Advanced Master's Degree

High Performance and Competition Football

Endorsed by the NBA

tech technological university

tech technological university

Advanced Master's Degree
High Performance and Competition Football

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

Website: www.techtitute.com/us/sports-science/advanced-master-degree/advanced-master-degree-high-performance-competition-football

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01

Introduction

In an ever-changing world, football is facing new challenges that are increasingly competitive and demanding, where high sports performance is essential. Technology and science have transformed the sport, creating the need for a prevailing professionalization. In this context, TECH has created this program, which provides a unique opportunity to acquire theoretical and practical knowledge that will improve the sports performance of teams and players. The program covers a wide range of topics, from exercise physiology to football technique and tactics. In addition, teaching is 100% online, allowing students to access classes and study materials from anywhere in the world.

Expand your skills and knowledge in high performance football with the Advanced Master's Degree in High Performance and Competitive Football"

In a world in constant evolution, football is facing new challenges. Teams must face an increasingly demanding and competitive struggle, where high sports performance is essential. Technology and science have transformed sport, generating a need for professionalization in the different aspects that make it up.

In this context, specialization in High Performance Football is essential for those who wish to excel in this sport. For this reason, TECH has created the Grand Master in High Performance and Competition Football, which is presented as a unique opportunity to acquire theoretical and practical knowledge that will improve the sporting performance of teams and players.

The program has a wide variety of topics covering exercise physiology and physical activity, biomechanics applied to high performance sports, planning applied to high performance sports, training methodology, physical preparation in football and football technique and tactics, among other areas.

Sports professionals who wish to specialize in high-performance football will be able to acquire specialized skills and knowledge in different areas, such as sports performance evaluation, statistics applied to performance and research, or psychology and nutrition applied to football.

The program offers a 100% online methodology, which allows students to access classes and study materials from anywhere in the world, without geographical or time constraints. In addition, students can adapt the pace of learning to their needs, ensuring a personalized and effective learning experience.

This **Advances Master's Degree in High Performance and Competitive Football** contains the most complete and up-to-date scientific program on the market. The most important features include:

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

Develop your skills as a football professional with a program focused on the key areas of high performance sports"

Become a benchmark in the world of high performance football and lead highly effective teams and training plans with this Grand Master”

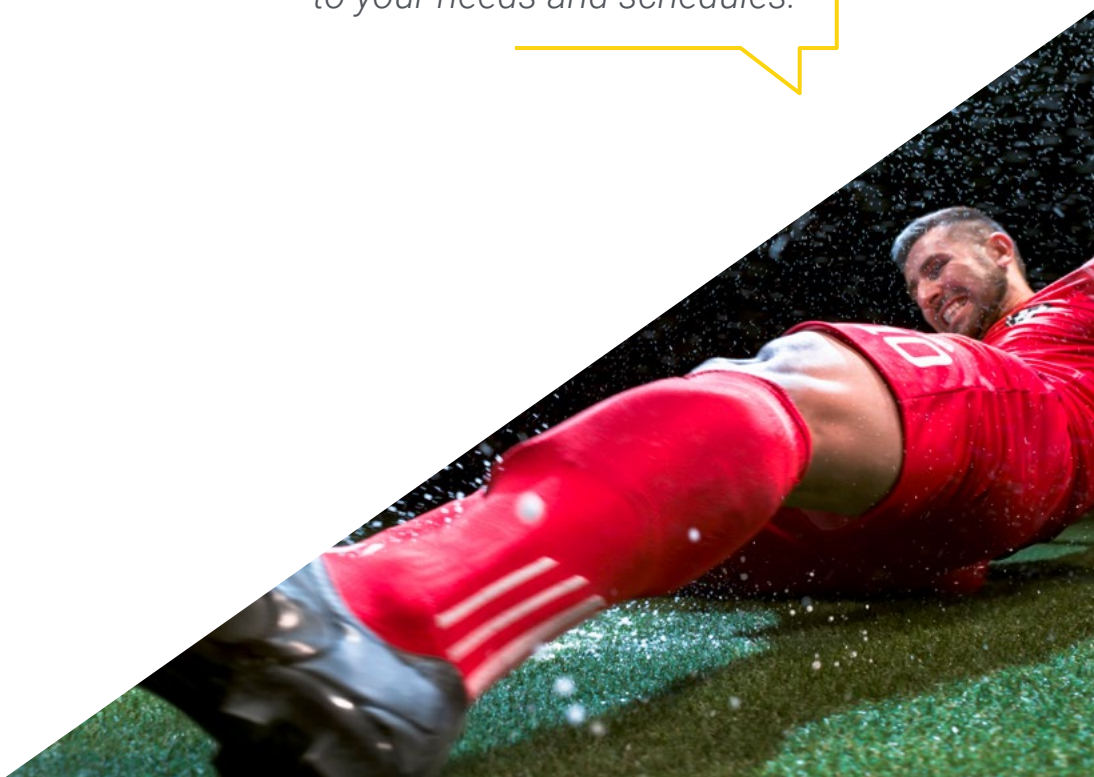
Master the latest trends and technologies in training and sports performance with a complete and updated syllabus.

Study at your own pace and from anywhere, thanks to the 100% online methodology that adapts to your needs and schedules.

Its teaching staff includes professionals belonging to the field of football, who contribute their work experience to this program, as well as renowned specialists from leading companies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide an immersive learning experience designed to prepare for real-life situations.

This program is designed around Problem-Based Learning, whereby the student must try to solve the different professional practice situations that arise throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts.



02

Objectives

The main objective of the Advanced Master's Degree in High Performance and Competitive Football is to provide the student with advanced skills in the area of high performance and competitive football so that he/she can perform as a highly trained professional in the world of sports. The specific objectives of this program include acquiring in-depth knowledge of the physiology of exercise and physical activity, mastering biomechanics applied to high performance sports, learning how to structure or manage high performance football teams, among others.

The Advanced Master's Degree in High Performance and Competitive Football will provide you with advanced skills in the area of high performance and competitive football"

General Objectives

- To know the origin, history and evolution of football
- Delve into the organization of a club and everything that surrounds the sporting environment
- Go deeper into current technical-tactical knowledge
- Investigate the change in football analysis with the introduction of new technologies
- Explain physical preparation and re-training as a fundamental part of today's football
- Highlight the importance of good nutrition for good sports performance
- Recognize each member of a coaching staff and their roles in a football club
- Delve into Psychology as a fundamental part of a football player's performance
- Master and apply with certainty the most current training methods to improve sports performance
- To effectively master statistics and thus be able to make a correct use of the data obtained from the athlete, as well as to initiate research processes
- Acquire knowledge based on the most current scientific evidence with full applicability in the practical field
- To master all the most advanced methods of sports performance evaluation
- Master the principles governing Exercise Physiology, as well as Biochemistry
- Master the principles governing Biomechanics applied directly to Sports Performance
- Master the principles governing Nutrition applied to sports performance
- Successfully integrate all the knowledge acquired in the different modules in real practice

Specific Objectives

Module 1. Exercise Physiology and Physical Activity

- Specialize and interpret key aspects of biochemistry and thermodynamics
- Gain in-depth knowledge of the energy metabolic pathways and their exercise-mediated modifications and their role in human performance
- Learn key aspects of the neuromuscular system, motor control and its role in physical training
- In-depth knowledge of muscle physiology, the process of muscle contraction and the molecular basis of this process
- Specialize in the functioning of the cardiovascular and respiratory systems and oxygen utilization during exercise
- Interpret the general causes of fatigue and impact in different types and modalities of exercise
- Interpret the different physiological milestones and their application in practice

Module 2. Biomechanics Applied to High Performance in Sports

- Specialize in the principles of Biomechanics oriented to physical education and Sport
- Apply the basic knowledge and technologies of biomechanics as a function of physical education, sport, performance and daily life
- Value the importance of protocols and the different types of biomechanical evaluation as a fundamental factor in the process of sports development and assessment
- Develop critical and analytical thinking that will allow him/her to generate innovative protocols and procedures, with different types of technology

Module 3. Planning Applied to High Performance in Sports

- Understand the internal logic of planning, such as its proposed core models
- Apply the Dose-Response concept in training
- Clearly differentiate the impact of programming with planning and its dependencies
- Acquire the ability to design different planning models according to the work reality
- Apply the concepts learned in an annual and/or multi-year planning design

Module 4. Structure and operation of a football team

- Know the organizational structure of a football club
- Differentiate between the different sporting bodies
- Distinguish functions between the different sporting and non-sporting areas

Module 5. Training methodology

- Master the different exercises for the maintenance of possession
- Describe the different recreational games in football
- Classify the various tasks within a training
- Design and plan training sessions

Module 6. Strength Training from Theory to Practice

- Correctly interpret all theoretical aspects defining strength and its components
- Master the most effective strength training methods
- Develop sufficient criteria to be able to support the choice of different training methods in their practical application
- Be able to objectify the strength needs of each athlete
- Master the theoretical and practical aspects that define power development
- Correctly apply strength training in the prevention and rehabilitation of injuries

Module 7. Speed Training from Theory to Practice

- Interpret the key aspects of speed and change of direction technique
- Compare and differentiate the speed of situational sport with respect to the track and field model
- Incorporate elements of observational judgment, a technique that allows discrimination of errors in the mechanics of the race and the procedures for their correction
- Become familiar with the bioenergetic aspects of single and repeated sprinting and how they relate to the training processes
- Differentiate the mechanical aspects that may influence performance impairment and the mechanisms of injury occurrence when sprinting
- Apply in an analytical way the different means and methods of training for the development of the different phases of speed
- Program speed training in situational sports

Module 8. Endurance Training from Theory to Practice

- Study the different adaptations generated by aerobic endurance
- Apply the physical demands of situational sports
- Carry out the different methods to organize training sessions
- Design training sessions taking into account the sport

Module 9. Mobility: from Theory to Performance

- Approach mobility as a basic physical capacity from a neurophysiological perspective
- Have a deep understanding of the neurophysiological principles that affect the development of mobility
- Apply stabilizing and mobilizing systems within the movement pattern
- Unpack and specify the basic concepts and objectives related to mobility training
- Develop the ability to design tasks and plans for the development of manifestations of mobility
- Apply the different methods of performance optimization through recovery methods
- Develop the ability to carry out a functional and neuromuscular assessment of the athlete
- Recognize and address the effects produced by an injury at the neuromuscular level in the athlete

Module 10. Technical staff and coaching

- Deepen knowledge of the evolution of the technical staff's working methods
- Explain the different roles played by the various members of a team's staff
- To deepen in the figure of the goalkeeper and his training
- Analyze the new technologies used for the maintenance of football fields

Module 11. Physical Preparation in Football

- Provide specific and specialized training to students through scientific and practical support on the different contents of Physical Preparation and Injury Readaptation
- Raise awareness of the different roles of professionals in the field and the possibility of multidisciplinary work with the aim of improving the player's performance
- Know both analytical and integrated training methods with the objective of maximizing performance and preventing the risk of injury in football players
- Know the methods of injury rehabilitation in order to design, plan and develop rehabilitation processes for the most common injuries in football

Module 12. Technique in football

- To include technique in a game model
- Differentiate between collective and individual technical aspects
- Knowing how to plan training sessions based on technique
- Detecting micro technical details in a professional football player
- Knowledge of what the technique is for
- Give greater importance to technique in grassroots and professional football

Module 13. Tactics in football

- Mastering the different tactical concepts
- To deepen the different concepts to achieve a better tactical vision
- Expand and improve tactical knowledge
- Obtain tactical skills and adapt them to the different situations that arise in the game
- Acquire a tactical reasoning that allows to face the different situations of the game, both their own and the opponent's

