario - Roma

Country City
Mexico Mexico City

Address: San Luis 152 Col Roma C.P CDMX

24 hours Veterinary Hospital

Related internship programs:

- Veterinary Emergencies in Small Animals
- Veterinary Cardiology in Small Animals





Pharmacodynamics.

Centro Veterinario CIMA

Country	City
Mexico	Mexico City

Address: Av. Vía Adolfo López Mateos 70, Jardines de San Mateo, 53240 Naucalpan de Juárez, CDMX, Méx.

Clinical pet care center

Related internship programs:

- Small Animal Internal Medicine
- Veterinary Oncology in Small Animals



Pharmacodynamics.

Neuropets Veterinaria

Country	City
Mexico	Mexico City

Address: Laguna Tamiahua #61, Anáhuac I Secc, Miguel Hidalgo, 11320 Del. Miguel Hidalgo, CDMX

Group of veterinarians with more than 10 years of experience in specialized veterinary medicine

Related internship programs:

- Management and Administration of Veterinary Centers
- Physiotherapy and Rehabilitation of Small Animals



Pharmacodynamics.

Servicio Médico Veterinario Integral

Country	City
Mexico	Mexico City

Address: Retorno 2 de Ing Militares 30 Local 19, Lomas de Sotelo, Miguel Hidalgo, CDMX, CP 11200

Comprehensive veterinary clinic specializing in pet care

Related internship programs:

- Veterinary Traumatology and Orthopedic Surgery

09

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. Gervas, 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

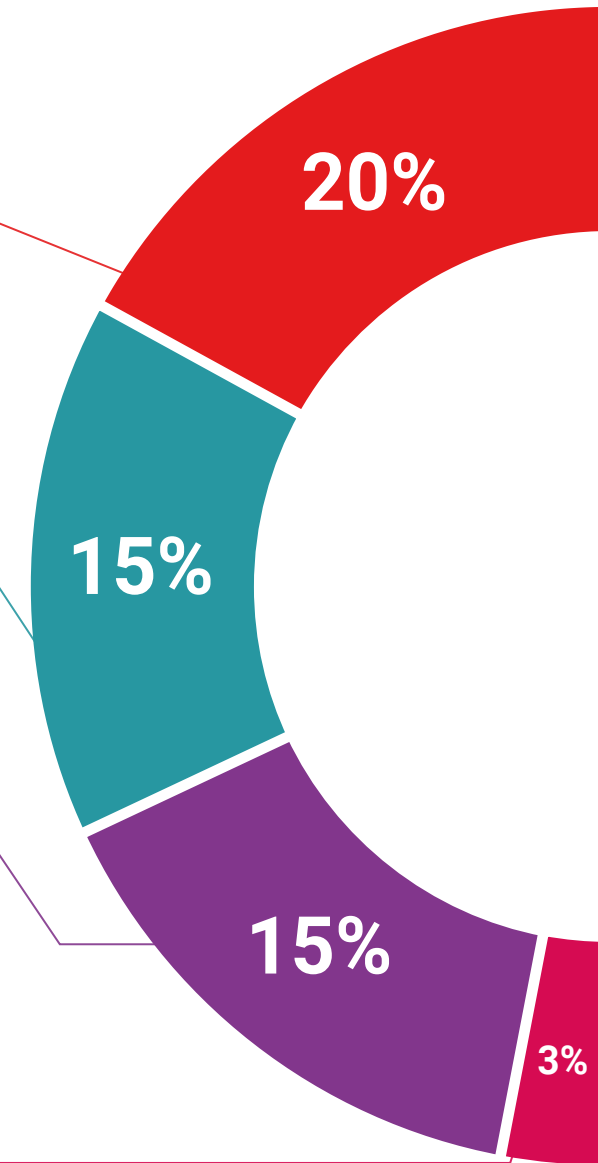
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

