Advanced Master's Degree
Veterinary Traumatology

tech technological university

tech technological university

Advanced Master's Degree
Veterinary Traumatology

- Modality: **online**
- Duration: **2 years**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/in/veterinary-medicine/advanced-master-degree/advanced-master-degree-veterinary-traumatology**

Index

01

Introduction

Every day, veterinarians face a multitude of trauma cases in their practices that require urgent, definitive and quality solutions to maintain the health of the animals. In this field, new techniques have emerged that allow interventions to be less and less invasive, whether for small animals or larger species. This program has been designed to bring the veterinarian up to date in the main diagnostic and interventional techniques in traumatology.

Advances in diagnosis and intervention in traumatology make it possible to improve the health of animals in an effective way"

The teaching team of this Advanced Master's Degree in Veterinary Traumatology 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 medical history, physical examination of the patient, complementary medical tests and interpretation, differential diagnoses and treatment.

In addition to the techniques most commonly used in small animals, which are those found in traditional practices, this program also places special emphasis on larger species, so a careful selection of techniques used in the diagnosis and treatment of lameness in ruminants, camelids, suidos and equids has been programmed, including the description of musculoskeletal surgery and rehabilitation.

Throughout this specialization, the student will learn all of the current approaches to the different challenges posed by their profession. A high-level step that will become a process of improvement, not only on a professional level, but also on a personal level. Additionally, at TECH we have a social commitment: to help highly qualified professionals to specialize and to develop their personal, social and professional skills throughout the course of their studies.

We will not only take you through the theoretical knowledge we offer, but we will introduce you to another way of studying and learning, one which is simpler, more organic, and efficient. We will work to keep you motivated and to develop your passion for learning, helping you to think and develop critical thinking skills. And we will push you to think and develop critical thinking.

This Advanced Master's Degree is designed to give you access to the specific knowledge of this discipline in an intensive and practical way. A great value for any professional.

In addition, as it is a 100% online specialization, it is the student himself who decides where and when to study. Without the restrictions of fixed timetables or having to move between classrooms, this course can be combined with work and family life.

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

- The latest technology in e-learning software
- Intensely visual teaching system, supported by graphic and schematic contents that are easy to assimilate and understand
- The development of practical case studies presented by practising experts
- State-of-the-art interactive video systems
- Teaching supported by telepractice
- Continuous updating and retraining systems
- Self-regulated learning that allows full compatibility with other occupations
- Practical exercises for self-assessment and learning verification
- Support groups and educational synergies: Questions to the expert, discussion and knowledge forums
- Communication with the teacher and individual reflection work
- Content that is accessible from any fixed or portable device with an Internet connection
- Supplementary documentation databases are permanently available, even after the program

Veterinarians need to update their knowledge of traumatology, as a high number of consultations pertain to this field"

A high-level scientific program, supported by advanced technological development and the teaching experience of the best professionals"

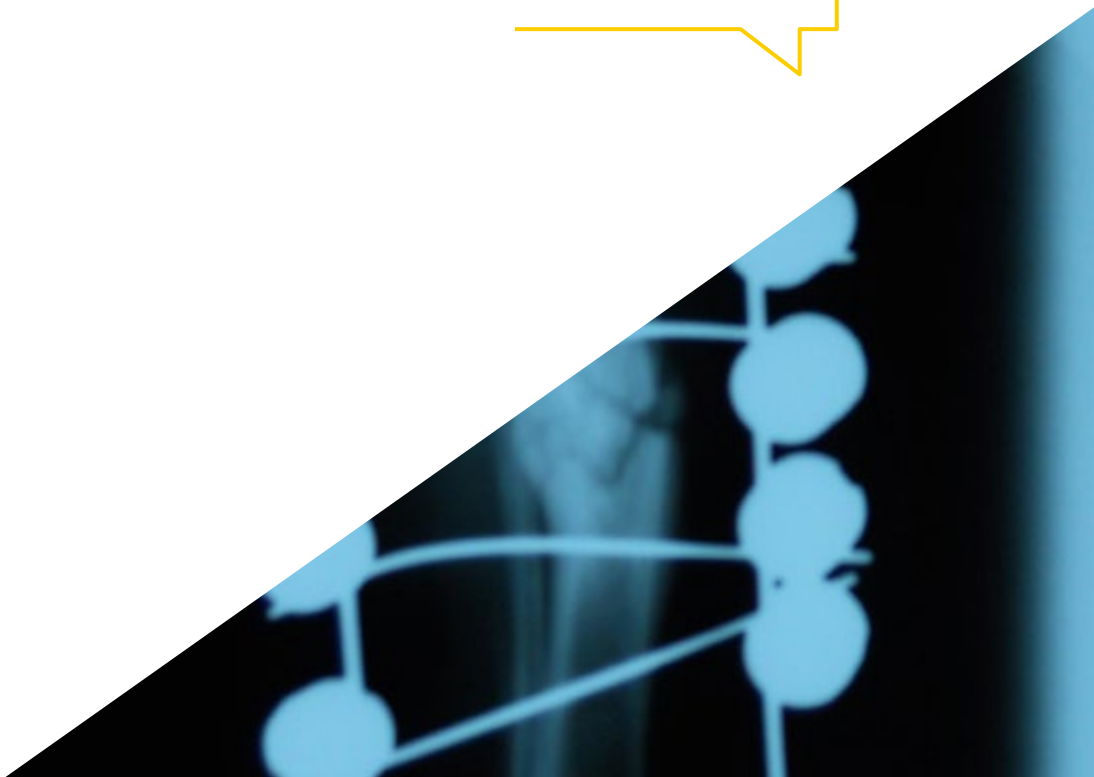
Our teaching staff is made up of working professionals. In this way we ensure that we deliver the educational update we are aiming for. A multidisciplinary team of professionals trained and experienced in different fields, who will develop the theoretical knowledge efficiently, but, above all, will put at the service of the study the practical knowledge derived from their own experience.

This mastery of the subject is complemented by the effectiveness of the methodological design of this grand master. Developed by a multidisciplinary team of e-learning experts, it integrates the latest advances in educational technology. This way, you will be able to study with a range of comfortable and versatile multimedia tools that will give you the operability you need in your training.

The design of this program is based on Problem-Based Learning, an approach that views learning as a highly practical process. To achieve this remotely, we will use *telepractice*. With the help of an innovative interactive video system and*learning from an expert*, to acquire the knowledge as if you were facing the scenario you are learning at that moment. A concept that will allow you to integrate and fix learning in a more realistic and permanent way.

We give you the opportunity to experience a deep and complete immersion in the strategies and approaches in Veterinary Traumatology.

A program created for professionals who aspire to excellence and that will allow you to acquire new skills and strategies in a fluid and effective way.



02

Objectives

Our objective is to train highly qualified professionals for the working An objective that is complemented, moreover, in a global manner, by promoting human development that lays the foundations for a better society. This objective is focused on helping professionals reach a much higher level of expertise and control. A goal that you can take for granted, with high-intensity and precise education.

If your goal is to improve in your profession, to acquire a qualification that will enable you to compete among the best, look no further: Welcome to TECH"

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
- Perform a physical examination of a patient in dynamics and statistics
- Differentiate the different orthopaedic diseases depending on the different symptoms found at the time of physical examination
- Use audiovisual methods to make an assessment for an orthopaedic physical examination such as normal speed video cameras, slow motion video, metric measurements and use of a goniometer
- Compile the different configurations of the Kirschner-Ehmer external tutor
- Analyse the advantages and disadvantages of using external fixators
- Establish post-surgical care for external tutors
- Develop a discussion regarding nailing technique
- Identify and apply the basic principles in the use of the intramedullary and locked nails used in fractures in dogs and cats
- Establish the methods of insertion and analyze the biomechanics and forces controlling the intramedullary nail in long bone fractures in dogs and cats.
- Establish the methods of insertion, types and sizes of intramedullary nails used in fractures in dogs and cats
- Identify the advantages, disadvantages and complications of the use of the intramedullary nail in fractures in dogs and cats
- Analyse and understand the principles and uses of the locking nail in long bone fractures in dogs and cats
- Identify other uses of the intramedullary nail and ancillary methods applied to bone fractures in dogs and cats
- Examine the evolution of internal fixation with plates over the last 50 years
- Determine the characteristics of each of the most important systems used in the world
- Classify the different plate fixation systems for osteosynthesis in dogs and cats, in terms of form, size and function
- Detail the anatomy of the pelvic region as well as closely related regions
- Identify "candidate patients" for conservative or surgical treatment following a pelvic fracture
- Specialize in the various fixation systems for pelvic fractures
- Establish the main complications associated with pelvic fractures
- Assess the immediate post-surgical needs of patients with pelvic fractures, as well as their medium and long-term evolution
- Develop a theoretical and practical knowledge of osteosynthesis in specific fractures of the femur, tibia and patella
- Foster specialist judgement for decision making in specific fractures with specific repairs in each of the clinical situations in femur, patella and tibia
- Develop specialist knowledge of osteosynthesis of complicated fractures of the scapula, humerus, radius and ulna
- Develop specialized decision-making criteria for "specific" fractures with "specific" repairs in each of the existing fractures of the scapula, humerus, radius and ulna

- Analyze arthroscopy techniques in different joints
- Examine arthroscopic visualization
- Evaluate arthroscopic instrumentation
- Develop surgical techniques guided by arthroscopy
- Identify the three possible orthopedic conditions in each clinical case
- Identify the definitive orthopaedic disease after ruling out those that do not apply
- Analyse the differences between the two diseases in order to avoid misdiagnosis
- Examine state-of-the-art diagnostic methods
- Develop specialized knowledge in order to carry out the best treatment for each of these diseases
- Establish the basic system and procedures in a lameness examination
- Identify the means available to locate an anatomical site as the cause of a claudication
- Establish the indications for the use of the different imaging techniques in the presence of an orthopedic problem
- Examine the main therapeutic options currently available on the market
- Examine the main pathological entities of the musculoskeletal system
- Analyze the main lesions of the axial skeleton
- Define the etiology of palmar hoof pain or podotrochlear pathology
- Compile the main findings in the diagnosis of bone, joint and soft tissue pathologies
- Present the different therapeutic options in the management of these pathologies
- Gain advanced knowledge of the angular deformities, flexural deformities, osteochondrosis, and subchondral cysts
- Determine the different treatments for angular and flexural deformities
- Establish an appropriate methodology for the identification, treatment and prognostication of osteochondral lesions
- Generate specialized knowledge on the etiopathogenesis, identification, treatment and prognosis of subchondral cysts
- Propose therapeutic strategies to limit the negative consequences of these pathologies
- Develop the fundamentals of bone physiology and bone healing
- Systematically approach the care of an animal with a fracture
- Present the implants and materials used for fracture fixation
- Present the different fracture reduction and fixation techniques
- Gain fundamental knowledge of musculoskeletal injuries and infections
- Establish an appropriate methodology for its exploration, diagnosis and treatment.
- Generate specialized knowledge of the different materials and techniques used for the treatment of these pathologies
- Propose therapeutic strategies in wound management alternative to the conventional ones
- Evaluate the equipment and instruments used in synovial cavity surgery
- Gain fundamental knowledge of arthroscopy, tenoscopy and bursoscopy techniques
- Develop synovial cavity exploration techniques
- Establish endoscopy as a method of surgical treatment of synovial pathologies
- Develop specialized knowledge to correctly plan surgery
- Examine the necessary general pharmacological, anesthesia and equipment to deal surgically with the different pathologies
- Analyze the most frequent anesthetic complications in the large animal clinic, particularly those related to orthopedic surgery

- Examine the most frequent surgical complications in orthopedic surgery and provide useful protocols to solve or avoid them
- Establish surgical methodology for the resolution of musculoskeletal problems in large animals
- Examine each surgical technique in detail for each commonly occurring muscle and tendon pathology
- Determine each surgical technique in detail for each commonly occurring bone pathology
- Establish survival, sports and productive prognoses for the pathologies described
- Establish the most appropriate surgical methodology for the resolution of musculoskeletal problems in large animals
- Examine each surgical technique in detail for each commonly occurring forelimb and hind limb bone pathology and for each commonly occurring axial skeletal bone pathology
- Establish survival, sports and productive prognoses for the pathologies described
- Examine the importance of musculoskeletal injury rehabilitation in horses
- Establish the basis of the techniques used in rehabilitation
- Analyze the main musculoskeletal rehabilitation techniques in sport horses
- Present rehabilitation plans based on the location of the injury

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, 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 orthopaedic physical examination of observation, inspection, palpation, tenderness and listening for joint crepitus, as well as measurement of joint range of motion
- Develop 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. Diagnosis of Lameness in Major Species: Ruminants, Swine and Equids

- Specialize the student in the collection of essential data to obtain a complete anamnesis
- Differentiate between the different conformations that are predisposed to developing injuries in the musculoskeletal system
- Recognize the symptoms presented by a patient with thoracic limb claudication
- Recognize the symptoms presented by a patient with pelvic limb claudication
- Interpret the results of local or regional anesthesia as diagnostic tools
- Generate criteria that allows for the appropriate selection of imaging diagnostic techniques in each case
- Assess in detail the indications and considerations of each pharmacological group in the therapeutic management of a musculoskeletal injury

Module 4. Main Musculoskeletal Pathologies in Major Species: Ruminants, Swine and Equids

- Gain specialized knowledge for diagnosing and treating an articular pathology
- Recognize the symptoms of tendon and ligament injuries
- Analyze the etiology and pathogenesis of lesions associated with biomechanical maladaptation processes
- Present the most frequent acute and subclinical myopathies
- Identify and recognize pathologies of the axial skeleton that are involved in a drop in sports performance
- Analyze the different differential diagnoses related to podotrochlear pathology and their therapeutic management
- Examine the different treatment strategies based on biological therapy

Module 5. Developmental Diseases: Angular and Flexural Deformities, Osteochondrosis and Subchondral Cyst in Major Species: Ruminants, Swine and Equines

- Develop specialized knowledge on the etiopathogenesis of angular deformities, flexural deformities, osteochondrosis and subchondral cysts
- Carry out a correct diagnosis of the different alterations presented
- Specify the techniques for delaying and stimulating bone growth used in the surgical treatment of angular deformities
- Determine the medical treatments and application of resins, splints and orthopedic tools used in the treatment of angular and flexural deformities
- Specify the demotomy and tenotomy techniques used in the treatment of flexural deformities
- Establish the specificities in the treatment of deformities according to the age of the patient and the anatomical area affected
- Determine the prevalence, predisposing factors, diagnosis, localization, treatment and prognosis of osteochondral lesions and subchondral cysts