Module 14. Analysis in football

- Know and recognize the functions of an analyst within a technical body, as well as the types of analysts that currently exist
- Knowing how to analyze individually and collectively both one's own team and the rivals
- Learn how to give opponent's information to the players
- We will learn the different phases of analysis of a match: Pre, During, Post and Final Evaluation of the match
- Learn to work with the technological tools available right now
- Tagging and recognizing the different events that occur during a football game

Module 15. Football injuries

- Know the most common injuries in professional footballIdentify extrinsic and intrinsic factors affecting injuries
- To deepen the figure and functions of physicians, physiotherapists and sports readaptators

Module 16. Sports Performance Assessment

- Become familiar with different types of assessment and their applicability to the field of practice
- Select the most appropriate tests for your specific needs
- Correctly and safely administer the protocols of the different tests and the interpretation of the data collected
- Apply different types of technologies currently used in the field of exercise assessment, whether in the field of health and fitness performance at any level of demand

Module 17. Statistics Applied to Performance and Research

- Develop the ability to analyze data collected in the laboratory and in the field through various assessment tools
- Describe the different types of statistical analysis and their application in various situations for the understanding of phenomena that occur during training
- Develop strategies for data exploration to determine the best models to describe them
- Establish the generalities of predictive models through regression analysis that favor the incorporation of different units of analysis in the training field
- Generate the conditions for the correct interpretation of results in different types of research

Module 18. Psychology applied to Football

- To establish and define clearly and concisely what Sports Psychology is and its usefulness in the world of Football
- To make an approach to the most influential and moldable psychological variables in football
- Provide group management tools

Module 19. Nutrition applied to football

- Understand the energy needs and requirements of the athlete, as well as the importance of nutrition for sports performance
- Distinguish the types of macronutrients and micronutrients and know their relevance in football
- To know the nutritional strategies for different situations of the football player
- To develop the clinical reasoning required for the planning of nutrition programs adapted to the football player

Learn in depth about the physiology of exercise and physical activity, in order to plan and design training programs tailored to the needs of each player"

03

Skills

The Advanced Master's Degree in High Performance and Competitive Football offers students a wide variety of competencies that will allow them to develop advanced skills to lead high performance teams in the sports environment. During the program, the student will learn to apply the most modern and effective principles and techniques in exercise physiology, applied biomechanics, training planning and methodology, sports performance evaluation, and much more.

You will acquire advanced skills in exercise physiology and biomechanics applied to high performance sports, which will allow you to design effective, state-of-the-art training plans"

General Skills

- Acquire knowledge based on the most current scientific evidence with full applicability in the practical field
- To master all the most advanced methods of sports performance evaluation
- Planning a team's annual season
- Create and implement training sessions at the highest level in the world of football
- Leading and managing crisis situations in High Competition teams
- Coordinate all members of the technical staff, according to their specific functions
- Develop nutritional plans according to the level of demand of the competition
- Incorporate coaching techniques for individual and group motivation
- Improving relations between the coaching staff and the club's higher bodies

Specific Skills

- Perform and interpret game analysis results
- Incorporate new technologies for the tactical study of the opponent
- Communicate assertively with players about decisions made
- Implement the most effective training methodologies in the current football landscape
- Improve the players' technique
- Apply different tactical solutions to the opponent's game systems
- Innovate in the work sessions, incorporating recreational football
- Working on injury prevention
- Learn key aspects of the neuromuscular system, motor control and its role in physical training
- Describe the different types of statistical analysis and their application in various situations for the understanding of phenomena that occur during training
- Correctly interpret all theoretical aspects defining strength and its components
- Incorporate elements of judgment of technical observation that make it possible to discriminate errors in the mechanics of the race and the procedures for their correction
- Apply stabilizing and mobilizing systems within the movement pattern
- Unpack and specify the basic concepts and objectives related to mobility training
- Correctly and safely administer the protocols of the different tests and the interpretation of the data collected
- Apply the concepts learned in an annual and/or multi-year planning design
- Apply the basic knowledge and technologies of biomechanics as a function of physical education, sport, performance and daily life
- Handle the nutritional aspects that are associated with eating disorders and sports injuries

You will develop competencies to lead high performance teams in the sports environment, including interpersonal skills, leadership and teamwork"

04

Course Management

The program has a team of highly trained and experienced teachers, who come from various fields of sport and research. The teachers are recognized specialists in their respective areas and have practical experience in the development of sports performance in high-level football teams. In addition, they are committed to academic excellence and teaching up-to-date techniques and tools for coaching and managing high-performance teams.

You will learn in an interactive and collaborative way, thanks to the practical and participative teaching methodology that characterizes the teaching team of the Advanced Master's Degree in High Performance and Competitive Football"

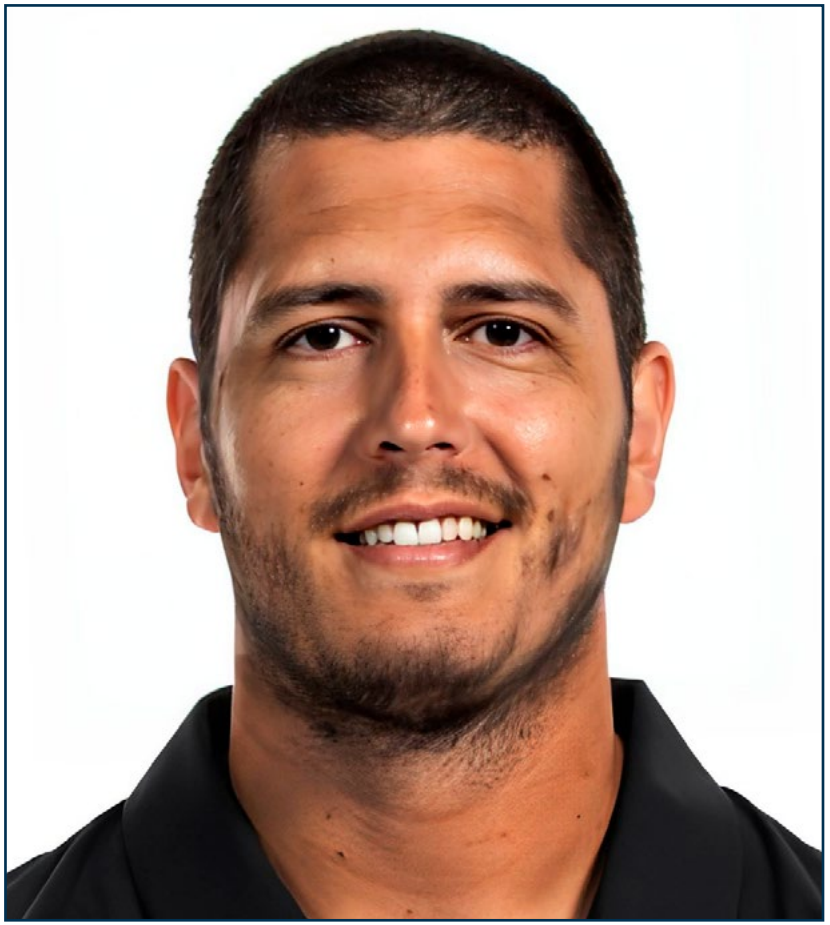
International Guest Director

Tyler Friedrich, Ph.D., is a leading personality in the international field of Sports Performance and Applied Sports Science. With a strong academic background, he has demonstrated an exceptional commitment to excellence and innovation, and has contributed to the success of numerous elite athletes internationally.

Throughout his career, Tyler Friedrich has deployed his expertise in a wide range of sporting disciplines, from football to swimming, volleyball to field hockey. His work in performance data analysis, especially through the Catapult athlete GPS system, and his integration of sports technology into performance programs, has established him as a leader in athletic performance optimization.

As Director of Sports Performance and Applied Sports Science, Dr. Friedrich has led strength and conditioning training, as well as the implementation of specific programs for several Olympic sports, including volleyball, rowing and gymnastics. Here, he has been responsible for integrating equipment services, sports performance in soccer and sports performance in Olympic sports. In addition, incorporating DAPER sports nutrition within an athlete performance team.

Also certified by USA Weightlifting and the National Strength and Conditioning Association, he is recognized for his ability to combine theoretical and practical knowledge in the development of high performance athletes. In this way, Dr. Tyler Friedrich has left an indelible mark on the world of Sports Performance, being an outstanding leader and driver of innovation in his field.

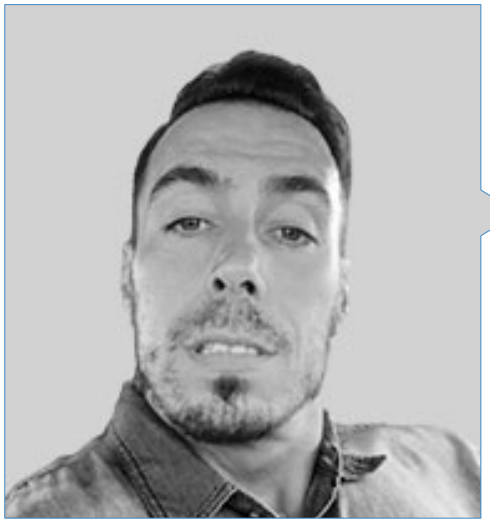


Dr. Friedrich, Tyler

- Director of Sports Performance and Applied Sports Science at Stanford University
- Sports Performance Specialist
- Associate Director of Athletics and Applied Performance at Stanford University
- Director of Olympic Sport Performance at Stanford University
- Sports Performance Coach at Stanford University
- Ph.D. in Philosophy, Health and Human Performance from Concordia University Chicago
- Master of Science in Exercise Science from the University of Dayton
- Bachelor of Science, Exercise Physiology from the University of Dayton

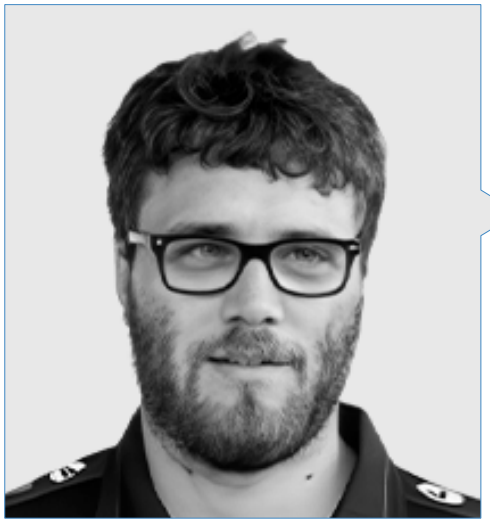
Thanks to TECH, you will be able to learn with the best professionals in the world"

Management



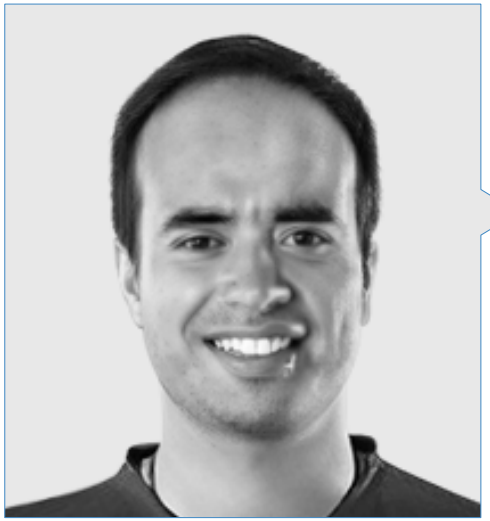
Dr. Rubina, Dardo

- Specialist in High Performance Sports
- CEO of Test and Training
- Physical Trainer at Moratalaz Sports School
- Teacher of Physical Education in Football and Anatomy. CENAFE Schools Carlet
- Coordinator of Physical Preparation in Field Hockey. Club Gimnasia y Esgrima de Buenos Aires
- Doctorate in High Performance Sports
- Postgraduate Certificate in Advanced Research Studies (DEA), University of Castilla la Mancha
- Master in High Performance Sports by the Autonomous University of Madrid
- Postgraduate in Physical Activity in Populations with Pathologies by the University of Barcelona
- Competitive Bodybuilding Technician. Extremadura Federation of Bodybuilding and Fitness
- Expert in Sports Scouting and Quantification of Training Load (specialization in football), Sports Sciences. University of Melilla
- Expert in Advanced Weight Training by IFBB
- Expert in Advanced Nutrition by IFBB
- Specialist in Physiological Assessment and Interpretation of Physical Fitness by Bio
- Certification in Technologies for Weight Control and Physical Performance. Arizona State University