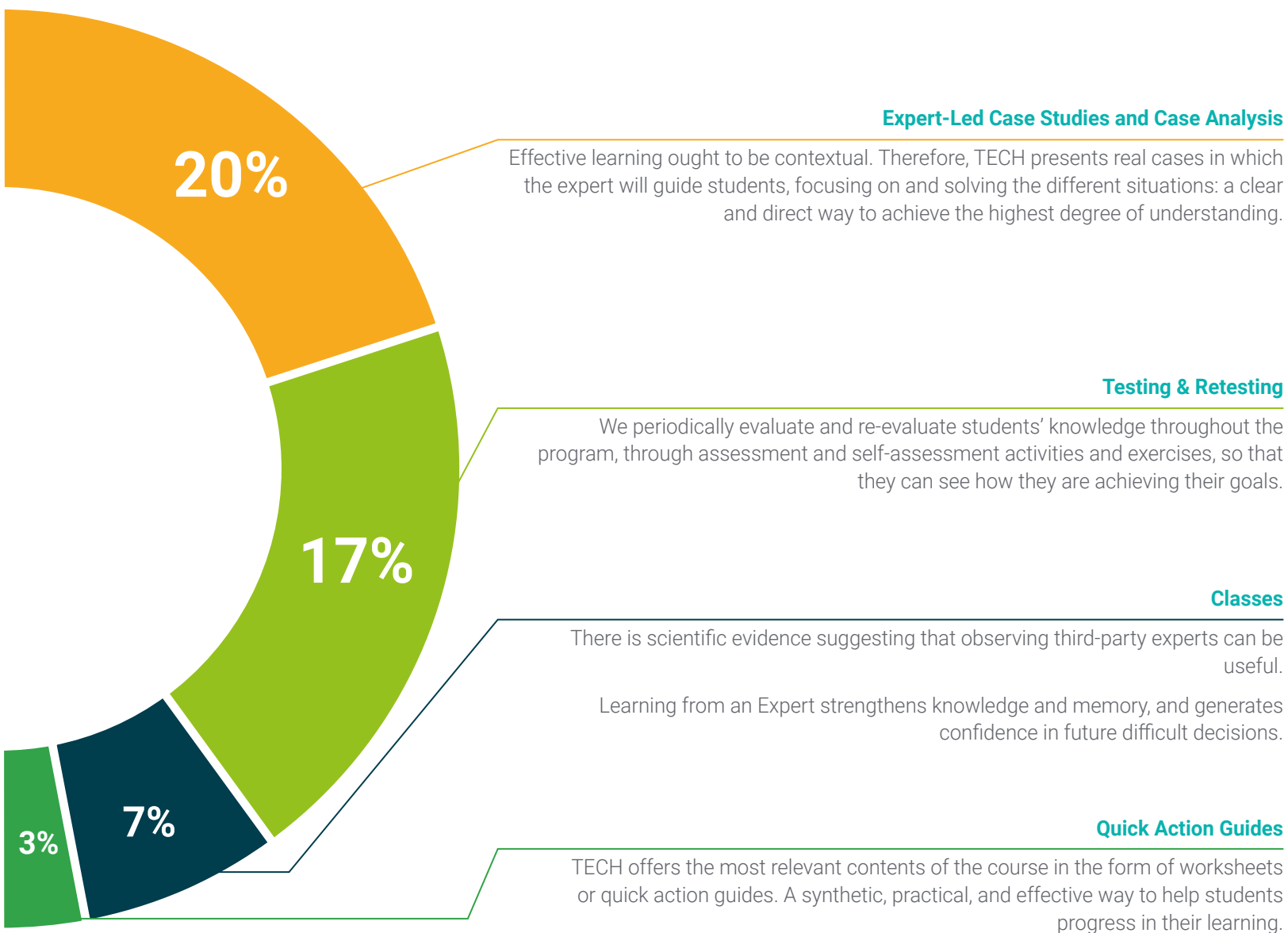
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



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.





10 Certificate

The Hybrid Master's Degree in Veterinary Traumatology and Orthopedic Surgery guarantees, in addition to the most rigorous and updated training, access to a Hybrid Master's Degree 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 **Hybrid Master's Degree diploma in Veterinary Traumatology and Orthopedic Surgery** 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.

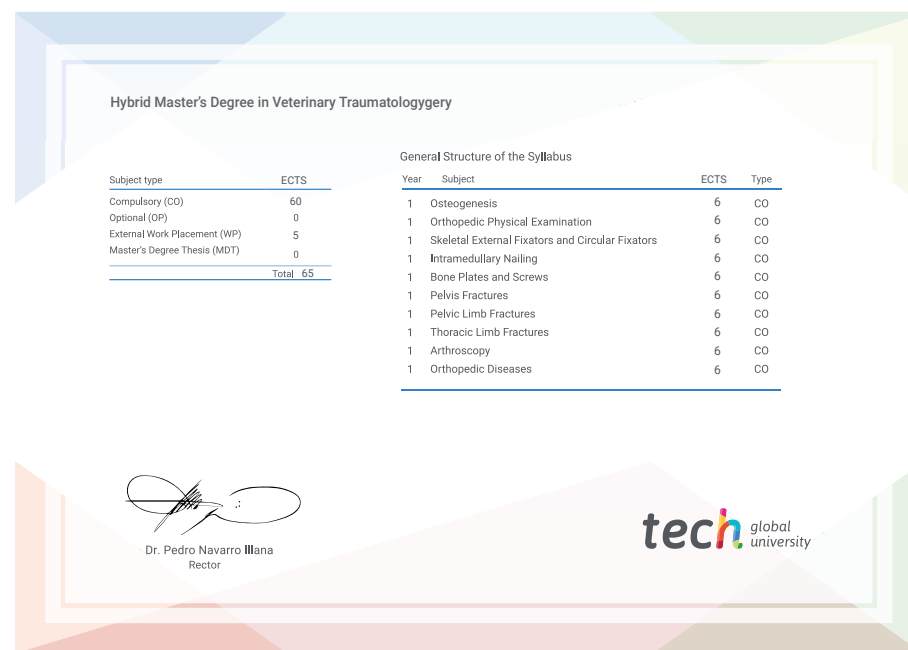
Title: **Hybrid Master's Degree in Veterinary Traumatology and Orthopedic Surgery**

Course Modality: **Hybrid (Online + Clinical Internship)**

Duration: **12 months**

Certificate: **TECH Global University**

Recognition: **60 + 5 ECTS Credits**





Hybrid Master's Degree Veterinary Traumatology and Orthopedic Surgery

Modality: Hybrid (Online + Clinical Internship)

Duration: 12 months

Certificate: TECH Global University

60 + 5 ECTS Credits

Hybrid Master's Degree Veterinary Traumatology and Orthopedic Surgery