Module 6. 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 7. 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 physial fractures of the long bones of dogs and cats

Module 8. 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 9. 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 10. 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 11. 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 12. Reparation of Fractures in Major Species: Ruminants, Swine and Equids

- Gather the necessary information in order to develop knowledge of the physiology of bone metabolism and its healing
- Analyze the biomechanics of the bone and classify the fractures
- Stabilize a patient with a fracture
- Generate specialized knowledge on how to reduce fractures
- Specify the most common materials for the manufacturing of implants
- Establish the instruments and implants used to fix fractures
- Determine the use of screws and the use of plates and screws
- Analyze the technical complications in the use of implants

Module 13. Musculoskeletal Injuries and Infections in Large Animals: Ruminants, Swine and Equids

- Develop knowledge of the different phases of skin healing.
- Specify the different types of wounds that can occur in large animal clinics
- Indicate the tests to be performed on a patient with a musculoskeletal injury or infection to determine the significance of the injury
- Determine the techniques of tissue management, hemostasis, suturing, reconstruction and skin grafting
- Set guidelines for the choice of different types of sutures, needles and drains
- Select the appropriate dressing or bandage for each clinical situation.
- Expose the importance and application of the fiberglass technique
- Apply the different therapeutic guidelines in acute and chronic wounds
- Carry out a correct diagnosis and treatment of synovial and bone infections
- Specify the use of the different tenorrhaphy techniques
- Present the different causes of exuberant granulation and its treatment.
- Apply the different therapeutic guidelines in burns

Module 14. Arthroscopy, Bursoscopy and Tenoscopy in Major Species: Ruminants, Swine and Equids

- Develop specialized knowledge of materials used in endoscopy surgery of synovial cavities
- Specify the indications of endoscopy for the treatment of synovial pathologies
- Specify the techniques of endoscopic surgery in joint cavities, bursae and synovial sheaths
- Perform correct endoscopic treatment of synovial pathologies
- Justify the use of endoscopy in the treatment of joint fractures
- Expose the possible complications associated with the arthroscopy, bursoscopy and tenoscopy techniques
- Present the different postoperative care and rehabilitation guidelines

Module 15. 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

Module 16. Preoperative Aspects in Major Species: Ruminants, Swine and Equids

- Analyze the importance of patient acceptance for surgery, operative risks and pre-surgical evaluation of the patient
- Fundamentals of the basic principles of general anesthesia and sedation for orthopedic surgical procedures

- Recognize the general material necessary for general orthopedic surgery in large animals
- Establish correct disinfection protocols for surgical material
- Differentiate the diagnostic imaging techniques available as an intra-surgical aid
- Establish a scheme of work for the preparation of the patient, the surgeon and the surgical field
- Develop post-operative treatment protocols for major orthopedic surgeries in the large animal clinics

Module 17. Common Orthopedic Surgeries of the Musculoskeletal System in Major Species: Ruminants, Swine and Equids Part I

- Discuss the surgical techniques for each particular problem
- Analyze the surgical techniques related to the common muscle-tendon injuries of the forelimb and hind limb
- Determine the surgical techniques related to common bone injuries of the forelimb and hind limb including hoof, phalanges and metacarpo-metatarsus
- Justify surgery for each particular problem described
- Propose surgical alternatives for some procedures
- Specify the equipment needed for each procedure
- Examine the prognosis of each procedure

Module 18. Common Orthopedic Surgeries of the Musculoskeletal System in Major Species: Ruminants, Swine and Equids Part II

- Provide a rationale for the surgical techniques to be described for each particular problem
- Determine the surgical techniques related to common bone injuries of the forelimb and hind limb including and adjacent to the carpus and tarsus
- Examine the surgical techniques related to bone injuries of the axial skeleton in large animals
- Justify surgery for each particular problem described
- Propose surgical alternatives for some procedures
- Specify the equipment needed for each procedure
- Examine the prognosis of each procedure

Module 19. Rehabilitation of Musculoskeletal Injuries in Sport Horses

- Analyze the significance of musculoskeletal injuries and the correct recovery needed
- Gain knowledge of the basic principles of physiotherapeutic examination in horses
- Evaluate the physical restrictions and physiological adaptations that occur as a consequence of an injury
- Examine the different physiotherapeutic techniques available to the equine veterinarian
- Determine the physical properties of each one of the therapies available in veterinary medicine
- Create prevention plans for equine athletes
- Propose rehabilitation plans depending on the musculoskeletal injury

Quality specialization programs for outstanding students. At TECH, we offer the perfect education for high level specialization in your field"

03

Skills

Once all the contents have been studied and the objectives of the Advanced Master's Degree in Veterinary Traumatology have been achieved, the professional will have superior skills and performance in this field. A very complete approach, in a high-level Advanced Master's Degree, which makes the difference.

Achieving excellence in any profession requires effort and perseverance. But, above all, the support of professionals, who will give you the boost you need, with the necessary means and assistance. At TECH, we offer you everything you need"

General Skills

- Diagnose the different traumatological problems in animals and use the necessary techniques for their treatment
- Assess different traumatological pathologies using audiovisual methods
- Perform postsurgical care
- Utilize the most modern methods of Orthopedic Surgery
- Perform rehabilitation treatments in animals with traumatological problems

Our objective is very simple: to offer you quality specialized training, with the best teaching methods currently, so that you can reach new heights of excellence in your profession"

Specific Skills

- 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
- 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, as well as bursoscopy and tenoscopy techniques
- Know the contraindications of arthroscopy, bursoscopy and tenoscopy
- Evaluate animals to effectively diagnose their pathology
- Perform the best therapeutic practice in each case
- Prevent certain diseases in pets
- Diagnose lameness problems in ruminants, swine and equids
- Diagnose the main musculoskeletal pathologies in older animal species. of larger animals
- Diagnose, treat and follow up on developmental diseases
- Repair fractures in ruminants, swine and equids.
- Perform orthopedic and musculoskeletal surgeries on the animals of larger species
- Perform proper rehabilitation on the sport horse

04

Course Management

For our program to be of the highest quality, we are proud to work with a teaching staff of the highest level, chosen for their proven track record in the field of education. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.

Our professors bring their vast experience and their teaching skills to offer you a stimulating and creative specialized training program"

Management

Dr. Muñoz Morán, Juan Alberto

- PhD in Veterinary Science
- Degree in Veterinary Medicine from the Complutense University of Madrid
- Graduate of the European College of Veterinary Surgeons
- Surgeon at the Equine Hospital of Aznalcollar, Seville
- Professor in Large Animal surgery at the Veterinary University of Pretoria, South Africa.
- Head of the Equine Surgery residency program at the Veterinary University of Pretoria, South Africa
- Head of the large animal surgery service and professor at Alfonso X el Sabio University, Madrid

Dr. Soutullo Esperón, Ángel

- Head of the surgery service at the University Hospital of the Alfonso X el Sabio University
- Owner of the veterinary clinic ITECA
- Degree in Veterinary Medicine from the Complutense University of Madrid
- Master's Degree in Surgery and Traumatology 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
- Lecturer at the Alfonso X el Sabio University in the subjects of Radiology, Surgical Pathology and Surgery
- Head of the surgery section on the AEVA Master's Degree in Small Animal Emergencies.
- Study of the clinical repercussions of corrective osteotomies TPLO (TFG Meskal Ugatz)
- Study of the clinical repercussions of corrective osteotomies in TPLO (TFG Ana Gandía)
- Studies of biomaterials and xenografts for orthopaedic surgery

Professors

Dr. Gómez Lucas, Raquel
- Doctor of Veterinary Medicine.
- Degree in Veterinary Medicine from the Complutense University Madrid
- Graduate of the American College of Veterinary Sports Medicine and Rehabilitation (ACVSMR)
- Head of the Sports Medicine and Diagnostic Imaging Service of the Large Animal Area of the Clinical Veterinary Hospital of Alfonso X el Sabio University since 2005

Mr. Quattrocchio, Tomás Manuel
- Veterinarian, Buenos Aires University Center, Argentina. (UNCPBA)
- Master's Degree in Equine Sport Medicine from the UCO
- Veterinarian at Ellerston Onasis Polo Club, Scone, NSW, Australia

Dr. Argüelles Capilla, David
- PhD in Veterinary Medicine from the Autonomous University of Barcelona (UAB)
- Degree in Veterinary Medicine, Autonomous University of Barcelona
- Resident in Sports Medicine and Rehabilitation for the ACVSMR

Dr. López Sanromán, Javier
- Degree in Veterinary Medicine (Specializing in Medicine and Health)
- Degree in Veterinary Medicine Organism: Faculty of Veterinary Sciences. U.C.M.
- Doctorate Recognition of research proficiency. Surgery and Reproduction Program. Department of Animal Pathology II. Faculty of Veterinary Sciences. Complutense University of Madrid
- PhD in Veterinary Science Organism
- Diplome from the European College of Veterinary Surgeons

Dr. Drici Khalfi, Amel
- Degree in Veterinary Medicine from the University of Argel, Algeria
- Head of Hospitalization, Department of Large Animals, Veterinary University of Pretoria, South Africa

Dr. Iglesias García, Manuel
- PhD from University of Alfonso X el Sabio (2017)
- Degree in Veterinary Medicine from the Alfonso X el Sabio University in Madrid (2010)
- Surgeon at the Veterinary Hospital of the University of Extremadura, completing an official residency program at the ECVS (European College of Veterinary Surgery)

Dr. Quinteros, Diego Daniel
- Diploma from the American College of Veterinary Surgeons
- Latin American Board on Equidae AOVET Foundation (2019-2022)
- Veterinary Surgeon (2015-present) Integral Equine Veterinary Surgeons - Pincen, Cordoba, Argentina

Dr. Saitua Penas, Aritz
- Currently studying a PhD in the Department of Animal Medicine and Surgery at the University of Cordoba
- Degree in Veterinary Medicine from the University of Santiago de Compostela
- Internship in an Equine Clinic at the Clinical Veterinary Hospital of the University of Córdoba

Dr. Jiménez, Carlos
- Graduate in Veterinary Medicine from Alfonso X el Sabio University
- Rotational internship at the University of Cordoba, Spain
- Rotational internship at Anglesey Lodge Equine Hospital, Ireland

Dr. Bulnes Jiménez, Fernando
- Graduate in Veterinary Medicine from the University of Extremadura
- Undergraduate training, postgraduate and master's degree students in equine clinical practice
- Active training in large animal surgery for undergraduate students at the University of Extremadura
- Internship in surgery and internal medicine at the University of Cordoba
- Rotational internship at Three Counties Equine Hospital
- Work in equine referral centers and outpatient clinic in UK
- Residency in reference hospitals in Europe
- Equine clinical veterinarian at the University of Cordoba

Dr. Buzón Cuevas, Antonio
- PhD in Veterinary Medicine from the University of Cordoba in 2013
- Degree in Veterinary Medicine from the University of Cordoba in 2026
- Degree in Science Biology from the University of Seville, 2002
- Master's Degree in Animal Medicine, Health and Improvement from the University of Cordoba in 2007

Dr. Sardoy, María Clara
- Veterinary Doctor
- Veterinarian, graduated in Veterinary Medicine from the University of Buenos Aires, Argentina
- Master's Degree in Clinical Sciences from Kansas State University, USA

Dr. Borja Vega, Alfonso
- Advanced PGCert in Small Animal Orthopedics
- Postgraduate Course in Veterinary Ophthalmology UAB
- SETOV practical course on initiation to osteosynthesis
- Advanced elbow course

Dr. Correa, Felipe
- PhD in Veterinary Science
- Degree in Veterinary Medicine from University Mayor, Santiago, Chile
- Internship in Equine Surgery at Milton Equine Hospital, Canada
- Internship in Surgery and Large Animal Medicine, University of Guelph, Canada
- Master's Degree in Veterinary Sciences, Austral University of Chile
- Diploma in University Teaching, Andres Bello University, Santiago, Chile
- Master's Degree Candidate in Equine Surgery, University of Pretoria, South Africa.

Dr. García Montero, Javier
- Member of the Official College of Veterinarians of Ciudad Real, Veterinary Hospital Cruz Verde (Alcazar de San Juan)
- Traumatology and Orthopedics, Surgery and Anesthesia Service Manager
- El Pinar Veterinary Clinic (Madrid)

Dr. Guerrero Campuzano, María Luisa

- Director, exotic and small animal veterinarian. Petiberia Veterinary Clinic
- Zoo veterinarian
- Member of the Official College of Veterinarians of Madrid

Dr. Monje Salvador, Carlos Alberto

- Head of the Outpatient Surgery and Endoscopy Service
- Head of Surgery and Minimally Invasive Service (endoscopy, laparoscopy, bronchoscopy, rhinoscopy etc.)
- Head of the Diagnostic Imaging Service (advanced abdominal ultrasound and radiology)

Dr. Flores Galán, José A.

- Head of the Traumatology, Orthopedics and Neurosurgery Service at Prïvet Veterinary Hospitals
- Degree in Veterinary Medicine from the Complutense University of Madrid
- PhD student at the Complutense University of Madrid in the field of traumatological surgery in the Dept. of Animal Medicine and Surgery of the Faculty of Veterinary Medicine
- Specialist in Traumatology and Orthopedic Surgery in Companion Animals, Complutense University of Madrid

A high-level team for a very high-quality qualification"

05

Structure and Content

The contents of this Professional Master's Degree have been developed by the different experts on this course, with a clear purpose: to ensure that our students acquire each and every one of the necessary skills to become true experts in this field. The content of this Advanced Master's Degree enables you to student to learn all aspects of the different disciplines involved in this field. A complete and well-structured program will take you to the highest standards of quality and success.

Through a very well compartmentalized development, you will be able to access the most advanced knowledge of the moment in Veterinary Traumatology"

Module 1. Osteogenesis

1.1. History of Orthopedic Surgery
- 1.1.1. The 5 Steps to Learn Surgery
- 1.1.2. State of Orthopedic Surgery in the world
- 1.1.3. Why Should I Study Orthopedics?