Mr. Fernández Fernández, Ángel

- Scout and responsible for the northern area for a Sportsmen Representation Agency (PHSport)
- Futsal and football coach
- Asturias area scout for Athlete Representation Agency (Vilasports)
- Sports Director of CD Mosconia
- Real Oviedo commentator at RadioGed
- Middle Level Sports Technician specializing in football at the Asturian Sport School Level 1 and 2



Mr. González Arganda, Sergio

- Physiotherapist of Atlético Madrid Football Club
- Lecturer in the Master's Degree in Physical Preparation and Sports Rehabilitation in Football at UNIR
- Teacher of Clinical Pilates University Expert at the University of Jaén
- Master's Degree in Biomechanics Applied to Injury Assessment from the Universidad Pontificia Comillas
- Master in Osteopathy of the Locomotor System by the Madrid School of Osteopathy
- Expert in Pilates Rehabilitation by the Royal Spanish Gymnastics Federation
- Master's Degree in Sports and Physical Activity Physiotherapy Comillas Pontifical University
- Diploma in Physiotherapy by Physiotraining

Professors

Mr. Añon, Pablo

- Physical trainer of the Women's National Volleyball Team for the Olympic Games
- Physical trainer of volleyball teams of the Argentinean Men's First Division
- Physical trainer of professional golfers Gustavo Rojas and Jorge Berent
- Swimming coach from Quilmes Athletic Club
- National Teacher of Physical Education (INEF) in Avellaneda
- Postgraduate degree in Sports Medicine and Applied Sports Sciences from the La Plata University
- Master in High Performance Sports by the Catholic University of Murcia
- Training courses oriented to the field of High Performance Sports

Mr. Carbone, Leandro

- Strength Training and Fitness Teacher
- CEO of LIFT, training and education company
- Head of the Department of Sports Evaluations and Exercise Physiology. WellMets - Institute of Sports and Medicine in Chile
- CEO/ Manager at Complex I
- University Lecturer
- External Consultant for Speed4lift, a leading company in the area of sports technology
- Bachelor's Degree in Physical Activity from the Universidad del Salvador
- Specialist in Exercise Physiology, La Plata National University
- *MCs.* Strength and Conditioning en Greenwich University, United Kingdom

Mr. Masse, Juan Manuel

- Physical trainer for high performance athletes
- Director of the Athlon Science Study Group
- Physical trainer for several professional football teams in South America

Mr. Vaccarini, Adrián Ricardo

- Physical Trainer Specializing in First Level Football
- Head of the Applied Sciences Field of the Peruvian Football Federation
- Second Physical Trainer of the Peruvian Absolute Football Team
- Physical Trainer of the Peruvian National Under 23 National Team
- Responsible for the Research and Performance Analysis Area of Quilmes Atlético
- Responsible for the Research and Performance Analysis Area of Club Atlético Vélez Sarsfield
- Regular speaker at conferences from High Performance Sports
- Degree in Physical Education
- National Physical Education Teacher

Mr. Jareño Díaz, Juan

- Physical Preparation Specialist and Sport
- Coordinator of the education and physical preparation area at the Moratalaz Sports School
- University Lecturer
- Personal Trainer and Sports Coach at 9.8 Gravity Training Studio
- Graduate in Physical Activity and Sports Sciences from the University of Castilla la Mancha
- Master's Degree in University Law and Bioethics from the University of CastillaLa Mancha
- Postgraduate degree Therapeutic Personal from University of Castilla La Mancha

Dr. Del Rosso, Sebastián

- Expert researcher in Sports Biochemistry
- Postdoctoral researcher at the Clinical Biochemistry and Immunology Research Center
- Researcher in the Lifestyle and Oxidative Stress Research Group
- Co-author of numerous scientific publications
- Director of the Editorial Board of PubliCE Standard magazine
- Director of the Editorial Department of Grupo Sobre Entrenamiento
- Dr. in Health Sciences from the National University of Córdoba
- Degree in Physical Education from the National University Gral. San Martín
- Master's Degree in Physical Education from the Catholic University Gral. San Martín

Mr. César García, Gastón

- Expert Hockey and Rugby Fitness Trainer
- Physical Trainer of the professional field hockey player Sol Alias
- Carmen Tennis Club Hockey Team Physical Trainer
- Personal Trainer for Rugby and Hockey Athletes
- Physical Trainer for U18 Rugby Clubs
- Infant Physical Education Teacher
- Co-author of the book Strategies for evaluation of physical condition of children and teenagers
- Degree in Physical Education from the National University Gral. San Martín
- National Professor of Physical Education from ESEF San Rafael
- Anthropometry Technician Level 1 and 2

Dr. Represas Lobeto, Gustavo Daniel

- Physical trainer and researcher oriented to high performance sports
- Head of the Sports Biomechanics Laboratory of the National Center for High Performance Sports of Argentina
- Head of the Laboratory of Biomechanics, Functional Analysis of Movement and Human Performance of the San Martín National University
- Physical trainer and Scientific Advisor to the Olympic Taekwondo team for the Sydney Olympic Games
- Fitness trainer for professional rugby clubs and players
- Teacher in university studies
- D. in High Performance Sports from the University of Castilla-La Mancha
- Degree in Physical Education and Sports from the Interamerican Open University
- Master in High Performance Sports by the Autonomous University of Madrid
- National Physical Education Teacher

Ms. González Cano, Henar

- Sports Nutritionist
- Nutritionist and Anthropometrist at GYM SPARTA
- Nutritionist and Anthropometrist at Promentium Center
- Nutritionist in male football equipment
- Lecturer in courses related to Strength and Physical Conditioning
- Speaker at training events on Sports Nutrition
- Graduate in Human Nutrition and Dietetics from the University of Valladolid
- Master's Degree in Nutrition in Physical Activity and Sport by the Catholic University San Antonio in Murcia
- Course on Nutrition and Dietetics applied to physical exercise by the University of Vich

Mr Pantic, Milinko

- Football coach
- La Liga and Copa del Rey champion with Atlético de Madrid
- Former professional player of Atletico Madrid, Panionios, AC Le Havre

Mr Domínguez Allely, José Eutiminio

- Analyst at GiocaMeglio Company
- Goalkeeper trainer in basic and Reginal categories
- National Trainer
- 11-a-side Football and Indoor Football Instructor
- Sports technician Level

Mr. Magro Frías, Sergio

- Scouting PHsport Agency
- Physical trainer of UB Conquense, Manchego Ciudad Real, Real Ávila
- Superior Sports Technician in Football Level III
- Master's Degree in Physical Preparation and Football Readaptation by the Catholic University of Murcia
- Degree in Sports Science

Mr. Rodríguez Suárez, José

- Football Manager and Coach
- Football coach in various Real Oviedo and Real Oviedo Femenine base categories
- Physical Education Teacher in Primary Education
- Diploma in Teaching in the Specialty of Physical Education from the University of Oviedo
- Level III National Trainer Title
- Superior Technician in Sports Coaching

Mr. Di Giosia Alonso, Jonatan

- Coach of Racing Rioja
- Real Oviedo and FC Cartagena Scouting
- Trainer at Regional Sportsk in United Arab Emirates
- Coach of the Brazilian national team in the Integration World Cup Madrid
- Degree in Psychology from UNED
- Higher Grade football Coaching

Mr. Picó Acosta, Javier

- Sports Psychologist at E-Corp
- Sports Psychologist at Mental Gaming
- Psychologist and assistant trainer at Bahía de Mazarrón Basket
- Collaborator in sports psychology at Real Madrid
- Master's Degree in Coaching and Sports Psychology from the European University of Madrid
- Degree in Psychology
- Degree in Pedagogy

Ms. Fernández Lorenzo, Silvia

- Nutritionist and Dietician in Industrial Aviles
- Former Professional football Player
- Graduate in Human Nutrition and Dietetics from the European University Miguel de Cervantes
- Expert in Nutrition in Digestive Pathology by CEAN Group
- Member of the Association of Dietitians-Nutritionists of Spanish Football

Mr. Mahillo Atienza, Enrique

- Rayo Vallecano Physical Trainer and Recovery Coach
- Director of Personnel Training Las Rosas
- Degree in Physical Activity and Sports Sciences from Madrid Polytechnic University

Mr. Rodríguez Rodríguez, Alejandro

- Real Oviedo women's coach
- Teacher in Secondary Education
- Industrial Engineer at Urbaser
- CD Mosconia Coach
- Real Oviedo's youth coach
- Director of the chain of subsidiaries of U.D Pájara Playas de Jandía
- Coach of the U16 Asturian national football team
- Degree in Industrial Engineering
- Master's Degree in Occupational Risk Prevention
- Master's Degree in Teacher Training

05

Structure and Content

The Advanced Master's Degree in High Performance and Competitive Football is a 100% online program with a wide range of topics ranging from exercise physiology to psychology applied to football The program has been designed by experts in the field and has been structured in a coherent and efficient manner to ensure that the student acquires a complete knowledge of high performance in football.

You will have the flexibility to study from anywhere in the world and on a schedule that best suits your needs"

Module 1. Exercise Physiology and Physical Activity

1.1. Thermodynamics and Bioenergetics
- 1.1.1. Definition
- 1.1.2. General Concepts
  - 1.1.2.1. Organic Chemistry
  - 1.1.2.2. Functional Groups
  - 1.1.2.3. Enzymes
  - 1.1.2.4. Coenzymes
  - 1.1.2.5. Acids and Bases
  - 1.1.2.6. PH

1.2. Energy Systems
- 1.2.1. General Concepts
  - 1.2.1.1. Capacity and Power
  - 1.2.1.2. Cytoplasmic Vs. Mitochondrial
- 1.2.2. Phosphagen Metabolism
  - 1.2.2.1. ATP - PC
  - 1.2.2.2. Pentose Pathway
  - 1.2.2.3. Nucleotide Metabolism
- 1.2.3. Carbohydrate Metabolism
  - 1.2.3.1. Glycolysis
  - 1.2.3.2. Glycogenogenesis
  - 1.2.3.3. Glycogenolysis
  - 1.2.3.4. Gluconeogenesis
- 1.2.4. Lipid Metabolism
  - 1.2.4.1. Bioactive Lipids
  - 1.2.4.2. Lipolysis
  - 1.2.4.3. Beta-oxidation
  - 1.2.4.4. De Novo Lipogenesis
- 1.2.5. Oxidative Phosphorylation
  - 1.2.5.1. Oxidative Decarboxylation of Pyruvate
  - 1.2.5.2. Krebs Cycle
  - 1.2.5.3. Electron Transport Chain
  - 1.2.5.4. ROS
  - 1.2.5.5. Mitochondrial Cross-talk