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)
2.6.5. Polyarthritis (Autoimmune, l-cell, Erlichia, Ricketsia)
2.6.6. 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. Shipment 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. Diagnosis of Lameness in Major Species: Ruminants, Swine and Equids

3.1. Medical History
- 3.1.1. Basic Information
- 3.1.2. Current Problem
- 3.1.3. Importance of Conformation
  - 3.1.3.1. Thoracic Limbs
  - 3.1.3.2. Pelvic Limbs
  - 3.1.3.3. Back
  - 3.1.3.4. Digits

3.2. Static Physical Examination
- 3.2.1. Observation
- 3.2.2. Palpitation

3.3. Dynamic Physical Evaluation
- 3.3.1. Basic Biomechanical Characteristics
- 3.3.2. Examination Protocol
- 3.3.3. Lameness of the Thoracic Limbs
- 3.3.4. Lameness of the Pelvic Limb
- 3.3.5. Types of Claudication
- 3.3.6. Compensatory Lameness
- 3.3.7. Classification
- 3.3.8. Flexion Test

3.4. Diagnostic Anesthesia
- 3.4.1. Types of Local Anesthetics
- 3.4.2. General Considerations
- 3.4.3. Perineural Anesthesia
- 3.4.4. Intrasynovial Anesthesia
- 3.4.5. Recommended Action Protocols
- 3.4.6. Interpretation of Results

3.5. Analysis and Quantification of Movement
- 3.5.1. Kinetic Study
- 3.5.2. Kinematic Study

3.6. Radiological Examination
- 3.6.1. General Considerations
- 3.6.2. Main Findings and Interpretation

3.7. Ultrasound Examination
- 3.7.1. General Considerations
- 3.7.2. Main Findings and Interpretation

3.8. Advanced Diagnostic Imaging Techniques
- 3.8.1. Magnetic Resonance
- 3.8.2. Computerized Tomography
- 3.8.3. Gammagraphy

3.9. Introduction to Treatment
- 3.9.1. Conservative Medicine Therapies
- 3.9.2. Surgical Management

3.10. Clinical Examination in Ruminants, Swine and Camelids
- 3.10.1. Ruminants (Cattle, Sheep) and Camelids (Camels, Alpacas and Llamas)
- 3.10.2. Swine (Pigs, Wild Boar)

Module 4. Main Musculoskeletal Pathologies in Major Species: Ruminants, Swine and Equids

4.1. Articular Pathology
- 4.1.1. Classification
- 4.1.2. Etiology
- 4.1.3. Main Joints Affected in Sport Horses
- 4.1.4. Diagnosis
- 4.1.5. Treatment Management

4.2. Maladaptive Bone Pathology
- 4.2.1. Etiology
- 4.2.2. Diagnosis
- 4.2.3. Treatment Management

4.3. Tendon Pathology
- 4.3.1. Etiology
- 4.3.2. Main Areas Affected in Sport Horses
- 4.3.3. Diagnosis
- 4.3.4. Treatment Management

4.4. Ligament Pathology
- 4.4.1. Etiology
- 4.4.2. Main Areas Affected in Sport Horses
- 4.4.3. Diagnosis
- 4.4.4. Treatment Management

4.5. Muscular Pathology
- 4.5.1. Etiology and Classification
- 4.5.2. Diagnosis
- 4.5.3. Treatment Management

4.6. Head, Dorsum and Pelvis Pathologies
- 4.6.1. Cervical Pathology
- 4.6.2. Thoracic-Lumbar Pathologies
- 4.6.3. Lumbo-Sacral Pathologies
- 4.6.4. Sacroiliac Pathology

4.7. Podotrochlear Pathologies. Palmar Hoof Pain
- 4.7.1. Etiology
- 4.7.2. Clinical Signs
- 4.7.3. Diagnosis
- 4.7.4. Treatment Management

4.8. Conservative Therapy and Therapeutic Farriery
- 4.8.1. Nonsteroidal Anti-Inflammatories
- 4.8.2. Corticosteroids
- 4.8.3. Hyaluronic Acid
- 4.8.4. Glycosaminoglycans and Oral Supplements
- 4.8.5. Bisphosphonates
- 4.8.6. Polyacrylamide Gel
- 4.8.7. Other Treatments
- 4.8.8. Therapeutic Farriery

4.9. Regenerative Biological Therapy
- 4.9.1. Use of Mesenchymal Cells
- 4.9.2. Autologous Conditioned Serum
- 4.9.3. Autologous Protein Solution
- 4.9.4. Growth Factors
- 4.9.5. Platelet-Rich Plasma

4.10. Main Musculoskeletal Pathologies in Ruminants, Camelids and Swine
- 4.10.1. Ruminants (Cattle, Sheep) and Camelids (Camels, Alpacas and Llamas)
- 4.10.2. Swine (Pigs, Wild Boar)

Module 5. Developmental Diseases: Angular and Flexural Deformities, Osteochondrosis and Subchondral Cyst in Major Species: Ruminants, Swine and Equids

5.1. Angular Deformities Etiopathogenesis
- 5.1.1. Anatomy
- 5.1.2. Hormonal Factors
- 5.1.3. Perinatal and Developmental Factors

5.2. Diagnosis and Preserved Treatment of Angular Deformities
- 5.2.1. Clinical and Radiography Diagnosis
- 5.2.2. Use of Splints, Resins and Fittings
- 5.2.3. Use of Shockwaves

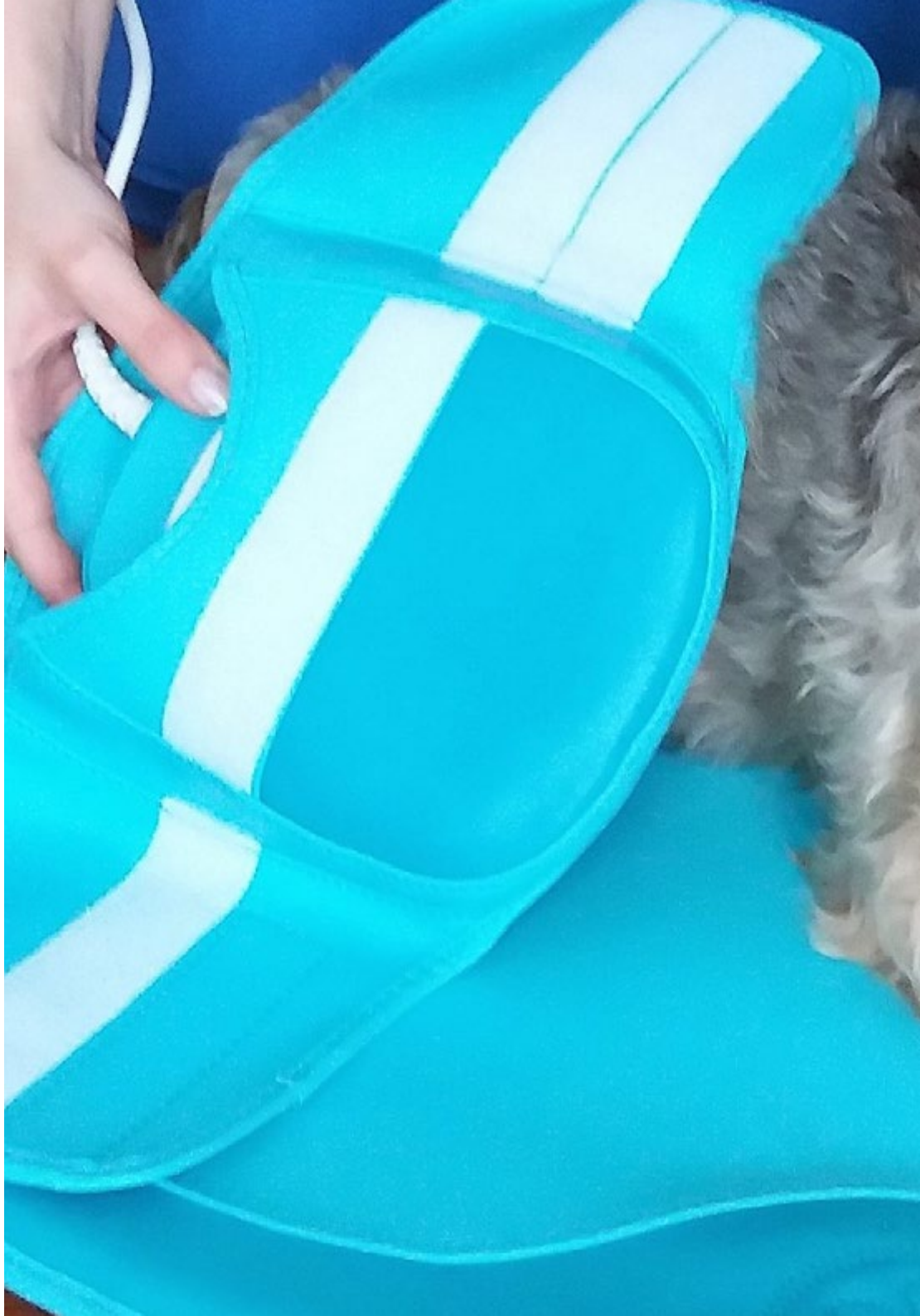
5.3. Surgical Treatment of Angular Deformities
- 5.3.1. Bone Growth Stimulation Techniques
- 5.3.2. Bone Growth Delay Techniques
- 5.3.3. Corrective Ostectomy
- 5.3.4. Prognosis

5.4. Etiopathogenesis and Diagnosis of Flexural Deformities
- 5.4.1. Congenital
- 5.4.2. Acquired

5.5. Conservative Treatment of Flexural Deformities
- 5.5.1. Physiotherapy and Exercise Control
- 5.5.2. Medical Treatment
- 5.5.3. Use of Splints and Resins

5.6. Surgical Treatment of Flexural Deformities
- 5.6.1. Distal Interphalangeal Joint
- 5.6.2. Metacarpal/Metatarsal-Phalangeal Joint
- 5.6.3. Carpal Joint
- 5.6.4. Tarsal Joint

5.7. Osteochondrosis I
- 5.7.1. Etiopathogenesis
- 5.7.2. Diagnosis
- 5.7.3. Location of Lesions



5.8. Osteochondrosis II
  5.8.1. Treatment
  5.8.2. Prognosis
5.9. Subchondral Bone Cyst I
  5.9.1. Etiopathogenesis
  5.9.2. Diagnosis
  5.9.3. Location of Lesions
5.10. Subchondral Bone Cyst II
  5.10.1. Treatment
  5.10.2. Prognosis

Module 6. Skeletal External Fixators and Circular Fixators

6.1. External Fixators
  6.1.1. History of the External Skeletal Fixator
  6.1.2. Description of the External Fixator
6.2. Parts Constituting the Kirschner-Ehmer Apparatus
  6.2.1. Nails
    6.2.1.1. Fixators
  6.2.2. Connecting Bar.
6.3. Settings of the External Skeletal Fixator
  6.3.1. Half Skeletal Fixation Apparatus
  6.3.2. Standard Kirschner-Ehmer Apparatus
  6.3.3. Modified Kirschner-Ehmer Apparatus
  6.3.4. Bilateral External Fixator Model
6.4. Mixed Skeletal Fixator Apparatus
6.5. Methods of Application of the Kirschner-Ehmer Apparatus
  6.5.1. Standard method
  6.5.2. Modified Method
6.6. External Fixators with Dental Acrylic
  6.6.1. The Use of Epoxy Resin

6.6.2. The Use of Dental Acrylics
6.6.2.1. Preparation of Acrylics
6.6.2.2. Application and Setting Time
6.6.2.3. Post-Surgery Care.
6.6.2.4. Removal of the Acrylic
6.6.3. Bone Cement for Use in Fractures of the Spine
6.7. Indications and Uses of External Fixators
6.7.1. Femur
6.7.2. Tibia
6.7.3. Tarsus
6.7.4. Humerus
6.7.5. Radio and Ulna
6.7.6. Carpus
6.7.7. Jaw
6.7.8. Pelvis
6.7.9. Spinal Column
6.8. Advantages and Disadvantages of Using External Fixators
6.8.1. Acquisition of Acrylic Material
6.8.2. Care in the Application of Acrylics
6.8.3. Toxicity of Acrylic
6.9. Postoperative Care
6.9.1. Cleaning of the Acrylic Fixator
6.9.2. Post-Operative Radiographic Studies.
6.9.3. Gradual Removal of the Acrylic
6.9.4. Care when Removing the Fixator
6.9.5. Repositioning of the Acrylic Fixator
6.10. Circular Fixators
6.10.1. History
6.10.2. Components
6.10.3. Structure
6.10.4. Application
6.10.5. Advantages and Disadvantages

Module 7. Intramedullary Nailing

7.1. History
7.1.1. Kuntcher's Nail
7.1.2. The First Canine Patient with an Intramedullary Nail
7.1.3. The Use of the Steinmann Nail in the 1970s
7.1.4. The Use of the Steinmann Nail Today
7.2. Principles of Intramedullary Nail Application
7.2.1. Type of Fractures in Which it Can Be Exclusively Placed
7.2.2. Rotational Instability
7.2.3. Length, Tip and Rope
7.2.4. Normograde and Retrograde Application. Nail Diameter to Medullary Canal Ratio.
7.2.5. Principle of the 3 Points of the Cortex
7.2.6. Behaviour of the Bone and its Irrigation after Intramedullary Nail Fixation. The Steinmann Nail and the Radius
7.3. The Use of Locks with the Steinmann Intramedullary Nail
7.3.1. Principles of Application of Fastenings and Lashings
7.3.2. Barrel Principle
7.3.3. Type of Fracture Line
7.4. Principles of Application of the Tension Band
7.4.1. Pawel's Principle
7.4.2. Application of Engineering to Orthopedics
7.4.3. Bone Structures where the Tension Band is to Be Applied
7.5. Normograde and Retrograde Application Method of the Steinmann Nail
7.5.1. Proximal Normograde
7.5.2. Distal Normograde
7.5.3. Proximal Retrograde
7.5.4. Distal Retrograde
7.6. Femur
7.6.1. Proximal Femoral Fractures
7.6.2. Fractures of the Distal Third of the Femur
7.6.3. Supracondylar Fractures or Fracture-Separation of the Distal Epiphysis
7.6.4. Intercondylar Femoral Fracture
7.6.5. The Steinmann Intramedullary Nail and Half Kirschner Device
7.6.6. The Steinmann Intramedullary Nail with Locks or Screws

7.7. Tibia
- 7.7.1. Avulsion of the Tibial Tubercle
- 7.7.2. Fractures of the Proximal Third
- 7.7.3. Fractures of the Middle Third of the Tibia
- 7.7.4. Fractures of the Distal Third of the Tibia
- 7.7.5. Fractures of the Tibial Malleoli
- 7.7.6. The Steinmann Intramedullary Nail and Half Kirschner Device
- 7.7.7. The Steinmann Intramedullary Nail with Locks or Screws

7.8. Humerus
- 7.8.1. Steinmann Intramedullary Nail in the Humerus
- 7.8.2. Fractures of the Proximal Fragment
- 7.8.3. Fractures of the Middle Third or Body of the Humerus
- 7.8.4. Steinmann Intramedullary Nail Fixation
- 7.8.5. Steinmann Intramedullary Nail and Auxiliary Fixation
- 7.8.6. Supracondylar Fractures.
- 7.8.7. Fractures of the Medial or Lateral Epicondyle
- 7.8.8. Intercondylar T or Y Fractures

7.9. Ulna
- 7.9.1. Acromion

7.10. The Extraction of the Steinmann Intramedullary Nail
- 7.10.1. X-Ray Monitoring
- 7.10.2. Callus Formation in Steinmann Nail Fractures
- 7.10.3. Clinical Union
- 7.10.4. How to Remove the Implant

Module 8. Bone Plates and Screws

8.1. History of Metal Plates in Internal Fixing
- 8.1.1. The Initiation of Plates for Fracture Fixation
- 8.1.2. The World Association of Orthopedic Manufacturers (AO/ASIF)
  - 8.1.2.1. Sherman and Lane Plates
  - 8.1.2.2. Steel Plates
  - 8.1.2.3. Titanium Plates
  - 8.1.2.4. Plates of Other Materials
  - 8.1.2.5. Combination of Metals for New Plate Systems

8.2. Different Fixing Systems with Plate 8 (AO/ASIF, ALPS, FIXIN)
- 8.2.1. AO/ASIF Plates
- 8.2.2. Advanced Locked Plate System. (ALPS)
  - 8.2.2.1. FIXIN and Its Conical Block

8.3. Instrument Care
- 8.3.1. Disinfection
- 8.3.2. Cleaning
- 8.3.3. Rinsing
- 8.3.4. Drying
- 8.3.5. Lubrication

8.4. Instruments Used for the Fixation of Plates and Screws
- 8.4.1. Self-Tapping Screws and Tap Removal.
- 8.4.2. Depth Gages
- 8.4.3. Drilling Guides
- 8.4.4. Plate Benders and Plate Twisters
- 8.4.5. Screw Heads
- 8.4.6. Screws/Bolts

8.5. Use and Classification of Screws
- 8.5.1. Cancellous Bone Screws
- 8.5.2. Cortical Bone Screws
- 8.5.3. Locked Screws/Bolts
- 8.5.4. Fastening of Screws
  - 8.5.4.1. Use of the Drill
  - 8.5.4.2. Use of the Countersink
  - 8.5.4.3. Borehole Depth Measurement
  - 8.5.4.4. Use of the Tap
  - 8.5.4.5. Introduction to Screws

8.6. Technical Classification of Screws
- 8.6.1. Big Screws
- 8.6.2. Small Screws
- 8.6.3. Mini Screws

8.7. Classification of Screws According to Their Function
- 8.7.1. Screw with Interfragmentary Compression Effect
- 8.7.2. The Cortical Bone Screw with Interfragmentary Compression Effect
- 8.7.3. Screw Reduction and Fixation Techniques with Interfragmentary Compression Effect
- 8.7.4 Locked Bolts

8.8. Bone Plates
- 8.8.1. Bases for Fixing with Plates
- 8.8.2. Classification of Plates According to Their Shape
- 8.8.3. Dynamic Compression Plates
  - 8.8.3.1. Way of Action
  - 8.8.3.2. Fixing Technique
  - 8.8.3.3. Advantages Provided by Dynamic Compression Plates (DPC)
  - 8.8.3.4. Disadvantages of Dynamic Compression Plates (DPC)
- 8.8.4. Locked Plates
  - 8.8.4.1. Advantages and Disadvantages.
  - 8.8.4.2. Types of Locks
  - 8.8.4.3. Way of Action
  - 8.8.4.4. Fixing Techniques
  - 8.8.4.3. Instruments
- 8.8.5. Minimum Contact Plates
- 8.8.6. Mini Plates.
- 8.8.7. Special Plates.
- 8.8.8. Classification of Plates According to Their Function
  - 8.8.8.1. Compression Plate
  - 8.8.8.2. Neutralization Plate
  - 8.8.8.3. Bridge Plate.

8.9. Guide for Proper Selection of Implants
- 8.9.1. Biological Factors
- 8.9.2. Physical Factors
- 8.9.3. Collaboration of the Owner in the Treatment
- 8.9.4. Table of Implant Size According to Patients Weight

8.10. Guide to the Removal of Bone Plates
- 8.10.1. Fulfilled Clinical Function
- 8.10.2. Implant Ruptures
- 8.10.3. Implant Bends
- 8.10.4. Implant Migrates
- 8.10.5. Rejection
- 8.10.6. Infections
- 8.10.7. Thermal Interference

Module 9. Pelvis Fractures

9.1. Anatomy of the Pelvis
- 9.1.1 General Considerations

9.2. Non-Surgical Group
- 9.2.1. Stable Fractures
- 9.2.2. Weight of the Patient
- 9.2.3. Age of the Patient

9.3. Surgical Group
- 9.3.1. Intra-Articular Fracture
- 9.3.2. Closure of the Pelvic Canal
- 9.3.3. Joint Instability of a Hemipelvis

9.4. Fracture Separation of the Sacro-Iliac Joint
- 9.4.1. Surgical Approach for Reduction and Fixation
- 9.4.2. Examples of Surgically Treated Fractures

9.5. Fractures of the Acetabulum
- 9.5.1. Examples of Surgically Treated Fractures

9.6. Fracture of the Ilium
- 9.6.1. Surgical Approach to the Lateral Surface of the Ilium
- 9.6.2. Examples of Surgically Treated Cases

9.7. Ischial Fractures
- 9.7.1. Surgical Approach to the Body of the Ischium
- 9.7.2. Examples of Surgically Treated Cases

9.8. Pubic Symphysis Fractures
- 9.8.1. Surgical Approach to the Ventral Surface of the Pubic Symphysis
- 9.8.2. Reparation Methods

9.9. Fractures of the Ischial Tuberosity
- 9.9.1. Surgical Approach
- 9.9.2. Healed, Non-Reduced, Compressive Fractures of the Pelvis

9.10. Postoperative Management of Pelvic Fractures
- 9.10.1. The Use of the Harness
- 9.10.2. Waterbed
- 9.10.3. Neurological Damage
- 9.10.4. Rehabilitation and Physiotherapy
- 9.10.5. Radiographic Studies and Evaluation of the Implant and Bone Repair

Module 10. Pelvic Limb Fractures

10.1. General Overview of Pelvic Limb Fractures
- 10.1.1. Soft Tissue Damage
- 10.1.2. Neurological Assessment

10.2. Preoperative Care
- 10.2.1. Temporary Immobilization
- 10.2.2. Radiographic Studies
- 10.2.3. Laboratory Exams

10.3. Surgical preparation
- 10.3.1. Horos
- 10.3.2. Vpop-Pro
- 10.3.3. E Clean Orthoplanner

10.4. Fractures of the Proximal Femoral Proximal Third
- 10.4.1. Avulsion Fracture of the Femoral Head
- 10.4.2. Fractures of the Femoral Head. Pre-surgical Assessment.
- 10.4.3. Fracture Separation of the Proximal Epiphysis of the Femur

10.5. Femoral Neck Fracture
- 10.5.1. Fractures of the Femoral Neck, Greater Trochanter and Femoral Body
- 10.5.2. Of the Greater Trochanter with or without Dislocation of the Femoral Head
- 10.5.3. Surgical Procedure Using a Plate and Bone Screws for Fixation of Proximal Fractures
- 10.5.4. Complications of Femoral Head and Femoral Neck Fractures
- 10.5.5. Arthroplastic Excision of the Femoral Head and Neck
- 10.5.6. Total Hip Replacement
  - 10.5.6.1. Cemented System
  - 10.5.6.2. Biological System
  - 10.5.6.3. Locked System

10.6. Fractures of the Middle Third of the Femur
- 10.6.1. Fractures of the Body of the Femur
- 10.6.2. Surgical Approach to the Femoral Body
- 10.6.3. Femoral Body Fracture Fixation
  - 10.6.3.1. Steinmann Nail
  - 10.6.3.2. Locked Nails
  - 10.6.3.3. Plates and Screws
    - 10.6.3.3.1. External Fixators
    - 10.6.3.3.2. System Combinations
- 10.6.4 Postoperative Care

10.7. Fractures of the Distal Femoral Third
- 10.7.1. Fracture by Separation of the Distal Femoral Epiphysis or Supracondylar Fracture
- 10.7.2. Intercondylar Fractures of the Femur
- 10.7.3. Fracture of the Femoral Condyles. "T- or "Y-Fractures"

10.8. Fractures of the Patella
- 10.8.1. Surgical Technique
- 10.8.2. Post-Surgical Treatment

10.9. Fractures of the Tibia
- 10.9.1. Classification of Fractures of the Tibia and Fibula
  - 10.9.1.1. Avulsion of the Tibial Tubercle
  - 10.9.1.2. Fracture Separation of the Proximal Tibial Epiphysis
  - 10.9.1.3. Fractures of the Proximal Tibia and Fibula
  - 10.9.1.4. Fractures of the Body of the Tibia and Fibula
- 10.9.2. Internal Fixation
  - 10.9.2.1. Intramedullary Nails
  - 10.9.2.2. Intramedullary Nail and Supplementary Fixation
  - 10.9.2.3. Skeletal External Fixator
  - 10.9.2.4. Bone Plates
  - 10.9.2.5. Mipo

10.9.3. Fractures of the Distal Portion of the Tibia
10.9.3.1. Separation Fracture of the Distal Epiphysis of the Tibia
10.9.3.2. Fractures of the Lateral or Medial Malleolus or Both
10.9.3.2.1. Treatment
10.10. Fractures and Dislocations of the Tarsus, Metatarsus and Phalanges
10.10.1. Calcaneal Fracture
10.10.2. Dislocation of the Intertarsal and Metatarsal Joint
10.10.3. Fracture or Dislocation of the Central Bone of the Tarsus
10.10.4. Fractures of the Metatarsal Bones and Phalanges

Module 11. Thoracic Limb Fractures

11.1. Scapula
11.1.1. Classification of Fractures
11.1.2. Conservative Treatment
11.1.3. Surgical Approach
11.1.3.1. Reduction and Fixation
11.2. Dorsal Dislocation of the Scapula
11.2.1. Diagnosis
11.2.2. Treatment
11.3. Fractures of the Humerus
11.3.1. Fractures of the Proximal Humerus
11.4. Humeral Body Fractures
11.5. Supracondylar Fractures
11.5.1. Open Reduction
11.5.1.1. Medial Approach.
11.5.1.2. Lateral Approach
11.5.2. Fixation of Supracondylar Fractures
11.5.3. Post-Surgical
11.5.4. Fractures of the Medial or Lateral aspect of the Humeral Condyle
11.5.4.1. Surgical Procedure
11.5.4.2. Post-Surgical
11.6. Intercondylar fractures, Condylar T-Fractures, and Y-Fractures
11.6.1. Surgical Procedure for the Reduction and Fixation of Intercondylar Fractures
11.6.2. Pain
11.7. Fractures of the Radius and Ulna
11.7.1. Ulna Fracture Involving the Lunate Curvature
11.7.1.1. Post-Surgical
11.7.2. Separation Fracture of the Proximal Radial Epiphysis
11.7.2.1. Surgical Procedure
11.7.3. Fracture of the Proximal Third of the Ulna and Dislocation of the Radial Head and Distal portion of the Ulna
11.7.4. Fractures of the Proximal Third of the Ulna, Dislocation of the Radial Head and Separation of the Radius and Ulna (Monteggia Fracture)
11.7.5. Fractures of the Radius and Ulna
11.7.5.1. Closed Reduction and External Fixation of the Radius and Ulna
11.7.5.1.1. Masson Splint and Other Coaptation Splints
11.7.5.1.2. Acrylic Splints or Similar Moulds
11.7.5.2. Surgical Approach to the Radius and Ulna Body
11.7.5.2.1. Craniomedial Approach to the Radius
11.7.5.2.2. Craniolateral Approach (Radius and Ulna)
11.7.5.2.3. Caudal or Post-Ulna Approach.
11.7.6. Fixation
11.7.6.1. External Fixators
11.7.6.2. Circular Fixators
11.7.6.3. Intramedullary Nails
11.7.6.4. Bone Screws
11.7.6.5. Bone Plates

11.8. Fractures of the Maxilla and Mandible
- 11.8.1. Fixation of the Mandibular Symphysis
- 11.8.2. Fixation of Fractures of the Mandibular Body
  - 11.8.2.1. Orthopedic Wire Around the Teeth
  - 11.8.2.2. Orthopedic Wire Ties
  - 11.8.2.3. Intramedullary Nailing
  - 11.8.2.4. Skeletal External Fixator
  - 11.8.2.5. Bone Plates
  - 11.8.2.6. Fractures of the Maxilla
    - 11.8.2.6.1. Treatment of Fractures in Young Growing Animals
    - 11.8.2.6.2. Some Characteristic Aspects of Immature Bone
    - 11.8.2.6.3. Primary Indications for Surgery
      - 11.8.2.6.3.1. Intramedullary Nails
      - 11.8.2.6.3.2. External Skeletal Fixator
      - 11.8.2.6.3.3. Bone Plates

11.9. Distal Fractures
- 11.9.1. Of the Carpus
- 11.9.2. Of the Metacarpals
- 11.9.3. Of the Phalanges
- 11.9.4. Reconstruction of Ligaments

11.10. Fractures Resulting in Incongruence of the Articular Surface
- 11.10.1. Fractures Affecting the Growth Nucleus
- 11.10.2. Classification of the Epiphysis Based on its Type
- 11.10.3. Classification of Slipped or Split Fractures Involving the Growth Nucleus and Adjacent Epiphyseal Metaphysis
- 11.10.4. Clinical Assessment and Treatment of Damage to Nucleus Growth
- 11.10.5. Some of the Most Common Treatments for Premature Physis Closure