1.3. Signaling Pathways
- 1.3.1. Second Messengers
- 1.3.2. Steroid Hormones
- 1.3.3. AMPK
- 1.3.4. NAD+
- 1.3.5. PGC1

1.4. Skeletal Muscle
- 1.4.1. Structure and Function
- 1.4.2. Fibers
- 1.4.3. Innervation
- 1.4.4. Muscle Cytoarchitecture
- 1.4.5. Protein Synthesis and Breakdown
- 1.4.6. mOR

1.5. Neuromuscular Adaptations
- 1.5.1. Motor Unit Recruitment
- 1.5.2. Synchronization
- 1.5.3. Neural Drive
- 1.5.4. Golgi Tendon Organ and Neuromuscular Spindle

1.6. Structural Adaptations
- 1.6.1. Hypertrophy
- 1.6.2. Mecano Signal Transduction
- 1.6.3. Metabolic Stress
- 1.6.4. Muscle Damage and Inflammation
- 1.6.5. Changes in Muscular Architecture

1.7. Fatigue
- 1.7.1. Central Fatigue
- 1.7.2. Peripheral Fatigue
- 1.7.3. HRV
- 1.7.4. Bioenergetic Model
- 1.7.5. Cardiovascular Model
- 1.7.6. Thermoregulator Model
- 1.7.7. Psychological Model
- 1.7.8. Central Governor Model

1.8. Maximum Oxygen Consumption
- 1.8.1. Definition
- 1.8.2. Assessment
- 1.8.3. VO2 Kinetics
- 1.8.4. VAM
- 1.8.5. Running Economics

1.9. Thresholds
- 1.9.1. Lactate and Ventilatory Threshold
- 1.9.2. MLSS
- 1.9.3. Critical Power
- 1.9.4. HIIT and LIT
- 1.9.5. Anaerobic Speed Reserve

1.10. Extreme Physiological Conditions
- 1.10.1. Height
- 1.10.2. Temperature
- 1.10.3. Diving

Module 2. Biomechanics Applied to High Performance in Sports

2.1. Introduction to Biomechanics
- 2.1.1. Biomechanics, Concept, Introduction and Purpose of Biomechanics
  - 2.1.1.1. Its Connection to Functional Anatomy
- 2.1.2. Biomechanics and Performance
  - 2.1.2.1. Its Application to Physical Education and Sport
  - 2.1.2.2. Parts of Biomechanics, Generalities
  - 2.1.2.3. Measuring Tools
- 2.1.3. Kinematics: Basic Concepts and Practical Applications

2.2. Movement in One Dimension
- 2.2.1. Speed
  - 2.2.1.1. Concept of Speed
  - 2.2.1.2. Average speed
  - 2.2.1.3. Instant Speed
  - 2.2.1.4. Constant Speed
  - 2.2.1.5. Variable Speed
  - 2.2.1.6. Equations and Units
  - 2.2.1.7. Interpretation of Space-Time and Speed-Distance Graphs
  - 2.2.1.8. Examples in Sport
- 2.2.2. Acceleration
  - 2.2.2.1. Concept of Acceleration
  - 2.2.2.2. Average Acceleration
  - 2.2.2.3. Instant Acceleration
  - 2.2.2.4. Constant Acceleration
  - 2.2.2.5. Variable Acceleration
  - 2.2.2.6. Connection With the Speed at Constant Acceleration
  - 2.2.2.7. Equations and Units
  - 2.2.2.8. Interpretation of Acceleration-Distance Graphs, Connection With Speed-Time Graphs
  - 2.2.2.9. Examples in Sport
- 2.2.3. Free Fall
  - 2.2.3.1. Acceleration of Gravity
  - 2.2.3.2. Ideal Conditions
  - 2.2.3.3. Variations of Gravity
  - 2.2.3.4. Equations
- 2.2.4. Graphical Surroundings
  - 2.2.4.1. Accelerations and Speeds in Free Fall

2.3. Movement in a Plane
- 2.3.1. Speed
  - 2.3.1.1. Concept Through its Vectorial Components
  - 2.3.1.2. Interpreting Graphs Examples in Sport
- 2.3.2. Acceleration
  - 2.3.2.1. Concept Through its Vectorial Components
  - 2.3.2.2. Interpreting Graphs
  - 2.3.2.3. Examples in Sport
- 2.3.3. Projectile Movement
  - 2.3.3.1. Fundamental Components
  - 2.3.3.2. Initial Speed
  - 2.3.3.3. Initial Angle
  - 2.3.3.4. Ideal Conditions Initial Angle for Maximum Reach
  - 2.3.3.5. Equations Interpreting Graphs

2.3.3.6. Examples Applied to Jumps and Throws

2.4. Kinematics of Rotations
- 2.4.1. Angular Speed
  - 2.4.1.1. Angular Movement
  - 2.4.1.2. Average Angular Speed
  - 2.4.1.3. Instant Angular Speed
  - 2.4.1.4. Equations and Units
  - 2.4.1.5. Interpretation and Examples in Sport
- 2.4.2. Angular Acceleration
  - 2.4.2.1. Average and Instantaneous Angular Acceleration
  - 2.4.2.2. Equations and Units
  - 2.4.2.3. Interpretation and Examples in Sport Constant Angular Acceleration

2.5. Dynamics
- 2.5.1. First Law of Newton
  - 2.5.1.1. Interpretation
  - 2.5.1.2. Concept of Mass
  - 2.5.1.3. Equations and Units
  - 2.5.1.4. Examples in Sport
- 2.5.2. Second Law of Newton
  - 2.5.2.1. Interpretation
  - 2.5.2.2. Concept of Weight and Deference to Mass
  - 2.5.2.3. Equations and Units Examples in Sport
- 2.5.3. Third Law of Newton
  - 2.5.3.1. Interpretation
  - 2.5.3.2. Equations
  - 2.5.3.3. Centripetal and Centrifugal Force
  - 2.5.3.4. Examples in Sport
- 2.5.4. Work, Power and Energy
  - 2.5.4.1. Concept of Work
  - 2.5.4.2. Equations, Units, Interpretation and Examples
- 2.5.5. Power
  - 2.5.5.1. Equations, Units, Interpretation and Examples
- 2.5.6. Generalities on the Concept of Energy
  - 2.5.6.1. Types of Energy, Units and Conversion
- 2.5.7. Kinetic Energy
  - 2.5.7.1. Concept and Equations
- 2.5.8. Potential Elastic Energy
  - 2.5.8.1. Concept and Equations
  - 2.5.8.2. The Work and Energy Theorem
  - 2.5.8.3. Interpretation from Examples in Sport
- 2.5.9. Amount of Movement and Collisions Interpretation
  - 2.5.9.1. Equations Center of Mass and Movement of the Center of Mass
  - 2.5.9.2. Collisions, Types, Equations and Graphs
  - 2.5.9.3. Examples in Athletism
  - 2.5.9.4. Impulsive Forces Calculation of the Initial Speed in a Jump That is Considered as a Collision

2.6. Dynamics of Rotations
- 2.6.1. Moment of Inertia
  - 2.6.1.1. Moment of a Force, Concept and Units
  - 2.6.1.2. Lever Arm
- 2.6.2. Kinetic Energy of Rotation
  - 2.6.2.1. Moment of Inertia, Concept and Units
  - 2.6.2.2. Summary of Equations
  - 2.6.2.3. Interpretation. Examples in Sport

2.7. Statics-Mechanical Balance
- 2.7.1. Vectorial Algebra
  - 2.7.1.1. Operations Between Vectors Using Graphical Methods
  - 2.7.1.2. Addition and Subtraction
  - 2.7.1.3. Calculating Momentum
- 2.7.2. Center of Gravity: Concept, Properties, Interpretation of Equations
  - 2.7.2.1. Examples in Sport Rigid Bodies Human Body Model

2.8. Biomechanical Analysis
- 2.8.1. Analysis of Normal Gait and Running
  - 2.8.1.1. Center of Mass Phases and Fundamental Equations
  - 2.8.1.2. Types of Kinematic and Dynamometric Records
  - 2.8.1.3. Related Graphs

2.8.1.4. Connections of Graphs With Speed
2.8.2. Jumps in Sport
2.8.2.1. Decomposing Movement
2.8.2.2. Center of Gravity
2.8.2.3. Phases
2.8.2.4. Distances and Component Heights
2.9. Video Analysis
2.9.1. Different Variables Measured Through Video Analysis
2.9.2. Technological Options for Video Analysis
2.9.3. Practical Examples
2.10. Case Studies
2.10.1. Biomechanical Analysis of Acceleration
2.10.2. Biomechanical Analysis of Sprinting
2.10.3. Biomechanical Analysis of Deceleration

Module 3. Planning Applied to High Performance in Sports

3.1. Basic Fundamentals
3.1.1. Adaptation Criteria
3.1.1.1. General Adaptation Syndrome
3.1.1.2. Current Performance Capability, Training Requirement
3.1.2. Fatigue, Performance, Conditioning as Tools
3.1.3. Dose-Response Concept and its Application
3.2. Basic Concepts and Applications
3.2.1. Concept and Application of the Plan
3.2.2. Concept and Application of Peridization
3.2.3. Concept and Application of Programming
3.2.4. Concept and Application of Load Control
3.3. Conceptual Development of Planning and its Different Models
3.3.1. First Historical Planning Records
3.3.2. First Proposals, Analyzing the Bases
3.3.3. Classic Models
3.3.3.1. Traditional
3.3.3.2. Pendulum
3.3.3.3. High Loads
3.4. Models Focused on Individuality and/or Load Concentration
3.4.1. Blocks
3.4.2. Integrated Macrocycle
3.4.3. Integrated Model
3.4.4. ATR
3.4.5. Keeping in Shape
3.4.6. By Objectives
3.4.7. Structural Bells
3.4.8. Self-Regulation (APRE)
3.5. Models Focused on Specificity and/or Movement Capacity
3.5.1. Cognitive (or Structured Microcycle)
3.5.2. Tactical Periodization
3.5.3. Conditional Development by Movement Capacity
3.6. Criteria for Correct Programming and Periodization
3.6.1. Criteria for Programming and Periodization in Strength Training
3.6.2. Criteria for Programming and Periodization in Endurance Training
3.6.3. Criteria for Programming and Periodization in Speed Training
3.6.4. "Interference" Criteria in Scheduling and Periodization in Concurrent Training
3.7. Planning Through Load Control With a GNSS Device (GPS)
3.7.1. Basis of Session Saving for Appropriate Control
3.7.1.1. Calculation of the Average Group Session for a Correct Load Analysis
3.7.1.2. Common Errors in Saving and Their Impact on Plannning
3.7.2. Relativization of the Load, a Function of Competence
3.7.3. Load Control by Volume or Density, Range and Limitations
3.8. Integrating Thematic Unit 1 (Practical Application)
3.8.1. Construction of a Real Model of Short-Term Planning
3.8.1.1. Selecting and Applying the Periodization Model
3.8.1.2. Designing the Corresponding Planning
3.9. Integrating Thematic Unit 2 (Practical Application)
3.9.1. Producing a Pluriannual Plannification

3.9.2. Producing an Annual Plannification

Module 4. Structure and operation of a football team

4.1. How a football club is organized
- 4.1.1. What do we mean by football club?
- 4.1.2. Hot football clubs are born?
- 4.1.3. Types of clubs
- 4.1.4. Most emblematic clubs

4.2. The president and the board of directors
- 4.2.1. How it is formed
- 4.2.2. Types of boards
- 4.2.3. Positions and functions
- 4.2.4. Members of a football club

4.3. Sports organization chart
- 4.3.1. Members that make it up
- 4.3.2. Is it separate from the rest of a club?
- 4.3.3. Club sports ambassadors
- 4.3.4. Other sports that make up the club