Module 12. Reparation of Fractures in Major Species: Ruminants, Swine and Equids

12.1. Bone Metabolism and Healing
- 12.1.1. Anatomy
- 12.1.2. Histological Structure
- 12.1.3. Bone Healing
- 12.1.4. Biomechanics of the Bone
- 12.1.5. Classification of Fractures

12.2. Stabilization of Fractures in an Emergency, Decision Making and Transport
- 12.2.1. Clinical Examination of a Patient With a Suspected Fracture
- 12.2.2. Stabilization of a Patient With Fractures
- 12.2.3. Transport of a Patient With a Fracture
- 12.2.4. Stabilization of Fractures, Decision-Making and Transport of Ruminants (Cattle, Sheep), Camelids (Camels, Alpacas and Llamas) and Swine (Pigs, Wild Boar)

12.3. External Coaptation
- 12.1.1. Placement of Robert Jones Bandages
- 12.1.2. Placement of Acrylic Casts
- 12.1.3. Splints, Bandages With Casts and Combinations
- 12.1.4. Complications of Acrylic Casts
- 12.1.5. Removal of Acrylic Casts

12.2. Reducing Fractures, Management of Soft Tissue in the Approach
- 12.2.1. Displacements of Fracture Strands
- 12.2.2. Objectives of the Fracture Reduction
- 12.2.3. Reduction Techniques
- 12.2.4. Evaluation of Reduction
- 12.2.5. Management of Soft Tissues
  - 12.2.5.1. Histology and Blood Supply of the Skin
  - 12.2.5.2. Physical Properties and Biomechanics of the Skin
  - 12.2.5.3. Planning the Approach
  - 12.2.5.4. Incisions
  - 12.2.5.5. Wound Closure

12.3. Materials for Implants in Large Animals
- 12.3.1. Material Properties
- 12.3.2. Stainless Steel
- 12.3.3. Titanium
- 12.3.4. Material Fatigue

12.4. External Fixators
- 12.4.1. Transfixion Casts
- 12.4.2. External Fixators
- 12.4.3. External Fixators of Ruminants (Cattle, Sheep), Camelids (Camels, Alpacas and Llamas) and Swine (Pigs, Wild Boar)

12.5. Instruments for Inserting an Implant
- 12.5.1. Plate Contouring Instruments
- 12.5.2. Instruments for Inserting Screws
- 12.5.3. Instruments for Inserting Plates

12.6. Implants
- 12.6.1. Screws
- 12.6.2. Plates
- 12.6.3. Placement Techniques
- 12.6.4. Functions of Each Implant
- 12.6.5 Tension Band

12.7. Bone Grafts
- 12.7.1. Indications
- 12.7.2. Removal Sites
- 12.7.3. Complications
- 12.7.4. Synthetic Bone Grafts

12.8. Complications of Inserting an Implant
- 12.8.1. Lack of Reduction
- 12.8.2. Incorrect Number and Size of Implants
- 12.8.3. Incorrect Position of the Implant
- 12.8.4. Complications Related to the Compression Screw
- 12.8.5. Complications Related to Plates

Module 13. Musculoskeletal Injuries and Infections in Large Animals: Ruminants, Swine and Equids

13.1. Exploration and Wound Types
- 13.1.1. Anatomy
- 13.1.2. Initial Assessment, Emergency Treatment
- 13.1.3. Wound Classification
- 13.1.4. Wound Healing Process
- 13.1.5. Factors Influencing Wound Infection and Wound Healing
- 13.1.6. Primary and Secondary Intention Wound Healing
- 13.1.7. Particularities in Ruminants and Swine

13.2. Tissue Management, Hemostasis and Suture Techniques
- 13.2.1. Incision and Tissue Dissection
- 13.2.2. Hemostasis
  - 13.2.2.1. Mechanical Hemostasis
  - 13.2.2.2. Ligatures
  - 13.2.2.3. Tourniquet
  - 13.2.2.4. Electrocoagulation
  - 13.2.2.5. Chemical Hemostasis
- 13.2.3. Tissue Management, Irrigation and Suctioning

13.3. Suturing Materials and Techniques
- 13.3.1. Materials Used
  - 13.3.1.1. Instruments
  - 13.3.1.2. Suture Material Selection
  - 13.3.1.3. Needles
  - 13.3.1.4. Drainages
- 13.3.2. Approaches to Wound Suturing
- 13.3.3. Suture Patterns

13.4. Acute Wound Repair
- 13.4.1. Wound Treatment Medication
- 13.4.2. Debriding
- 13.4.3. Hoof Wounds
- 13.4.4. Emphysema Secondary to Wounds

13.5. Repair and Management of Chronic and/or Infected Wounds
- 13.5.1. Particularities of Chronic and Infected Wounds
- 13.5.2. Causes of Chronic Wounds
- 13.5.3. Management of Severely Contaminated Wounds
- 13.5.4. Laser Benefits
- 13.5.5. Larvotherapy
- 13.5.6. Cutaneous Fistulas Treatment

13.6. Management and Repair of Synovial Wounds, Joint Lavage and Physitis
- 13.6.1. Diagnosis
- 13.6.2. Treatment
  - 13.6.2.1. Systemic and Local Antibiotic Therapy
  - 13.6.2.2. Types of Joint Lavage
  - 13.6.2.3. Analgesia
- 13.6.3. Physitis
  - 13.6.3.1. Diagnosis
  - 13.6.3.2. Treatment
- 13.6.4. Particularities in Ruminants and Swine

13.7. Bandages, Dressings, Topical Treatments and Negative Pressure Therapy
- 13.7.1. Types and Indications of the Different Types of Bandages and Dressings
- 13.7.2. Topical Treatment Types
- 13.7.3. Ozone Therapy
- 13.7.4. Negative Pressure Therapy

13.8. Tendon Lacerations Management and Repair
- 13.8.1. Diagnosis
- 13.8.2. Emergency Treatment
- 13.8.3. Paratendinous Laceration
- 13.8.4. Tenorraphy
- 13.8.5. Avulsion and Rupture of Tendons in Ruminants
- 13.8.6. Ligament Lacerations in Ruminants Swine

13.9. Reconstructive Surgery and Skin Grafting
- 13.9.1. Principles and Techniques of Reconstructive Surgery
- 13.9.2. Principles and Techniques of Skin Grafts

13.10. Treatment of Exuberant Granulation Tissue Sarcoid Burns
- 13.10.1. Causes of the Appearance of Exuberant Granulation Tissue
- 13.10.2. Treatment of Exuberant Granulation Tissue
- 13.10.3 Sarcoid Appearance in Wounds
  - 13.10.3.1. Wound Associated Sarcoid Type
  - 13.10.3.2. Treatment
- 13.10.4. Burn Treatment

Module 14. Arthroscopy, Bursoscopy and Tenoscopy in Major Species: Ruminants, Swine and Equids

14.1. Fundamentals and of the Arthroscopy Technique. Arthroscopy Instruments and Equipment
- 14.1.1. Start of Veterinary Arthroscopy
- 14.1.2. Arthroscopy Specific Material
- 14.1.3. Arthroscopy Technique
  - 14.1.3.1. Patient Preparation
  - 14.1.3.2. Insertion and Position of Instruments
  - 14.1.3.3. Triangulation Technique
  - 14.1.3.4. Arthroscopic Diagnosis and Techniques

14.2. Arthroscopic Indications and Technique for the Metacarpo/Metatarsophalangeal Joint
- 14.2.1. Indications
- 14.2.2. Arthroscopic Exploration of the Dorsal Recess and Palmar/Patellar Recess
- 14.2.3. Arthroscopic Surgery of the Distal Dorsal Recess
  - 14.2.3.1. Fragmentation and Osteochondral Fragments
  - 14.2.3.2. Use of Arthroscopy in the Treatment of Condylar Fractures and First Phalangeal Fractures
  - 14.2.3.3. Villonodular Synovitis
- 14.2.4. Arthroscopic Recessopalmar/Plantar Surgery
  - 14.2.4.1. Removal of Osteochondral Fragments

14.3. Indications and Arthroscopic Technique of the Carpus
- 14.3.1. Indications
- 14.3.2. Arthroscopic Exploration of the Antebrachiocarpal: Joint (Radiocarpal)
- 14.3.3. Arthroscopic Examination: Intercarpal Joint

14.3.4. Arthroscopic Surgery of Antebrachiocarpal and Intercarpal Joints
14.3.4.1. Fragmentation and Osteochondral Fragments
14.3.4.2. Ligament Lacerations
14.3.4.3. Biarticular Fractures
14.3.5. Arthroscopic Examination of the Carpal Joint in Ruminants
14.4. Arthroscopic Indications and Technique for the Distal and Proximal Interphalangeal Joint
14.4.1. Indications
14.4.2. Arthroscopic Exploration of the Distal Interphalangeal Joint
14.4.3. Arthroscopic Surgery of the Distal Interphalangeal Joint
14.4.3.1. Removal of Osteochondral Fragments
14.4.3.2. Subchondral Cysts of the Third Phalange
14.4.4. Arthroscopic Examination of the Proximal Interphalangeal Joint
14.4.5. Arthroscopic Surgery of the Proximal Interphalangeal Joint
14.4.6. Arthroscopic Examination of These Joints in Ruminants
14.5. Arthroscopic Indications and Technique for the Tarsocrural Joint
14.5.1. Indications
14.5.2. Arthroscopic Examination of the Dorsal Recess and Palmar Recess
14.5.3. Arthroscopic Surgery of the Dorsal Recess and Palmar Recess
14.5.3.1. Osteochondrosisdissecans
14.5.3.2. Fractures
14.5.3.3. Collateral Ligament Injuries
14.5.4. Arthroscopic Examination of the Tarsocrural Joint in Ruminants
14.6. Arthroscopic Indications and Technique for the Patellofemoral Joint and Femorotibial Joints
14.6.1. Indications
14.6.2. Arthroscopic Examination of the Patellofemoral Joint
14.6.3. Arthroscopic Surgery of the Patellofemoral Joint
14.6.3.1. Osteochondrosisdissecans
14.6.3.2. Fragmentation of the Patella
14.6.4. Arthroscopic Examination of the Femorotibial Joints
14.6.5. Arthroscopic Surgery of the Femorotibial Joints
14.6.5.1. Cystic Lesions
14.6.5.2. Articular Cartilage Injuries
14.6.5.3. Fractures
14.6.5.4. Cruciate Ligament Injuries
14.6.5.5. Meniscal Injuries
14.6.6. Arthroscopic Exploration of the Patellofemoral Joint and Femorotibial Joints in Ruminants
14.7. Indications and Arthroscopic Technique of the Elbow, Scapulohumeral and Coxofemoral Joints
14.7.1 Indications
14.7.2 Exploration
14.7.3 Scapulohumeral Osteochondrosis
14.7.4 Fractures and Osteochondrosis Dissecans of the Elbow
14.7.5 Soft Tissue and Osteocartilaginous Lesions of the Coxofemoral Joint
14.8. Indications and Arthroscopic Technique of the Flexor Digital Sheath, Carpal and Tarsal Canal
14.8.1. Indications
14.8.2. Exploration
14.8.3. Tenoscopic Surgery
14.8.3.1. Diagnosis and Debridement of Tendon Lacerations
14.8.3.2. Demotomy of Palmar/Plantar Annular Ligament
14.8.3.3. Excision of Osteochondromas and Exostoses
14.8.3.4. Removal of the Accessory Ligament of the SDFT
14.9. Indications and Arthroscopic Technique of the Navicular, Calcaneal, and Bicipital Bursae
14.9.1. Indications
14.9.2. Examinations
14.9.3. Bursoscopic Surgery
14.9.3.1. Laceration at the Calcaneal Insertion of SDFT
14.9.3.2. Fragmentation of the Calcaneal Tuberosity
14.9.3.3. Traumatic Bicipital Bursitis
14.9.3.4. Penetrating Injuries of the Bursapodotrochlea
14.9.3.5. Lacerations of the SDFT in the Bursapodotrochlea
14.10. Postoperative Care, Complications and Rehabilitation Plans
14.10.1. Postoperative Care
14.10.2. Complications Associated with Synovial Endoscopy Techniques
14.10.3 Postoperative Management Rehabilitation Plans

Module 15. Orthopedic Diseases

15.1. Cranial Cruciate Ligament Rupture
- 15.1.1. Definition
- 15.1.2. Etiology
- 15.1.3. Pathogenesis
- 15.1.4. Clinical Signs
  - 15.1.4.1. Diagnosis
  - 15.1.4.2. Therapy

15.2. Patellar Dislocation and Legg Perthes Disease
- 15.2.1. Definition
  - 15.2.1.1. Etiology
  - 15.2.1.2. Pathogenesis
  - 15.2.1.3. Clinical Signs
  - 15.2.1.4. Diagnosis
  - 15.2.1.5. Therapy

15.3. Hip Dysplasia and Traumatic Hip Dislocation
- 15.3.1. Definition
- 15.3.2. Etiology
- 15.3.3. Pathogenesis
- 15.3.4. Clinical Signs
- 15.3.5. Diagnosis
- 15.3.6. Therapy

15.4. Elbow Dysplasia
- 15.4.1. Definition
- 15.4.2. Etiology
- 15.4.3. Pathogenesis
- 15.4.4. Clinical Signs
- 15.4.5. Diagnosis
- 15.4.6. Therapy

15.5. Radius Curvature
- 15.5.1. Definition
- 15.5.2. Etiology
- 15.5.3. Pathogenesis
- 15.5.4. Clinical Signs
- 15.5.5. Diagnosis
- 15.5.6. Therapy

15.6. Wobbler Syndrome
- 15.6.1. Definition
- 15.6.2. Etiology
- 15.6.3. Pathogenesis
- 15.6.4. Clinical Signs
- 15.6.5. Diagnosis
- 15.6.6. Therapy

15.7. Lumbosacral Instability
- 15.7.1. Definition
- 15.7.2. Etiology
- 15.7.3. Pathogenesis.
- 15.7.4. Clinical Signs
- 15.7.5. Diagnosis
- 15.7.6. Therapy

15.8. Osteomyelitis, Osteoarthritis and Osteosarcoma
- 15.8.1. Definition
- 15.8.2. Etiology
- 15.8.3. Pathogenesis
- 15.8.4. Clinical Signs
- 15.8.5. Diagnosis
- 15.8.6. Therapy