4.4. Sports Director
- 4.4.1. What is a sports director?
- 4.4.2. Functions
- 4.4.3. Negotiations
- 4.4.4. Dependents

4.5. Technical Secretary
- 4.5.1. How is it different from the Sports Director?
- 4.5.2. Who are its members?
- 4.5.3. Their work
- 4.5.4. The good harmony between the different departments

4.6. Base football coordinator
- 4.6.1. What are you in charge of?
- 4.6.2. Methodology in grassroots football
- 4.6.3. Dealing with players and their environment
- 4.6.4. Follow-up of players from outside the club

4.7. Press
- 4.7.1. What is the press department and what is it for?
- 4.7.2. Who makes up the press department
- 4.7.3. The importance to the club
- 4.7.4. Control over all club members

4.8. Security/Safety
- 4.8.1. Security within a football club
- 4.8.2. What is security in a club?
- 4.8.3. Security measures in the enclosures
- 4.8.4. Private security for club members

4.9. Toolmakers and gardeners
- 4.9.1. What is a utilityman?
- 4.9.2. What does a club's club steward do?
- 4.9.3. The gardeners
- 4.9.4. New technologies to maintain football fields

4.10. Other non-sports workers
- 4.10.1. Administrators
- 4.10.2. Official store personnel
- 4.10.3. Stewardesses
- 4.10.4. Workers on game day at the stadium

Module 5. Training methodology

5.1. The Training System
- 5.1.1. Theoretical Foundation
- 5.1.2. The game as a sum of structures
- 5.1.3. Planning , Design and Execution
- 5.1.4. Assessment and Control Training

5.2. Elements of the training system
- 5.2.1. Fundamentals of collective play
- 5.2.2. The player as the center of the process

5.2.3. Methodological trends
5.2.4. The psychological aspect
5.3. Classification of the different tasks
5.3.1. How we classify the different tasks
5.3.2. Offensive tasks
5.3.3. Defensive tasks
5.3.4. Mixed tasks
5.4. Circuits and analytical tasks
5.4.1. What are they for?
5.4.2. Types
5.4.3. Actions without ball as protagonist
5.4.4. Actions with ball
5.5. Possession maintenance exercises
5.5.1. What are they and what types are there?
5.5.2. Possessions without structure
5.5.3. Possessions with substructures
5.5.4. Pressure games. Moment without ball
5.6. Conditional games
5.6.1. Conditional games without completion
5.6.2. Conditional games with completion
5.6.3. Clashing macrostructures
5.6.4. Games of position vs. Games of progression
5.7. Combined actions
5.7.1. Types of evolutions Purpose
5.7.2. Passing wheels Technical figures
5.7.3. Technical figures with moment and substructure
5.7.4. Collective automation
5.8. Playful games
5.8.1. What do we mean by recreational play in football?
5.8.2. Maintenance
5.8.3. Playful rounds
5.8.4. Activities played
5.9. Parties
5.9.1. Conditional matches
5.9.2. Modified matches
5.9.3. Confronting roles. Simulations
5.9.4. Reduced games

Module 6. Strength Training from Theory to Practice

6.1. Strength: Conceptualization
6.1.1. Strength Defined from a Mechanical Point of View
6.1.2. Strength Defined from a Physiology Point of View
6.1.3. Define the Concept of Applied Strength
6.1.4. Time-Strength Curve
6.1.4.1. Interpretation
6.1.5. Define the Concept of Maximum Strength
6.1.6. Define the Concept of RFD
6.1.7. Define the Concept of Useful Strength
6.1.8. Strength- Speed-Power Curves
6.1.8.1. Interpretation
6.1.9. Define the Concept of Strength Deficit
6.2. Training Load
6.2.1. Define the Concept of Strength Training Load
6.2.2. Define the Concept of Load
6.2.3. Load Concept: Volume
6.2.3.1. Definition and Applicability in Practice
6.2.4. Load Concept: Intensity
6.2.4.1. Definition and Applicability in Practice
6.2.5. Load Concept: Density
6.2.5.1. Definition and Applicability in Practice
6.2.6. Define the Concept of Effort Character
6.2.6.1. Definition and Applicability in Practice
6.3. Strength Training in the Prevention and Rehabilitation of Injuries
6.3.1. Conceptual and Operational Framework in Injury Prevention and Rehabilitation
6.3.1.1. Terminology. 6.3.1.2. Concepts
6.3.2. Strength Training and Injury Prevention and Rehabilitation Under Scientific Evidence
6.3.3. Methodological Process of Strength Training in Injury Prevention and Functional Recovery

6.3.3.1. Defining the Method
6.3.3.2. Applying the Method in Practice
6.3.4. Role of Core Stability (*Core*) in Injury Prevention
6.3.4.1. Definition of Core
6.3.4.2. Core Training
6.4. Plyometric Method
6.4.1. Physiological Mechanisms
6.4.1.1. Specific General Information
6.4.2. Muscle Actions in Plyometric Exercises
6.4.3. The Stretch-Shortening Cycle (SSC)
6.4.3.1. Use of Energy or Elastic Capacity
6.4.3.2. Reflex Involvement Series and Parallel Elastic Energy Accumulation
6.4.4. CEA Classification Scheme
6.4.4.1. Short CEA
6.4.4.2. Long CEA
6.4.5. Properties of the Muscle and Tendon
6.4.6. Central Nervous System
6.4.6.1. Recruitment
6.4.6.2. Frequency (F)
6.4.6.3. Synchronization
6.4.7. Practical Considerations
6.5. Power Training
6.5.1. Definition of Power
6.5.1.1. Conceptual Aspects of Power
6.5.1.2. The Importance of Power in a Context of Sport Performance
6.5.1.3. Clarification of Power Terminology
6.5.2. Factors Contributing Peak Power Development
6.5.3. Structural Aspects Conditioning Power Production
6.5.3.1. Muscle Hypertrophy
6.5.3.2. Muscle Structure
6.5.3.3. Ratio of Fast and Slow Fibers in a Cross Section
6.5.3.4. Muscle Length and its Effect on Muscle Contraction
6.5.3.5. Quantity and Characteristics of Elastic Components
6.5.4. Neural Aspects Conditioning Power Production
6.5.4.1. Action Potential
6.5.4.2. Speed of Motor Unit Recruitment
6.5.4.3. Muscle Coordination
6.5.4.4. Intermuscular Coordination
6.5.4.5. Prior Muscle Status (PAP)
6.5.4.6. Neuromuscular Reflex Mechanisms and Their Incidence
6.5.5. Theoretical Aspects for Understanding the Strength-Time Curve
6.5.5.1. Strength Impulse
6.5.5.2. Phases of the Strength-Time Curve
6.5.5.3. Phases of Acceleration in the Strength-Time Curve
6.5.5.4. Maximum Acceleration Area of the Strength-Time Curve
6.5.5.5. Deceleration Phase of the Strength-Time Curve
6.5.6. Theoretical Aspects for Understanding Power Curves
6.5.6.1. Energy-Time Curve
6.5.6.2. Energy-Displacement Curve
6.5.6.3. Optimal Workload for Maximum Energy Development
6.5.7. Practical Considerations
6.6. Vector Strength Training
6.6.1. Definition of Force Vector
6.6.1.1. Axial Vector
6.6.1.2. Horizontal Vector
6.6.1.3. Rotational Vector
6.6.2. Benefits of Using this Terminology
6.6.3. Definition of Basic Vectors in Training
6.6.3.1. Analysis of the Main Sporting Actions
6.6.3.2. Analysis of the Main Overload Exercises
6.6.3.3. Analysis of the Main Training Exercises
6.6.4. Practical Considerations
6.7. Main Methods for Strength Training
6.7.1. Own Body Weight
6.7.2. Free Exercises
6.7.3. PAP
6.7.3.1. Definition
6.7.3.2. Application of the PAP prior to power-related sports disciplines

6.7.4. Exercises with Machines
6.7.5. *Complex Training*
6.7.6. Exercises and Their Transfer
6.7.7. Contrasts
6.7.8. *Cluster Training*
6.7.9. Practical Considerations
6.8. VBT
6.8.1. Conceptualization of the Application of VBT
6.8.1.1. Degree of Stability of Execution Speed with Each Percentage of 1MR
6.8.2. Difference Between Scheduled Load and Actual Load
6.8.2.1. Definition of the Concept
6.8.2.2. Variables Involved in the Difference Between Programmed Load and Actual Training Load
6.8.3. VBT as a Solution to the Problem of Using 1MR and nMR to Program Loads
6.8.4. VBT and Degree of Fatigue
6.8.4.1. Connection to Lactate
6.8.4.2. Connection to Ammonium
6.8.5. VBT in Relation to the Loss of Speed and Percentage of Repetitions Performed
6.8.5.1. Define the Different Degrees of Effort in the Same Series
6.8.5.2. Different Adaptations According to the Degree of Speed Loss in the Series
6.8.6. Methodological Proposals According to Different Authors
6.8.7. Practical Considerations
6.9. Strength in Connection to Hypertrophy
6.9.1. Hypertrophy-Inducing Mechanism: Mechanical Stress
6.9.2. Hypertrophy-Inducing Mechanism: Metabolic Stress
6.9.3. Hypertrophy-Inducing Mechanism: Muscle Damage
6.9.4. Hypertrophy Programming Variables
6.9.4.1. Frequency (F)
6.9.4.2. Volume
6.9.4.3. Intensity
6.9.4.4. Cadence
6.9.4.5. Series and Repetitions
6.9.4.6. Density
6.9.4.7. Order in the Execution of Exercises
6.9.5. Training Variables and Their Different Structural Effects
6.9.5.1. Effect on Different Types of Fiber
6.9.5.2. Effects on the Tendon
6.9.5.3. Bundle Length
6.9.5.4. Peneation Angle
6.9.6. Practical Considerations
6.10. Eccentric Strength Training
6.10.1. Conceptual framework
6.10.1.1. Definition of Eccentric Training
6.10.1.2. Different Types of Eccentric Training
6.10.2. Eccentric Training and Performance
6.10.3. Eccentric Training in the Prevention and Rehabilitation of Injuries
6.10.4. Technology Applied to Eccentric Training
6.10.4.1. Conical Pulleys
6.10.4.2. Isoinertial Devices
6.10.5. Practical Considerations

Module 7. Speed Training from Theory to Practice

7.1. Speed
7.1.1. Definition
7.1.2. General Concepts
7.1.2.1. Manifestations of Speed
7.1.2.2. Factors that Determine Performance
7.1.2.3. Difference Between Speed and Quickness
7.1.2.4. Segmental Speed
7.1.2.5. Angular Speed
7.1.2.6. Reaction Time
7.2. Dynamics and Mechanics of Linear Sprint (100m Model)
7.2.1. Kinematic Analysis of the Take-off
7.2.2. Dynamics and Strength Application During Take-off
7.2.3. Kinematic Analysis of the Acceleration Phase
7.2.4. Dynamics and Strength Application During Acceleration