15.9. Osteochondrosis-Osteochondritis Discordant (Ocd) and Panosteitis
- 15.9.1. Definition
- 15.9.2. Etiology
- 15.9.3. Pathogenesis
- 15.9.4. Clinical Signs
- 15.9.5. Diagnosis
- 15.9.6. Therapy

15.10. Scapulohumeral Instability
- 15.10.1. Definition
- 15.10.2. Etiology
- 15.10.3. Pathogenesis
- 15.10.4. Clinical Signs
- 15.10.5. Diagnosis
- 15.10.6. Therapy

Module 16. Preoperative Aspects in Major Species: Ruminants, Swine and Equids

16.1. Preparation for Surgery: Decision Making, Operation Risks, Patient Considerations
- 16.1.1. Surgical Risk
- 16.1.2. Preoperative Patient Evaluation

16.2. Pharmacological Management for On-Site Procedures
- 16.2.1. Sedation Drugs
- 16.2.2. Continuous Infusions
- 16.2.3. Local Anesthetics
- 16.2.4. Containment Systems, Other Considerations
- 16.2.5. Selection of Procedures to Be Performed On Site

16.3. General Anesthesia
- 16.3.1. Inhalation General Anesthesia
- 16.3.2. Intravenous General Anesthesia

16.4. Recovery from General Anesthesia
- 16.4.1. Management During Recovery
- 16.4.2. Factors Affecting Recovery
- 16.4.3. Different Techniques or Installations for Anesthetic Recovery

16.5. General Surgical Technique
- 16.5.1. General Aspects
- 16.5.2. Basic Manipulation of Surgical Instruments
- 16.5.3. Tissue Incision, Blunt Dissection
- 16.5.4. Tissue Retraction and Handling
- 16.5.5. Surgical Irrigation and Suction

16.6. Preparation of the Surgery, Personnel, Patient and Surgical Area
- 16.6.1. Presurgical Planning
- 16.6.2. Surgical Attire, Preparation of Surgical Equipment: Gloves, Gowns etc.
- 16.6.3. Preparation of the Patient and Surgical Area

16.7. Use of Diagnostic Imaging in Orthopedic Surgery
- 16.7.1. Diagnostic Imaging Techniques
- 16.7.2. Diagnostic Imaging in Preparation for Surgery
- 16.7.3. The Use of Intraoperative Imaging

16.8. Disinfection of Material, Sterilization
- 16.8.1. Cold Disinfection
- 16.8.2. Packaging the Material
- 16.8.3. Different Autoclaves and Sterilizing Products

16.9. Orthopedic Surgical Instruments in Large Animals
- 16.9.1. General Instruments in Orthopedics
- 16.9.2. Arthroscopic Instruments
- 16.9.3. Osteosynthesis Instruments

16.10. The Operating Room for Large Animals
- 16.10.1. Basic Installations
- 16.10.2. Importance of the Design of the Operating Room, Asepsis
- 16.10.3. Technical Specifications of the Advanced Surgical Equipment

Module 17. Common Orthopedic Surgeries of the Musculoskeletal System in Major Species: Ruminants, Swine and Equids Part I

17.1. Fractures of Distal Phalanx and Navicular Bone
- 17.1.1. Distal Phalanx
  - 17.1.1.1. Causes
  - 17.1.1.2. Classification
  - 17.1.1.3. Clinical Signs
  - 17.1.1.4. Treatment
- 17.1.2. Navicular Bone Fracture
  - 17.1.2.1. Causes
  - 17.1.2.2. Clinical Signs and Diagnosis
  - 17.1.2.3. Treatment

17.1.3. Digital Neurectomy
17.1.4. Bovine Distal Phalanx Fracture
17.1.5. Bovine Pedal Osteitis
17.1.6. Sepsis of the Common Digital Flexor Tendon Sheath in Ruminants
17.1.6.1. Tenosynoviotomy With Resection of Affected Tissue
17.2. Middle Phalanx Fracture
17.2.1. Etiology
17.2.2. Clinical Signs
17.2.3. Diagnosis
17.2.4. Settings
17.2.4.1. Palmar/Plantar Eminence Fractures
7.2.4.1.1. Uni- and Biaxial Fractures
17.2.4.2. Axial Fractures
17.2.4.3. Comminuted Fractures
17.3. Proximal Phalangeal and Proximal Interphalangeal Joints
17.3.1. Osteoarthritis
17.3.2. Subchondral Cystic Lesions
17.3.3. Dislocations and Subluxations
17.3.4. Fracture Configurations
17.3.5. Clinical Signs
17.3.6. Diaphyseal Fractures
17.3.7. Incomplete Sagittal Fractures
17.3.8. Non-Displaced Long Incomplete Sagittal Incomplete Fractures
17.3.9. Displaced Complete Sagittal Fractures
17.3.10. Frontal Fractures
17.3.11. Comminuted Fractures
17.4. Metacarpal- Metatarsal Phalangeal Joint
17.4.1. Proximal Sesamoid Bone Fractures
17.4.1.1. Mid-Body
17.4.1.2. Basal
17.4.1.3. Abaxial
17.4.1.4. Sagittal
17.4.1.5. Biaxial
17.4.2. Osteoarthritis
17.4.3. Subchondral Cystic Lesions
17.4.4. Dislocation
17.4.5. Tenosynovitis/Desmitis/Constriction of the Annular Ligament
17.4.5.1. Mass Removal
17.4.5.2. Section of the Annular Ligament
17.4.5.3. Tendon Debridement
17.5. Metacarpal/Metatarsal Bones
17.5.1. Lateral Condylar Fractures
17.5.1.1. Signs
17.5.1.2. Diagnosis
17.5.1.3. Emergency Treatment
17.5.1.4. Surgery of Displaced Fractures
17.5.1.5. Surgery of Non-Displaced Fractures
17.5.2. Medial Condylar Fractures
17.5.2.1. Open Approach Surgery
17.5.2.2. Minimally Invasive Surgery
17.5.2.3. Post-Surgery Care
17.5.2.4. Prognosis
17.5.3. Transverse Fractures of the Distal Diaphysis of the Third Metacarpal Bone
17.5.3.1. Non-Surgical Treatment
17.5.3.2. Surgical Treatment
17.5.3.3. Prognosis
17.5.4. Diaphyseal Fractures
17.5.4.1. Non-Surgical Treatment
17.5.4.2. Surgical Treatment
17.5.4.3. Prognosis
17.5.5. Distal Physial Fractures
17.5.6. Proximal Articular Fractures
17.5.7. Dorsal Cortical Fractures
17.5.7.1. Non-Surgical Treatment
17.5.7.2. Surgical Treatment
17.5.7.3. Prognosis
17.5.8. Metacarpal/Metatarsal Bone Fractures in Ruminants (Cattle, Sheep) and Camelids Camels, Alpacas and Llamas)

17.6. Rudimentary Metacarpal/Metatarsal Bones
- 17.6.1. Fractures
- 17.6.2. Clinical Examination
- 17.6.3. Diagnosis
- 17.6.4. Proximal Fractures
  - 17.6.4.1. Debridement
  - 17.6.4.2. Internal Fixation
  - 17.6.4.3. Ostectomy
  - 17.6.4.4. Complete Removal
  - 17.6.4.5. Prognosis
  - 17.6.4.6. Complications
- 17.6.5. Mid-Body Fractures
  - 17.6.5.1. Non-Surgical Treatment
  - 17.6.5.2. Surgical Treatment
  - 17.6.5.3. Prognosis
- 17.6.6. Distal Fractures
  - 17.6.6.1. Non-Surgical Treatment
  - 17.6.6.2. Surgical Treatment
  - 17.6.6.3. Prognosis
- 17.6.7. Exostosis
  - 17.6.7.1. Pathophysiology
  - 17.6.7.2. Clinical Examination
  - 17.6.7.3. Diagnosis
  - 17.6.7.4. Treatment
    - 17.6.7.4.1. Non-Surgical Treatment
    - 17.6.7.4.2. Surgical Treatment
    - 17.6.7.4.3. Prognosis
- 17.6.8. Polydactyly in Ruminants and Equidae
- 17.6.9. Neoplasty

17.7. Tendon and Ligament Pathologies That Can Be Resolved Surgically
- 17.7.1. Carporadic Extensor Carpi Radialis Tendon Rupture
  - 17.7.1.1. Pathophysiology
  - 17.7.1.2. Diagnosis
  - 17.7.1.3. Treatment
  - 17.7.1.4. Prognosis
- 17.7.2. Biceps Brachii Tendon and Infraspinatus Tendon Pathologies
  - 17.7.2.1. Treatment
    - 17.7.2.1.1. Biceps Tendon Transection
  - 17.7.2.2. Prognosis
- 17.7.3. Surgery for Suspensory Ligament Desmopathy in the Forelimb
- 17.7.4. Surgery of Suspensory Ligament Branches
- 17.7.5. Suspensory Ligament Damage in Ruminants
- 17.7.6. Tenectomy of the Medial Head of the Deep Digital Flexor Tendon
- 17.7.7. Surgery for Suspensory Ligament Dismopathy of the Hind Limb
- 17.7.8. Intermittent Patella Fixation in Equidae
- 17.7.9. Patella Fixation in Ruminants
- 17.7.10. Tears or Avulsions of Collateral Ligaments in Ruminants
- 17.7.11. Cranial Cruciate Ligament Rupture in Ruminants
  - 17.7.11.1. Peri-Surgical Planning
  - 17.7.11.2. Imbrication of Stifle Joint
  - 17.7.11.3. Cranial Cruciate Ligament Replacement
    - 17.7.11.3.1. With Gluteobiceps Tendon
    - 17.7.11.3.2. With Synthetic Material
    - 17.7.11.3.3. Post-Surgery and Prognosis
- 17.7.12. Damage to Collateral Ligaments of the Stifle
  - 17.7.12.1. Surgery
  - 17.7.12.2. Prognosis
- 17.7.13. Superficial Digital Flexor Tendon Dislocation

17.8. Muscle Pathologies That Can Be Resolved Surgically
- 17.8.1. Fibrotic Myopathy
  - 17.8.1.1. Pathophysiology
  - 17.8.1.2. Diagnosis
  - 17.8.1.3. Treatment
  - 17.8.1.4. Prognosis
- 17.8.2. Arpeo (Equine Reflex Hypertonia)
  - 17.8.2.1. Pathophysiology
  - 17.8.2.2. Diagnosis
  - 17.8.2.3. Treatment
  - 17.8.2.4. Prognosis
- 17.8.3. Third Peroneal
  - 17.8.3.1. Pathophysiology
  - 17.8.3.2. Diagnosis
  - 17.8.3.3. Treatment
  - 17.8.3.4. Prognosis
- 17.8.4. Rupture and Avulsion of the Gastrocnemius Muscles
  - 17.8.4.1. Pathophysiology
  - 17.8.4.2. Diagnosis
  - 17.8.4.3. Treatment
  - 17.8.4.4. Prognosis
- 17.8.5. Aerophagia
  - 17.8.5.1. Pathophysiology
  - 17.8.5.2. Diagnosis
  - 17.8.5.3. Treatment
  - 17.8.5.4. Prognosis
- 17.8.6. Spastic Paresis

17.9. Arthrodesis
- 17.9.1. Equine Distal Interphalangeal Joint
- 17.9.2. Arthrodesis of the Distal Bovine Interphalangeal Joint
- 17.9.3. Proximal Interphalangeal Joint
- 17.9.4. Metacarpal/Metatarsophalangeal Joint
- 17.9.5. Of the Carpus
- 17.9.6. Of the Shoulder
- 17.9.7. Of Distal Tarsal Joints
- 17.9.8. Talo-Calcanea

17.10. Laminitis and Amputations in Ruminants, Swine and Equidae
- 17.10.1. Laminitis
  - 17.10.1.1. Deep Digital Flexor Tendon Tenotomy
    - 17.10.1.1.1. At Pastern Level
    - 17.10.1.1.2. At Mid Metacarpal-Metatarsal Level
  - 17.10.1.2. Prognosis
- 17.10.2. Amputations in Ruminants, Swine and Equidae
  - 17.10.2.1. Bovine Digit Amputation
  - 17.10.2.2. Bovine Extra Digit Amputation
  - 17.10.2.3. Tail Amputation
  - 17.10.2.4. Limb Amputation
  - 17.10.2.5. Specifics in Swine

Module 18. Common Orthopedic Surgeries of the Musculoskeletal System in Major Species: Ruminants, Swine and Equids Part II

18.1. Carpus
- 18.1.1. Pathophysiology
- 18.1.2. Multifragmentary Fractures
  - 18.1.2.1. Pathogenesis
  - 18.1.2.2. Diagnosis
  - 18.1.2.3. Treatment
- 18.1.3. Accessory Bone Fracture
  - 18.1.3.1. Pathogenesis
  - 18.1.3.2. Diagnosis
  - 18.1.3.3. Treatment
  - 18.1.3.4. Non-Surgical Treatment
  - 18.1.3.5. Surgical Treatment
  - 18.1.3.6. Prognosis
- 18.1.4. Carpal Hygroma
- 18.1.5. Radial Distal Exostosis
  - 18.1.5.1. Clinical Examination
  - 18.1.5.2. Diagnosis
  - 18.1.5.3. Treatment
  - 18.1.5.3.1. Non-Surgical Treatment
  - 18.1.5.3.2. Surgical Treatment
  - 18.1.5.4. Prognosis
- 18.1.6. Dislocation
  - 18.1.6.1. Pathogenesis.
  - 18.1.6.2. Diagnosis
  - 18.1.6.3. Treatment
    - 18.1.6.3.1. Non-Surgical Treatment
    - 18.1.6.3.2. Surgical Treatment
  - 18.1.6.4. Prognosis
- 18.1.7. Coronation
  - 18.1.7.1. Pathogenesis
  - 18.1.7.2. Diagnosis
  - 18.1.7.3. Treatment
- 18.1.8. Synovial Osteochondromatosis
- 18.1.9. Circumscribed Calcinosis
  - 18.1.9.1. Pathophysiology
  - 18.1.9.2. Diagnosis
  - 18.1.9.3. Treatment
  - 18.1.9.4. Prognosis

18.2. Radio and Ulna
- 18.2.1. Ulna Fracture
  - 18.2.1.1. Anatomy
  - 18.2.1.2. Pathogenesis.
  - 18.2.1.3. Diagnosis
  - 18.2.1.4. Treatment
    - 18.2.1.4.1. Emergency Stabilization
    - 18.2.1.4.2 Non-Surgical Treatment
    - 18.2.1.4.3. Surgical Treatment
  - 18.2.1.5. Prognosis
  - 18.2.1.6. Complications
- 18.2.2. Radius Fractures
  - 18.2.2.1. Anatomy
  - 18.2.2.2. Pathogenesis
  - 18.2.2.3. Diagnosis
  - 18.2.2.4. Treatment
    - 18.2.2.4.1. Emergency Stabilization
    - 18.2.2.4.2. Non-Surgical Treatment
    - 18.2.2.4.3. Surgical Treatment
  - 18.2.2.5. Prognosis
  - 18.2.2.6. Complications
- 18.2.3. Radial Osteochondroma
  - 18.2.3.1. Pathogenesis
  - 18.2.3.2. Diagnosis
  - 18.2.3.3. Treatment
  - 18.2.3.4. Prognosis
- 18.2.4. Subchondral Cystic Lesions
- 18.2.5. Enostosis-Like Lesions

18.3. Humerus Fractures
- 18.3.1. Anatomy
- 18.3.2. Greater Tubercle Fracture
  - 18.3.2.1. Diagnosis
  - 18.3.2.2. Treatment
    - 18.3.2.2.1. Non-Surgical Treatment
    - 18.3.2.2.2. Surgical Treatment
  - 18.3.2.3. Prognosis
- 18.3.3. Fracture of the Deltoid Tuberosity
  - 18.3.3.1. Diagnosis
  - 18.3.3.2. Treatment
  - 18.3.3.3. Prognosis
- 18.3.4. Stress Fractures
  - 18.3.4.1. Diagnosis
  - 18.3.4.2. Treatment
  - 18.3.4.3. Prognosis
- 18.3.5. Physiological Fractures
- 18.3.6. Diaphyseal Fractures
  - 18.3.6.1. Diagnosis
  - 18.3.6.2. Treatment
    - 18.3.6.2.1. Non-Surgical Treatment
    - 18.3.6.2.2. Surgical Treatment
  - 18.3.6.3. Prognosis
- 18.3.7. Supraglenoid Tubercle Fractures
  - 18.3.7.1. Treatment
    - 18.3.7.1.1. Fragment Removal
    - 18.3.7.1.2. Internal Fixation
  - 18.3.7.2. Prognosis

18.4. Tarsus
- 18.4.1. Osteoarthritis of the Distal Intertarsal Joints
  - 18.4.1.1. Surgical Treatment
  - 18.4.1.2. Post-Surgery Care
  - 18.4.1.3. Prognosis
- 18.4.2. Osteoarthritis of Talocalcaneal Joint
- 18.4.3. Fractures of the Distal Tibia
- 18.4.4. Talus Bone
  - 18.4.4.1. Trochlear Ridges
  - 18.4.4.2. Sagittal Fractures
- 18.4.5. Calcaneus
  - 18.4.5.1. Chip Fractures of the Heel Pad
- 18.4.6. Small Tarsal Bone Fractures
- 18.4.7. Tarsal Hygroma in Ruminants

18.5. Tibia and Femorotibiorotullary Joint
- 18.5.1. Enostosis-Like Lesions
- 18.5.2. Stress Fractures
  - 18.5.2.1. Etiology
  - 18.5.2.2. Signs
  - 18.5.2.3. Diagnosis
  - 18.5.2.4. Treatment
- 18.5.3. Tibial Fissures
  - 18.5.3.1. Clinical Signs and Diagnosis
  - 18.5.3.2. Treatment
- 18.5.4. Proximal Physial Fractures
  - 18.5.4.1. Clinical Signs and Diagnosis
  - 18.5.4.2. Treatment
  - 18.5.4.3. Post-Surgery Care
  - 18.5.4.4. Complications
  - 18.5.4.5. Prognosis
- 18.5.5. Diaphyseal Fractures
  - 18.5.5.1. Clinical Signs and Diagnosis
  - 18.5.5.2. Treatment
  - 18.5.5.3. Post-Surgery Care.
  - 18.5.5.4. Complications
  - 18.5.5.5. Prognosis
- 18.5.6. Distal Physial Fractures
- 18.5.7. Tibial Ridge Fractures
- 18.5.8. Stifle
  - 18.5.8.1. Patella Fractures
  - 18.5.8.2. Subchondral Cystic Lesions
    - 18.5.8.2.1. Transcondylar Screw

18.6. Femur and Pelvis
- 18.6.1. Head and Neck Fractures
- 18.6.2. Third Trochanter Fractures
- 18.6.3. Diaphysis Fractures
- 18.6.4. Distal Fractures
  - 18.6.4.1. Prognosis
- 18.6.5. Pelvis Fractures
  - 18.6.5.1. Clinical Signs
  - 18.6.5.2. Diagnosis
  - 18.6.5.3. Treatment
  - 18.6.5.4. Of the Coxal Tuberosity
    - 18.6.5.4.1. Clinical Signs
    - 18.6.5.4.2. Diagnosis
    - 18.6.5.4.3. Treatment
  - 18.6.5.5. Of the Wing of the Ileum
  - 18.6.5.6. Of the Body of the Ileum
  - 18.6.5.7. Pubis and Ischium
  - 18.6.5.8. Acetabulum

18.7. Dislocation and Subluxations in Ruminants and Equids
- 18.7.1. Distal Interphalangeal Joint
- 18.7.2. Proximal Interphalangeal Joint
- 18.7.3. Metacarpal/ Metatarsal Phalangeal Joint
- 18.7.4. Carpus
- 18.7.5. Scapulohumeral Joint
- 18.7.6. Coxofemoral Joint
- 18.7.7. Dorsal Defect of the Patella
- 18.7.8. Lateral Patella Dislocation in Equidae
- 18.7.9. Of Patella in Calves and Small Ruminants
  - 18.7.9.1. Lateral Capsule Imbrication
  - 18.7.9.2. Transposition of Tibial Tuberosity
  - 18.7.9.3. Sulcoplasty
- 18.7.10. Of the Tarsal Joint

18.8. Head
- 18.8.1. Temporomandibular Joint
  - 18.8.1.1. Condylectomy
- 18.8.2. Craniomaxillofacial Fractures
  - 18.8.2.1. Incisors, Mandible and Premaxillary
    - 18.8.2.1.1. Diagnosis
    - 18.8.2.1.2. Surgical Management
    - 18.8.2.1.3. Pain
- 18.8.3. Fractures of the Skull and Paranasal Sinuses
  - 18.8.3.1. Clinical Signs and Diagnosis
  - 18.8.3.2. Treatment
  - 18.8.3.3. Post-Surgery Care
  - 18.8.3.4. Complications
  - 18.8.3.5. Prognosis
- 18.8.4. Periorbital Fractures
  - 18.8.4.1. Clinical Signs and Diagnosis
  - 18.8.4.2. Treatment
  - 18.8.4.3. Post-Surgery Care
  - 18.8.4.4. Complications
  - 18.8.4.5. Prognosis
- 18.8.5. Paranasal Sinus Fistulas
- 18.8.6. Dehorning
  - 18.8.6.1. Indications
  - 18.8.6.2. Techniques
  - 18.8.6.3. Complications
- 18.8.7. Frontal Sinus Trepanation in Ruminants
  - 18.8.7.1. Indications
  - 18.8.7.2. Anatomy
  - 18.8.7.3. Clinical Signs
  - 18.8.7.4. Technique
  - 18.8.7.5. Post-Surgery Care and Complications

18.8.8. Rostral Resection of Mandible, Premaxilla and Maxilla
18.8.8.1. Treatment
18.8.8.2. Post-Surgery Care
18.8.8.3. Complications
18.8.8.4. Prognosis
18.8.9. Campilorrinuslateralis
18.8.9.1. Treatment
18.8.9.2. Post-Surgery Care
18.8.9.3. Complications
18.8.9.4. Prognosis
18.8.10. Upper and Lower Prognathism
18.8.10.1. Treatment
18.8.10.2. Post-Surgery Care
18.8.11. Suture Periostitis
18.8.11.1. Diagnosis
18.8.11.2. Treatment
18.9. Spinal Column Surgery in Equidae
18.9.1. Considerations of the Patient and Operating Room
18.9.2. Approaches
18.9.3. Incisions Sutures
18.9.4. Anesthetic Recovery
18.9.5. Postoperative Care
18.9.6. Cervical Fractures
18.9.6.1. Atlas and Axis
18.9.6.2. Subluxation and Atlantoaxial Dislocation
18.9.6.3. From C3 to C7
18.9.7. Thoracolumbar Fractures
18.9.7.1. Dorsal Spinal Processes
18.9.7.2. Vertebral Bodies
18.9.8. Traumatic Sacral Injury
18.9.9. Traumatic Coccygeal Injury
18.9.10. Crushed Tail Head Syndrome
18.9.11. Developmental Disorders
18.9.11.1. Cervical Vertebral Stenotic Spinal Myelopathy
18.9.11.1.1. Surgical Treatment
18.9.11.1.1.1. Intervertebral Fusion
18.9.11.1.1.2. Laminectomy
18.9.11.1.2. Complications
18.9.11.2. Oxyphytoatlantoaxial Malformation
18.9.11.3. Atlantoaxial Subluxation
18.9.11.4. Atlantoaxial Instability
18.10. Neurosurgery
18.10.1. Cerebral Trauma Surgery
18.10.2. Peripheral Nerve Surgery
18.10.2.1. General Surgical Repair Techniques
18.10.2.2. Suprascapular and Axillary Nerve Damage
18.10.2.2.1. Treatment
18.10.2.2.2. Non-Surgical Treatment
18.10.2.2.3. Decompression of the Scapular Nerve
18.10.2.2.4. Prognosis

Module 19. Rehabilitation of Musculoskeletal Injuries in Sport Horses

19.1. Significance of Musculoskeletal Injuries in Sport Horses
19.1.1. Introduction
19.1.2. Impact of Musculoskeletal Injuries on the Equine Industry
19.1.3. Most Common Musculoskeletal Injuries According to the Equestrian Discipline
19.1.4. Factors Associated With the Incidence of Injuries in Sport Horses
19.2. Physiotherapeutic Assessment of the Horse
19.2.1. Introduction
19.2.2. Clinical Evaluation
19.2.3. Body Alignment Assessment
19.2.4. Static Physical Assessment
19.2.4.1. Palpitation
19.2.4.2. Active Mobility Test
19.2.4.3. Passive Mobility Tests
19.3. Physiotherapeutic Assessment of the Limbs

19.3.1. Physiotherapeutic Assessment of the Thoracic Limbs
19.3.1.1. Scapula and Scapulohumeral Joint
19.3.1.2. Elbow and Forearm Joint
19.3.1.3. Carpal Joint and Shank
19.3.1.4. Distal Joints: Metacarpal/Tarso-Falangeal, Proximal Interphalangeal, Distal Interphalangeal
19.3.2. Physiotherapeutic Assessment of the Pelvic Limbs
19.3.2.1. Coxofemoral and Rump Joints
19.3.3.2. Stifle and Leg Articulation
19.3.3.3. Tarsal Joint
19.4. Physiotherapeutic Assessment of the Head of Vertebral Column
19.4.1. Physiotherapeutic Assessment of the Head
19.4.1.1. Head
19.4.1.2. Hyoid Apparatus
19.4.1.3. Temporomandibular Joint
19.4.2. Physiotherapeutic Assessment of the Vertebral Column
19.4.2.1. Cervical Region
19.4.2.2. Thoracic Region
19.4.2.3. Lumbar Region
19.4.2.4. Sacroiliac Joint
19.5. Neuromuscular Assessment of the Sport Horse
19.5.1. Introduction
19.5.2. Neurological Evaluation
19.5.2.1. Neurological Examination
19.5.2.2. Evaluation of Cranial Nerves
19.5.2.3. Evaluation of Posture and Gait
19.5.2.4. Assessment of Reflexes and Proprioception
19.5.3. Diagnostic Tests
19.5.3.1. Diagnostic Imaging Techniques
19.5.3.2. Electromyography
19.5.3.3. Cerebrospinal Fluid Analysis
19.5.4. Main Neurological Pathologies
19.5.5. Main Muscular Pathologies
19.6. Manual Therapy Techniques
19.6.1. Introduction
19.6.2. Technical Aspects of Manual Therapy
19.6.3. Considerations of Manual Therapy
19.6.4. Main Techniques of Manual Therapy
19.6.5. Manual Therapy in Limbs and Joints
19.6.6. Manual Therapy in the Spine
19.7. Electrotherapy
19.7.1. Introduction
19.7.2. Principles of Electrotherapy
19.7.3. Tissue Electrostimulation
19.7.3.1. Activation of Peripheral Nerves
19.7.3.2. Application of Electric Stimulation
19.7.4. Pain Control
19.7.4.1. Mechanism of Action
19.7.4.2. Indications of Its Use in Pain Control
19.7.4.3. Main Applications
19.7.5. Muscular Stimulation
19.7.5.1. Mechanism of Action
19.7.5.2. Indications for Use
19.7.5.3. Main Applications
19.7.6. Laser Therapy
19.7.7. Ultrasound
19.7.8. Radiofrequency
19.8. Hydrotherapy
19.8.1. Introduction
19.8.2. Physical Properties of Water
19.8.3. Physiological Response to Exercise
19.8.4. Types of Hydrotherapy
19.8.4.1. Aquatic Therapy in Flotation
19.8.4.2. Aquatic Therapy in Semi-Flotation
19.8.5. Main applications of Hydrotherapy

19.9. Controlled Exercise
- 19.9.1. Introduction
- 19.9.2. Stretching
- 19.9.3. *Core Training*
- 19.9.4. Cavalleti and Proprioceptive Bracelets

19.10. Rehabilitation Plans
- 19.10.1. Introduction
- 19.10.2. Tendo-Ligament Injuries
- 19.10.2. Muscle Injuries
- 19.10.3. Bone and Cartilage Lesions

A comprehensive specialized program that will take you through the necessary preparation to compete with the best in your profession"