7.2.5. Kinematic Analysis of Running at Maximum Speed
7.2.6. Dynamics and Strength Application During Maximum Speed
7.3. Phases of Sprinting (Technique Analysis)
7.3.1. Technical Description of the Take-off
7.3.2. Technical Description of the Race During the Acceleration Phase
7.3.2.1. Technical Model of the Kinogram for the Acceleration Phase
7.3.3. Technical Description of the Race During the Maximum Speed Phase
7.3.3.1. Technical Kinogram Model (ALTIS) for Technique Analysis
7.3.4. Speed Endurance
7.4. Speed Bioenergetics
7.4.1. Bioenergetics of Single Sprints
7.4.1.1. Myoenergetics of Single Sprints
7.4.1.2. ATP-PC System
7.4.1.3. Glycolytic System
7.4.1.4. Adenylate Kinase Reaction
7.4.2. Bioenergetics of Repeated Sprints
7.4.2.1. Energy Comparison Between Single and Repeated Sprints
7.4.2.2. Behavior of Energy Production Systems During Repeated Sprints
7.4.2.3. Recovery of PC
7.4.2.4. Connection Between Aerobic Power and Recovery Processes of CP
7.4.2.5. Determinants of Performance in Repeated Sprints
7.5. Analysis of Acceleration Technique and Maximum Speed in Team Sports
7.5.1. Description of the Technique in Team Sports
7.5.2. Comparison of Sprinting Technique in Team Sports vs. Athletic Events
7.5.3. Timing and Motion Analysis of Speed Events in Team Sports
7.6. Methodological Approach to Teaching the Technique
7.6.1. Technical Teaching of the Different Phases of the Race
7.6.2. Common Errors and Ways to Correct Them
7.7. Means and Methods for Speed Development
7.7.1. Means and Methods for Acceleration Phase Training
7.7.1.1. Connection of Force to Acceleration
7.7.1.2. Sled
7.7.1.3. Slopes
7.7.1.4. Jumpability
7.7.1.4.1. Building the Vertical Jump
7.7.1.4.2. Building the Horizontal Jump
7.7.1.5. Training the ATP/PC System
7.7.2. Means and Methods for Training Top Speed
7.7.2.1. Plyometry
7.7.2.2. Overspeed
7.7.2.3. Interval-Intensive Methods
7.7.3. Means and Methods for Speed Endurance Development
7.7.3.1. Interval-Intensive Methods
7.7.3.2. Repetition Method
7.8. Agility and Change of Direction
7.8.1. Definition of Agility
7.8.2. Definition of Change of Direction
7.8.3. Determinants of Agility and COD
7.8.4. Change of Direction Technique
7.8.4.1. Shuffle
7.8.4.2. Crossover
7.8.4.3. Agility and COD training drills
7.9. Assessment and Control of Speed Training
7.9.1. Strength-Speed Profile
7.9.2. Test With Photocells and Variants With Other Control Devices
7.9.3. RSA
7.10. Programming Speed Training

Module 8. Endurance Training from Theory to Practice

8.1. General Concepts
8.1.1. General Definitions
8.1.1.1. Education
8.1.1.2. Trainability
8.1.1.3. Sports Physical Preparation
8.1.2. Objectives Endurance Training
8.1.3. General Principles of Training
8.1.3.1. Principles of Load

8.1.3.2. Principles of Organization
8.1.3.3. Principles of Specialization
8.2. Physiology of Aerobic Training
8.2.1. Physiological Response to Aerobic Endurance Training
8.2.1.1. Responses to Continuous Stress
8.2.1.2. Responses to Intervallic Stress
8.2.1.3. Responses to Intermittent Stress
8.2.1.4. Responses to Stress in Small-Space Games
8.2.2. Factors Related to Aerobic Endurance Performance
8.2.2.1. Aerobic Power
8.2.2.2. Anaerobic Threshold
8.2.2.3. Maximum Aerobic Speed
8.2.2.4. Economy of Effort
8.2.2.5. Use of Substrates
8.2.2.6. Characteristics of Muscle Fibers
8.2.3. Physiological Adaptations to Aerobic Endurance
8.2.3.1. Adaptations to Continuous Stress
8.2.3.2. Adaptations to Intervallic Stress
8.2.3.3. Adaptations to Intermittent Stress
8.2.3.4. Adaptations to Stress in Small-Space Games
8.3. Situational Sports and Their Relation to Aerobic Endurance
8.3.1. Group I Situational Sport Demands; Football, Rugby and Hockey
8.3.2. Group II Situational Sport Demands; Basketball, Handball, Futsal
8.3.3. Group III Situational Sport Demands; Tennis and Volleyball
8.4. Monitoring and Assessment of Aerobic Endurance
8.4.1. Direct Treadmill Versus Field Evaluation
8.4.1.1. VO2max Treadmill Versus Field
8.4.1.2. VAM Treadmill Versus Field
8.4.1.3. VAM versus VFA
8.4.1.4. Time Limit (VAM)
8.4.2. Continuous Indirect Tests
8.4.2.1. Time Limit (VFA)
8.4.2.2. 1,000m Test
8.4.2.3. 5-Minute Test
8.4.3. Incremental and Maximum Indirect Tests
8.4.3.1. UMTT, UMTT-Brue, VAMEVAL and T-Bordeaux
8.4.3.2. UNCa Test; Hexagon, Track, Hare
8.4.4. Indirect Back-and-Forth and Intermittent Tests
8.4.4.1. 20m. Shuttle Run Test (Navette Course)
8.4.4.2. YoYo Test
8.4.4.3. Intermittent Test; 30-15 IFT, Carminatti, 45-15 Test
8.4.5. Specific Tests With Ball
8.4.5.1. Hoff Test
8.4.6. Proposal Based on the VFA
8.4.6.1. VFA Contact Points for Football, Rugby and Hockey
8.4.6.2. FSR Contact Points for Basketball, Futsal and Handball
8.5. Planning Aerobic Exercise
8.5.1. Exercise Model
8.5.2. Training Frequency
8.5.3. Duration of the Exercise
8.5.4. Training Intensity
8.5.5. Density
8.6. Methods to Develop Aerobic Endurance
8.6.1. Continuous Training
8.6.2. Interval Training
8.6.3. Intermittent Training
8.6.4. SSG Training (Small-Space Games)
8.6.5. Mixed Training (Circuits)
8.7. Program Design
8.7.1. Preseason Period
8.7.2. Competitive Period
8.7.3. Postseason Period
8.8. Special Aspects Related to Training
8.8.1. Concurrent Training
8.8.2. Strategies to Design Concurrent Training
8.8.3. Adaptations Generated by Concurrent Training

8.8.4. Differences Between Genders
8.8.5. De-Training
8.9. Aerobic Training in Children and Youth
8.9.1. General Concepts
8.9.1.1. Growth, Development and Maturation
8.9.2. Evaluation of VO2max and VAM
8.9.2.1. Indirect Measurement
8.9.2.2. Indirect Field Measurement
8.9.3. Physiological Adaptations in Children and Youth
8.9.3.1. VO2máx and VAM Adaptations
8.9.4. Design of Aerobic Training
8.9.4.1. Intermittent Method
8.9.4.2. Adherence and Motivation
8.9.4.3. Games in Small Spaces

Module 9. Mobility: from Theory to Performance

9.1. Neuromuscular System
9.1.1. Neurophysiological Principles: Inhibition and Excitability
9.1.1.1. Adaptations of the Nervous System
9.1.1.2. Strategies to Modify Corticospinal Excitability
9.1.1.3. Keys to Neuromuscular Activation
9.1.2. Somatosensory Information Systems
9.1.2.1. Information Subsystems
9.1.2.2. Types of Reflexes
9.1.2.2.1. Monosynaptic Reflexes
9.1.2.2.2. Polysynaptic Reflexes
9.1.2.2.3. Muscle-Tendinous-Articular Reflexes
9.1.2.3. Responses to Dynamic and Static Stretches
9.2. Motor Control and Movement
9.2.1. Stabilizing and Mobilising Systems
9.2.1.1. Local System: Stabilizer System
9.2.1.2. Global System: Mobilizing System
9.2.1.3. Respiratory Pattern
9.2.2. Movement Pattern
9.2.2.1. Co-Activation

9.2.2.2. Joint by Joint Theory
9.2.2.3. Primary Motion Complexes
9.3. Understanding Mobility
9.3.1. Key Concepts and Beliefs in Mobility
9.3.1.1. Manifestations of Mobility in Sport
9.3.1.2. Neurophysiological and Biomechanical Factors Influencing Mobility Development
9.3.1.3. Impact of Mobility on Strength Development
9.3.2. Objectives of Training Mobility in Sport
9.3.2.1. Mobility in the Training Session
9.3.2.2. Benefits of Mobility Training
9.3.3. Mobility and Stability by Structures
9.3.3.1. Foot-Ankle Complex
9.3.3.2. Knee-Hip Complex
9.3.3.3. Spine-Shoulder Complex
9.4. Training Mobility
9.4.1. Fundamental Block
9.4.1.1. Strategies and Tools to Optimize Mobility
9.4.1.2. Specific Pre-Exercise Scheme
9.4.1.3. Specific Post-Exercise Scheme
9.4.2. Mobility and Stability in Basic Movements
9.4.2.1. Squat and Dead Lift
9.4.2.2. Acceleration and Multidirection
9.5. Methods of Recovery
9.5.1. Proposal for Effectiveness Based on Scientific Evidence
9.6. Methods for Training Mobility
9.6.1. Tissue-Centered Methods: Passive Tension and Active Tension Stretching
9.6.2. Methods Focused on Arthro-Coinematics: Isolated Stretching and Integrated Stretching
9.6.3. Eccentric Training
9.7. Mobility Training Programming

9.7.1. Effects of Stretching in the Short and Long Term
9.7.2. Optimal Timing for Applying Stretching
9.8. Athlete Assessment and Analysis
9.8.1. Functional and Neuromuscular Assessment
9.8.1.1. Key Concepts in Assessment
9.8.1.2. Evaluation Process
9.8.1.2.1. Analyze the Movement Pattern
9.8.1.2.2. Identify the Test
9.8.1.2.3. Detect the Weak Links
9.8.2. Athlete Assessment Methodology
9.8.2.1. Types of Tests
9.8.2.1.1. Analytical Assessment Test
9.8.2.1.2. General Assessment Test
9.8.2.1.3. Specific-Dynamic Assessment Test
9.8.2.2. Assessment by Structures
9.8.2.2.1. Foot-Ankle Complex
9.8.2.2.2. Knee-Hip Complex
9.8.2.2.3. Spine-Shoulder Complex
9.9. Mobility in Injured Athletes
9.9.1. Pathophysiology of Injury: Effects on Mobility
9.9.1.1. Muscle Structure
9.9.1.2. Tendon Structure
9.9.1.3. Ligament Structure
9.9.2. Mobility and Preventiion of Injuries: Practical Case
9.9.2.1. Ruptured Ischialis in the Runner

Module 10. Technical staff and coaching

10.1. Trainer
10.1.1. How to become a trainer
10.1.2. Types of coaches according to how they manage the team
10.1.3. The trainer as a cog in the whole technical staff
10.1.4. What a coach does when he has no team
10.2. Second trainer
10.2.1. How to choose the second trainer?
10.2.2. Duties performed
10.2.3. The assistant coach is closer to the players
10.2.4. Striking cases of second trainers
10.3. Goalkeeping coach
10.3.1. The importance of a good goalkeeping coach
10.3.2. Its functions
10.3.3. Individual work with goalkeepers
10.3.4. Other functions within the technical staff
10.4. Team delegate
10.4.1. What is a team delegate?
10.4.2. Differences with the field delegate
10.4.3. Self-delegated or club delegate?
10.4.4. Main Functions
10.5. Physical trainer
10.5.1. What does the physical trainer do?
10.5.2. No physicality, no football
10.5.3. The evolution in the method of working
10.5.4. Types of physical trainers
10.6. Analysts/scouts
10.6.1. What is an analyst and what are his or her functions?
10.6.2. The Scout within a technical body
10.6.3. Differences between Analyst and Scout
10.6.4. Symbiosis between the two and the coaching staff
10.7. Medical staff
10.7.1. The importance of a club medical staff
10.7.2. Components of the medical staff
10.7.3. Not everything can be discussed in the club
10.7.4. Medical insurance for a football club
10.8. for Psychologists
10.8.1. What does a psychologist do in a football team?
10.8.2. Working with players and staff

10.8.3. Working with other personnel
10.8.4. How to choose a psychologist
10.9. Coaching
10.9.1. Introduction to Coaching
10.9.2. Coaching individual
10.9.3. Coaching teams
10.9.4. Systemic Coaching
10.10. Group culture among staff members
10.10.1. Methods of cohesion among members
10.10.2. The idea of common play is important
10.10.3. Fidelity as a fundamental part
10.10.4. Is language an obstacle?