05

Methodology

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

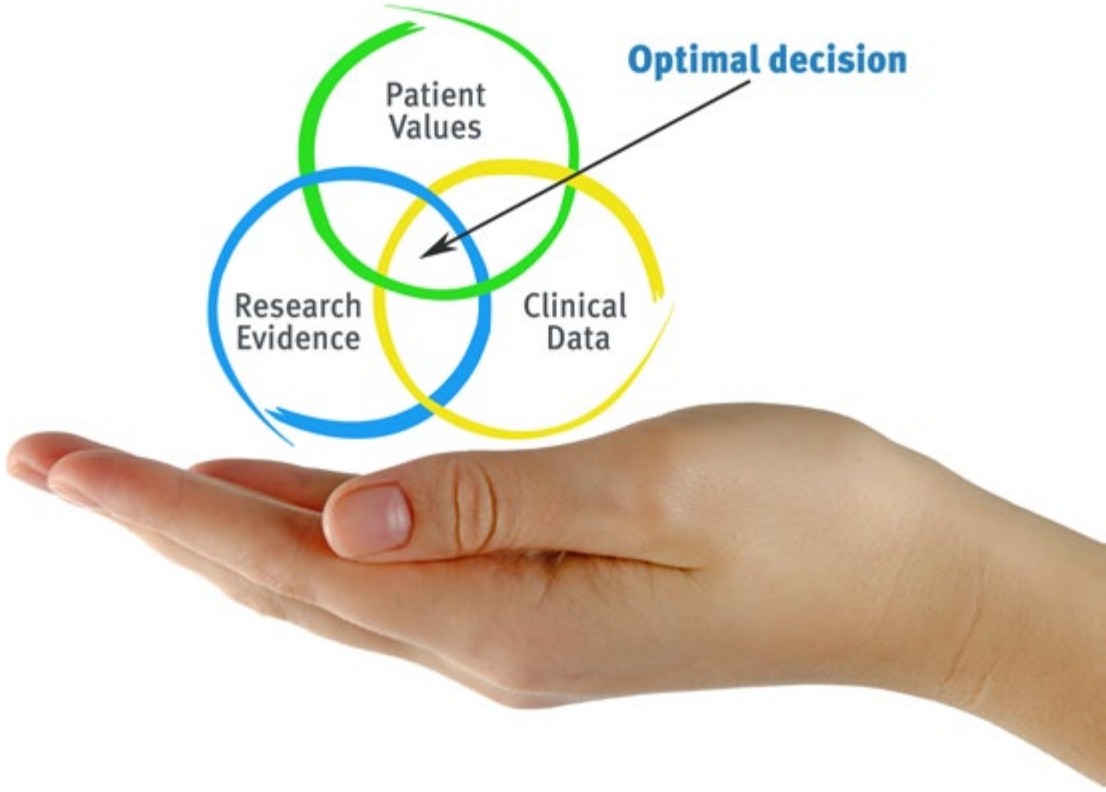
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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

At TECH we use the Case Method

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

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



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

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

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

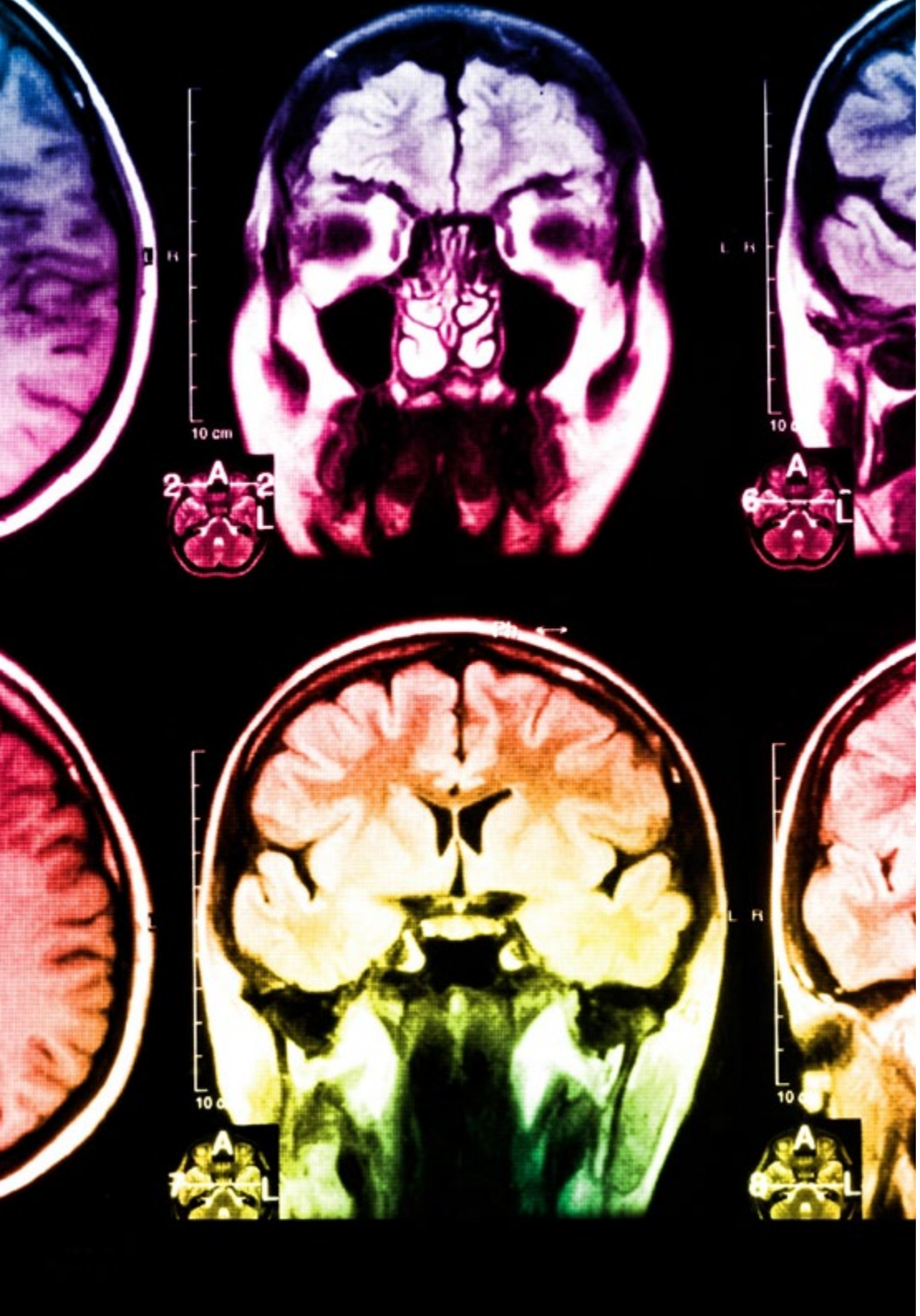
1. Veterinarians who follow this method not only manage to assimilate concepts, but also develop their mental capacity through exercises to evaluate real situations and knowledge application
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real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

Relearning Methodology

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

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

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



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

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

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

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

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

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

Study Material

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

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

Latest Techniques and Procedures on Video

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

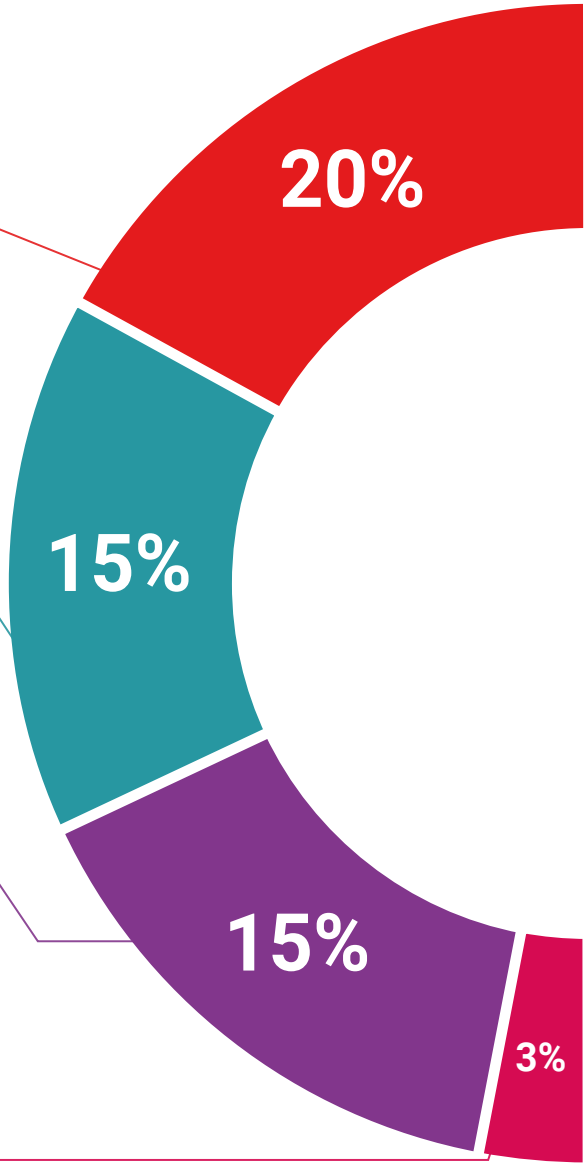
Interactive Summaries

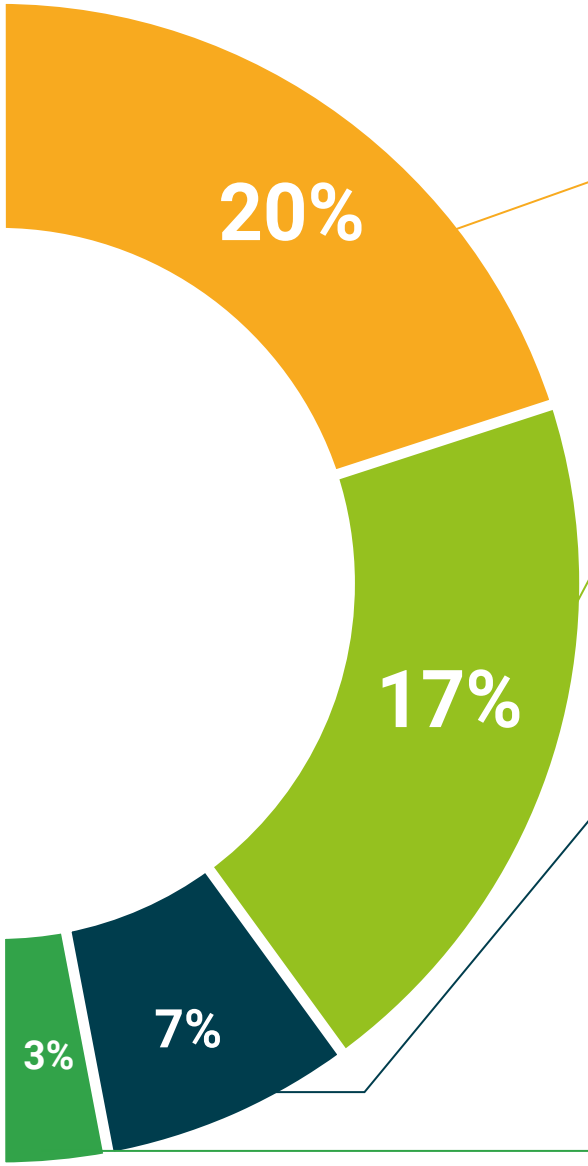
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

Additional Reading

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





Expert-Led Case Studies and Case Analysis

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

Testing & Retesting

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

Classes

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

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

Quick Action Guides

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

07

Certificate

This Advanced Master's Degree in Veterinary Traumatology guarantees students, in addition to the most rigorous and up-to-date education, access to an Advanced Master's Degree issued by TECH Technological University.

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

This **Advanced Master's Degree in Veterinary Traumatology** contains the most complete and up-to-date scientific program on the market.

After the student has passed the assessments, they will receive their corresponding **Advanced Master's Degree** issued by **TECH Technological University** via tracked delivery*.

This qualification contributes significantly to the professional's continuing education and enhances their specialization with a highly regarded university syllabus, and is 100% valid for all public examinations, professional careers and job vacancies.

Title: **Advanced Master's Degree in Veterinary Traumatology**

Official Nº of Hours: **3,000 h.**


tech technological university

Awards the following

CERTIFICATE

to

Mr./Ms. _____, with identification number _____.

For having successfully passed and accredited the following program

ADVANCED MASTER'S DEGREE

in

Veterinary Traumatology

This is a qualification awarded by this University, equivalent to 3,000 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro
Dean

Unique TECH Code: AFWORD23S techtitute.com/certificates


Advanced Master's Degree in Veterinary Traumatology

General Structure of the Syllabus

Year	Subject	Hours	Type
1º	Osteogenesis	157	CO
1º	Orthopedic Physical Examination	157	CO
1º	Diagnosis of Lameness in Major Species: Ruminants, Swine and Equids	157	CO
1º	Main Musculoskeletal Pathologies in Major Species: Ruminants, Swine and Equids	157	CO
1º	Developmental Diseases: Angular and Flexural Deformities, Osteochondrosis and Subchondral Cyst in Major Species: Ruminants, Swine and Equines	157	CO
1º	Skeletal External Fixators and Circular Fixators	157	CO
1º	Intramedullary Nailing	157	CO
1º	Bone Plates and Screws	157	CO
1º	Pelvis Fractures	157	CO
1º	Pelvic Limb Fractures	157	CO
1º	Thoracic Limb Fractures	157	CO

Year	Subject	Hours	Type
1º	Reparation of Fractures in Major Species: Ruminants, Swine and Equids	157	CO
1º	Musculoskeletal Injuries and Infections in Large Animals: Ruminants, Swine and Equids	157	CO
2º	Arthroscopy, Bursoscopy and Tenoscopy in Major Species: Ruminants, Swine and Equids	157	CO
2º	Orthopedic Diseases	157	CO
2º	Preoperative Aspects in Major Species: Ruminants, Swine and Equids	157	CO
2º	Common Orthopedic Surgeries of the Musculoskeletal System in Major Species: Ruminants, Swine and Equids Part I	157	CO
2º	Common Orthopedic Surgeries of the Musculoskeletal System in Major Species: Ruminants, Swine and Equids Part II	157	CO
2º	Rehabilitation of Musculoskeletal Injuries in Sport Horses	174	CO

Tere Guevara Navarro
Dean

tech technological university

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

tech technological university

Advanced Master's Degree
Veterinary Traumatology

- Modality: **online**
- Duration: **2 years**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Advanced Master's Degree
Veterinary Traumatology

tech technological university