Module 11. Physical Preparation in Football

11.1. Physical Preparation and Sports Performance
11.1.1. Physical preparation, physical fitness and sports training
11.1.2. Differences between general physical preparation and specific physical preparation in football
11.1.3. Basic physical capacities that are determinant in football
11.1.4. Moments of the season when to work on the physical abilities that are decisive in football
11.2. Basic physical abilities in football Training methods
11.2.1. Strength and its most important types in football
11.2.2. Resistance and its most important types in football
11.2.3. Speed and its most important types in football
11.2.4. Flexibility in football
11.3. Annual sports planning in football
11.3.1. Mesocycle, Macrocycle, Microcycle and Session
11.3.2. The Preseason
11.3.3. The Season
11.3.4. The competition week and its different types
11.4. The structure of a training session in relation to Physical Preparation
11.4.1. The training session and its parts
11.4.2. Heating and the different types of heating
11.4.3. The main part of the session
11.4.4. The final part of the session or return to calmness
11.5. Training methodologies for physical preparation in football
11.5.1. Analytical physical preparation
11.5.2. Integrated physical preparation
11.5.3. The structured microcycle
11.5.4. Tactical periodization
11.6. Strength training in the football player
11.6.1. Importance of strength training in performance and injury prevention
11.6.2. Types of strength training
11.6.3. When using strength training
11.6.4. Strength training planning in the microcycle
11.7. Methods of quantification of internal load and external load of training
11.7.1. Internal and external training load
11.7.2. How to quantify the internal load and external load of training
11.7.3. The different types of load depending on the microcycle and the session
11.7.4. Conclusions at the end of the training
11.8. Physical Preparation in extreme climatic environments
11.8.1. Football player training at altitude
11.8.2. Football training in desert climates
11.8.3. Football training in cold climates
11.8.4. Football training in humid climates
11.9. Non-competition periods
11.9.1. Transitional period between seasons
11.9.2. Non-competition period for national teams
11.9.3. Periods of non-competition for long national competitions
11.9.4. Periods of non-competition for health reasons
11.10. The use of GPS systems in the planning and development of training tasks
11.10.1. What is a GPS system? How does it work and what parameters can be obtained?
11.10.2. What variables are used to classify the different training tasks?
11.10.3. How do we plan tasks and microcycles based on GPS variables?

11.10.4. The individual player profile based on the game model and physical demands

Module 12. Technique in football

12.1. The technique Background
- 12.1.1. General aspects of the technique
- 12.1.2. Types of technique
- 12.1.3. Evolution of the Technique
- 12.1.4. Techniques/Tactics

12.2. Individual attack technique
- 12.2.1. Dribble
- 12.2.2. Shooting
- 12.2.3. Conduction
- 12.2.4. Control

12.3. Individual defense technique
- 12.3.1. Tackle
- 12.3.2. Clearance
- 12.3.3. Weight
- 12.3.4. Interception

12.4. Collective attack technique
- 12.4.1. Pass
- 12.4.2. Wall
- 12.4.3. Change of orientation
- 12.4.4. Blocking

12.5. Collective defense technique
- 12.5.1. Aerial duels
- 12.5.2. Timings
- 12.5.3. Dummy pressure
- 12.5.4. Defensive blocking

12.6. Technique in grassroots football
- 12.6.1. PreBenjamín/ Benjamín
- 12.6.2. The Novice
- 12.6.3. The Underage
- 12.6.4. The Cadet

12.7. How do I bring the technique to the game model?
- 12.7.1. Which players do I have?
- 12.7.2. Technical-priority aspects
- 12.7.3. Attack phase
- 12.7.4. Defense phase

12.8. How do I plan training based on technique?
- 12.8.1. Annual planning
- 12.8.2. Planning during shutdowns
- 12.8.3. Weekly planning
- 12.8.4. Planning per session

12.9. How important is technique in high level performance?
- 12.9.1. Concept of performance
- 12.9.2. Objectives and characteristics
- 12.9.3. Phases
- 12.9.4. Development and implementation

12.10. The micro details for a professional football player
- 12.10.1. Characteristics of the complete player
- 12.10.2. Invisible Training
- 12.10.3. Internal and external factors affecting the football player
- 12.10.4. Individual talent at the service of the group

Module 13. Tactics in football

13.1. Are tactics and strategy the same thing? Theoretical Framework
- 13.1.1. Definition of basic concepts
- 13.1.2. Fundamental principles of the game
- 13.1.3. Different tactical variants
- 13.1.4. Differences and similarities

13.2. Offensive principles
- 13.2.1. Definition
- 13.2.2. Individual
- 13.2.3. Collectives

13.2.4. Education
13.3. Defensive principles
13.3.1. Definition
13.3.2. Individual
13.3.3. Collectives
13.3.4. Education
13.4. Factors influencing the game
13.4.1. Anthropometric and motor
13.4.2. Psychological and psychosocial
13.4.3. Biological and Cognitive
13.4.4. Strategic and communicational
13.5. Game systems
13.5.1. Characteristics and evolutions of each system
13.5.2. Advantages and disadvantages of each system
13.5.3. Defensive concepts and complements
13.5.4. Defensive concepts and complements
13.6. Game situations
13.6.1. Offensive situations
13.6.2. Defensive situations
13.6.3. Attack-defense transition
13.6.4. Defense-attack transition
13.7. Combat and neutralize tactical principles
13.7.1. Definition
13.7.2. Individual
13.7.3. Collectives
13.7.4. Education
13.8. Game model
13.8.1. Game theory Trainer's hallmarks
13.8.2. Factors influencing the creation of the game model
13.8.3. Types of game models
13.8.4. Development and peculiarities of "MY" game model
13.9. Tactical periodization
13.9.1. Methodological Principles
13.9.2. Morphocycle pattern and subdynamics
13.9.3. Morphocycle development over the course of a season
13.9.4. Creation of tasks from Tactical Periodization
13.10. Strategy. Set pieces
13.10.1. Offensive strategy
13.10.2. Defensive strategy
13.10.3. Training of set pieces
13.10.4. Selection of actions according to the type of football player

Module 14. Analysis in football

14.1. Analysis of own equipment
14.1.1. Microplane Analysis
14.1.2. Functional Roles
14.1.3. Meso Plane Analysis
14.1.4. Macro Plane Analysis
14.2. Training analysis and coaching staff intervention
14.2.1. Session Analysis
14.2.2. Task Analysis
14.2.3. Dynamic Interventions
14.2.4. Static Interventions
14.3. Individual and collective analysis of the opposing team
14.3.1. Determination of aspects to be observed
14.3.2. Individual Reports
14.3.3. Group and/or Team Reports
14.3.4. Content Selection and Influence on the Game Plan
14.4. Influence of the opponent on the training tasks
14.4.1. Introduction of Content in Training Tasks
14.4.2. How do we coordinate the performance of the technical staff?
14.4.3. How do we deal with the sub-phases of the game?

14.4.4. Training feedback
14.5. Transmission of the opponent's analysis to the player during the microcycle
14.5.1. What content do we want to convey?
14.5.2. What type of microcycle or weekly structure am I in?
14.5.3. How do I distribute the contents within the microcycle?
14.5.4. Transmission Tools
14.6. Pre-match and in-game analysis
14.6.1. Content Selection and Programming
14.6.2. Transmission Tools
14.6.3. Information Gathering and Exchange During the Match
14.6.4. Analysis and Transmission of Information During the Break
14.7. Post-match analysis and final evaluation
14.7.1. Analysis of your own and your opponent's behavior
14.7.2. What, when and how do I transmit content?
14.7.3. Continuous staff evaluation
14.7.4. Continuous competition evaluation
14.8. Data analysis and metric analysis department
14.8.1. Implementation of the Analysis Department
14.8.2. The Alamar approach
14.8.3. Database
14.8.4. Data selection criteria
14.9. Audiovisual processes
14.9.1. Concept of recording. What do we record?
14.9.2. Use of recordsings. What is video?
14.9.3. Plans
14.9.4. Language of Communication
14.10. Tagging and classification of events
14.10.1. Concept
14.10.2. Event Data. What data can we find?
14.10.3. Tagging structure
14.10.4. Types of events based on game moments

Module 15. Football injuries

15.1. Sports Injuries
15.1.1. Injury concept vs. Sports Injury
15.1.2. When is a player injured?
15.1.3. Who decides that a player is injured?
15.1.4. Medical Discharge, Sports Discharge and Competitive Discharge
15.2. Types of injuries and their treatment
15.2.1. Muscle injuries
15.2.2. Ligament injuries
15.2.3. Tendon injuries
15.2.4. Joint and bone injuries
15.3. The medical staff and its objectives with an injured player
15.3.1. The doctor
15.3.2. Physiotherapists
15.3.3. The sports trainer
15.3.4. The physical trainer and coach
15.4. The most frequent injuries in football
15.4.1. Injuries in the ischiosural area
15.4.2. Sprains and the most affected areas
15.4.3. Knee injuries and their types
15.4.4. Quadriceps injuries
15.5. Why does a football player get injured? The most frequent causes
15.5.1. Intrinsic factors of the football player
15.5.2. Extrinsic factors of the football player
15.5.3. Other factors:
15.5.4. Incidence of injury
15.6. Recurrences of lesions and their possible causes
15.6.1. What is a recurrence?
15.6.2. Can a recurrence be avoided?
15.6.3. What are the most frequent causes of recurrence?

15.6.4. How do we know if it's okay now?
15.7. Physical-sports rehabilitation and its phases of an injured football player
15.7.1. Phases
15.7.2. Functional Sports Recovery
15.7.3. Functional Sports Recovery
15.7.4. Sports Retraining
15.8. Stress retraining
15.8.1. What is stress retraining?
15.8.2. How do we control stress retraining?
15.8.3. What parameters or tests do we take into account to assess the player's fitness?
15.8.4. The player's feelings are important
15.9. Return to performance of an injured football player
15.9.1. Aspects to be taken into account when reincorporating the player into the team
15.9.2. First Steps
15.9.3. Reincorporation into the group
15.9.4. Example of planning for the return to competition
15.10. Injury prevention in a football player
15.10.1. Prevention of the most common injuries
15.10.2. The importance of strength in injury prevention
15.10.3. When and how do we perform an injury prevention protocol?
15.10.4. The player's work outside the team in injury prevention

Module 16. Sports Performance Assessment

16.1. Assessment
16.1.1. Definitions: Test, Assessment, Measurement
16.1.2. Validity, Reliability
16.1.3. Purposes of the Evaluation
16.2. Types of Tests
16.2.1. Laboratory Test
16.2.1.1. Strengths and Limitations of Laboratory Tests
16.2.2. Field Tests
16.2.2.1. Strengths and Limitations of Field Tests
16.2.3. Direct Tests
16.2.3.1. Applications and Transfer to Training
16.2.4. Indirect Tests
16.2.4.1. Practical Considerations and Transfer to Training
16.3. Assessment of Body Composition
16.3.1. Bioimpedance
16.3.1.1. Considerations in its Application to Field
16.3.1.2. Limitations on the Validity of Its Data
16.3.2. Anthropometry
16.3.2.1. Tools for its Implementation
16.3.2.2. Models of Analysis for Body Composition
16.3.3. Body Mass Index (IMC)
16.3.3.1. Restrictions on the Data Obtained for the Interpretation of Body Composition
16.4. Assessing Aerobic Fitness
16.4.1. Vo2max Test on the Treadmill
16.4.1.1. Astrand Test
16.4.1.2. Balke Test
16.4.1.3. ACSM Test
16.4.1.4. Bruce Test
16.4.1.5. Foster Test
16.4.1.6. Pollack Test
16.4.2. Cycloergometer VO2max Test
16.4.2.1. Astrand. Ryhming
16.4.2.2. Fox Test
16.4.3. Cycloergometer Power Test
16.4.3.1. Wingate Test
16.4.4. Vo2max Test in he Field
16.4.4.1. Leger Test
16.4.4.2. Montreal University Test
16.4.4.3. Mile Test
16.4.4.4. 12-Minute Test
16.4.4.5. 2.4Km Test
16.4.5. Field Test to Establish Training Areas
16.4.5.1. 30-15 IFT Test

16.4.6. UNca Test
16.4.7. Yo-Yo Test
16.4.7.1. Yo-Yo Endurance YYET Level 1 and 2
16.4.7.2. Yo-Yo Intermittent Endurance YYEIT Level 1 and 2
16.4.7.3. Yo-Yo Intermittent Recovery YYERT Level 1 and 2
16.5. Neuromuscular Fitness Evaluation
16.5.1. Submaximal Repetition Test
16.5.1.1. Practical Applications for its Assessment
16.5.1.2. Validated Estimation Formulas for the Different Training Exercises
16.5.2. 1 RM Test
16.5.2.1. Protocol for its Performance
16.5.2.2. Limitations of 1 RM Assessment
16.5.3. Horizontal Jump Test
16.5.3.1. Assessment Protocols
16.5.4. Speed Test (5m,10m,15m, Etc.)
16.5.4.1. Considerations on the Data Obtained in Time/Distance Assessments
16.5.5. Maximum/Submaximum Incremental Progressive Tests
16.5.5.1. Validated Protocols
16.5.5.2. Practical Applications
16.5.6. Vertical Jump Test
16.5.6.1. SJ Jump
16.5.6.2. CMJ Jump
16.5.6.3. ABK Jump
16.5.6.4. DJ Test
16.5.6.5. Continuous Jump Test
16.5.7. Strength/Speed Vertical/Horizontal Profiles
16.5.7.1. Morin and Samozino Assessment Protocols
16.5.7.2. Practical Applications from a Strength/Speed Profile
16.5.8. Isometric Tests With Load Cell
16.5.8.1. Voluntary Isometric Maximal Strength Test (IMS)
16.5.8.2. Bilateral Deficit Isometry Test (%BLD)
16.5.8.3. Lateral Deficit (%LD)
16.5.8.4. Hamstring/Quadriceps Ratio Test
16.6. Assessment and Monitoring Tools
16.6.1. Heart Rate Monitors
16.6.1.1. Device Characteristics
16.6.1.2. Training Areas by Heart Rate
16.6.2. Lactate Analyzers
16.6.2.1. Device Types, Performance and Characteristics
16.6.2.2. Training Zones According to the Lactate Threshold Limit (LT)
16.6.3. Gas Analyzers
16.6.3.1. Laboratory vs Portable Laptops
16.6.4. GPS
16.6.4.1. GPS Types, Characteristics, Strengths and Limitations
16.6.4.2. Metrics Established to Interpret the External Load
16.6.5. Accelerometers
16.6.5.1. Types of Accelerometers and Characteristics
16.6.5.2. Practical Applications of Data Obtained From an Accelerometer
16.6.6. Position Transducers
16.6.6.1. Types of Transducers for Vertical and Horizontal Movements
16.6.6.2. Variables Measured and Estimated by of a Position Transducer
16.6.6.3. Data Obtained from a Position Transducer and its Applications to Training Programming
16.6.7. Strength Platforms
16.6.7.1. Types and Characteristics.of Strength Platforms
16.6.7.2. Variables Measured and Estimated by Means of a Strength Platform
16.6.7.3. Practical Approach to Training Programming
16.6.8. Load Cells
16.6.8.1. Cell Types, Characteristics and Performance
16.6.8.2. Uses and Applications for Sports Performance and Health
16.6.9. Photoelectric Cells
16.6.9.1. Characteristics , and Limitations of the Devices

16.6.9.2. Practical Uses and Applicability
16.6.10. Movile Applications
16.6.10.1. Description of the Most Used Apps on the Market: My Jump, PowerLift, Runmatic, Nordic
16.7. Internal and External Load
16.7.1. Objective Means of Assessment
16.7.1.1. Speed of Execution
16.7.1.2. Average Mechanical Power
16.7.1.3. GPS Device Metrics
16.7.2. Subjective Means of Assessment
16.7.2.1. PSE
16.7.2.2. sPSE
16.7.2.3. Chronic/Acute Load Ratio
16.8. Fatigue
16.8.1. General Concepts of Fatigue and Recovery
16.8.2. Assessments
16.8.2.1. Laboratory Objectives: CK, Urea, Cortisol, Etc. 16.8.2.2. Field Objectives: CMJ, Isometric Tests, etc. 16.8.2.3. Subjective: Wellness Scales, TQR, etc
16.8.3. Recovery Strategies: Cold-Water Immersion, Nutritional Strategies, Self-Massage, Sleep
16.9. Considerations for Practical Applications
16.9.1. Vertical Jump Test Practical Applications
16.9.2. Maximum/Submaximum Incremental Progressive Test Practical Applications
16.9.3. Vertical Strength-Speed Profile. Practical Applications

Module 17. Statistics Applied to Performance and Research

17.1. Notions of Probability
17.1.1. Simple Probability
17.1.2. Conditional Probability
17.1.3. Bayes' Theorem
17.2. Probability Distributions
17.2.1. Binomial Distribution
17.2.2. Poisson distribution
17.2.3. Normal Distribution
17.3. Statistical Inference
17.3.1. Population Parameters
17.3.2. Estimation of Population Parameters
17.3.3. Sampling Distributions Associated with the Normal Distribution
17.3.4. Distribution of the Sample Mean
17.3.5. Point Estimators
17.3.6. Properties of Estimators
17.3.7. Estimator Comparison Criteria
17.3.8. Estimators by Confidence Regions
17.3.9. Method of Obtaining Confidence Intervals
17.3.10. Confidence Intervals Associated With Normal Distribution
17.3.11. Central Limit Theorem
17.4. Hypothesis Test
17.4.1. P-Value
17.4.2. Statistical Power
17.5. Exploratory Analysis and Descriptive Statistics
17.5.1. Graphs and Tables
17.5.2. Chi-Square Test
17.5.3. Relative Risk
17.5.4. Odds Ratio
17.6. The T-Test
17.6.1. One-Sample T-Test
17.6.2. T-Test for Two Independent Samples
17.6.3. T-Test for Paired Samples
17.7. Correlation Analysis
17.8. Simple Linear Regression Analysis
17.8.1. The Regression Line and its Coefficients
17.8.2. Residuals
17.8.3. Regression Assessment Using Residuals
17.8.4. Coefficient of Determination
17.9. Variance and Analysis of Variance (ANOVA)
17.9.1. One-Way ANOVA
17.9.2. Two-Way ANOVA
17.9.3. ANOVA for Repeated Measures

17.9.4. Factorial ANOVA

Module 18. Psychology applied to football

18.1. Sport Psychology
- 18.1.1. What is Psychology?
- 18.1.2. Differences between "traditional" psychology and sport psychology
- 18.1.3. Structure of psychological work
- 18.1.4. Wants vs Needs

18.2. Psychological needs in football
- 18.2.1. Main variables to be worked on
- 18.2.2. Conflict mediation
- 18.2.3. Multidisciplinary work in football
- 18.2.4. Invisible Training

18.3. Team building
- 18.3.1. Group vs Team
- 18.3.2. Identity
- 18.3.3. Structure
- 18.3.4. Group Cohesion

18.4. Establishment of objectives and roles within a team
- 18.4.1. SMART Objectives
- 18.4.2. Group and Individual Objectives
- 18.4.3. Who assigns roles within the team?
- 18.4.4. Motivation and role

18.5. Attention and concentration in football
- 18.5.1. What is Attention?
- 18.5.2. What is Concentration?
- 18.5.3. Activation Influence
- 18.5.4. Attentional focuses in football

18.6. Leadership
- 18.6.1. What is it to be a leader?
- 18.6.2. Types of Player Leadership
- 18.6.3. Types of Leadership in coaches
- 18.6.4. Transformational Leadership

18.7. Evaluation of a football team as a group
- 18.7.1. Group Dynamics
- 18.7.2. Sociogram
- 18.7.3. Motorgram
- 18.7.4. Data extraction and conclusions

18.8. Sports psychology in grassroots football
- 18.8.1. Training or Competition?
- 18.8.2. Parental training
- 18.8.3. Work in values
- 18.8.4. Role rotation

18.9. Sports psychology in high performance
- 18.9.1. Worchel's cyclic model
- 18.9.2. Player self-knowledge
- 18.9.3. Working with the injured player
- 18.9.4. Retirement in professional sports

18.10. Psychological work by the trainer
- 18.10.1. Standards and rules
- 18.10.2. Communication
- 18.10.3. Individual treatment with players

18.10.4. Working with the injured player

Module 19. Nutrition applied to football

19.1. Energy requirements and body composition
- 19.1.1. Energy Balance
- 19.1.2. Energy expenditure in training and matches
- 19.1.3. Body composition of the football player
- 19.1.4. Body composition assessment

19.2. Macronutrients and micronutrients
- 19.2.1. Carbohydrates
- 19.2.2. Proteins
- 19.2.3. Fats
- 19.2.4. Vitamins and minerals

19.3. Hydration and fluid loss
- 19.3.1. Water Balance
- 19.3.2. Fluid intake and strategies
- 19.3.3. Loss of liquid
- 19.3.4. Hydration in training and matches

19.4. Nutrition in the competition period
- 19.4.1. Daily nutrition of the football player
- 19.4.2. Training demands
- 19.4.3. Party demands
- 19.4.4. Nutritional planning

19.5. Pre-match nutrition
- 19.5.1. Macronutrients and fluids
- 19.5.2. Pre-game meal
- 19.5.3. Timing
- 19.5.4. Ergogenic Aids

19.6. Post-match nutrition
- 19.6.1. Macronutrients and fluids
- 19.6.2. Post-game meal
- 19.6.3. Timing
- 19.6.4. Ergogenic Aids

19.7. Nutrition in the injured player
- 19.7.1. Important macronutrients and micronutrients
- 19.7.2. Energy demands
- 19.7.3. Supplementation and Ergogenic Aids
- 19.7.4. Nutritional planning

19.8. Nutrition during the vacation period
- 19.8.1. Macronutrient Distribution
- 19.8.2. Micronutrients and ergogenic aids
- 19.8.3. Energy demands
- 19.8.4. Nutritional planning

19.9. Supplementation and Ergogenic Aids
- 19.9.1. Classification and safety
- 19.9.2. Sports foods and supplements
- 19.9.3. Instant effect ergogenic aids
- 19.9.4. Ergogenic aids with chronic effect

19.10. Special Situations
- 19.10.1. Special situations
- 19.10.2. Young players
- 19.10.3. Football and heat
- 19.10.4. Nutritional planning for travel

You will have access to practical and updated study material with real cases to improve the application of the concepts learned"

06

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"

Case Study to contextualize all content

Our program offers a revolutionary approach to developing skills and knowledge. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world"

You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.

The student will learn to solve complex situations in real business environments through collaborative activities and real cases.

A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

> *Our program prepares you to face new challenges in uncertain environments and achieve success in your career"*

The case method is the most widely used learning system in the best faculties in the world. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question we face in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

Relearning Methodology

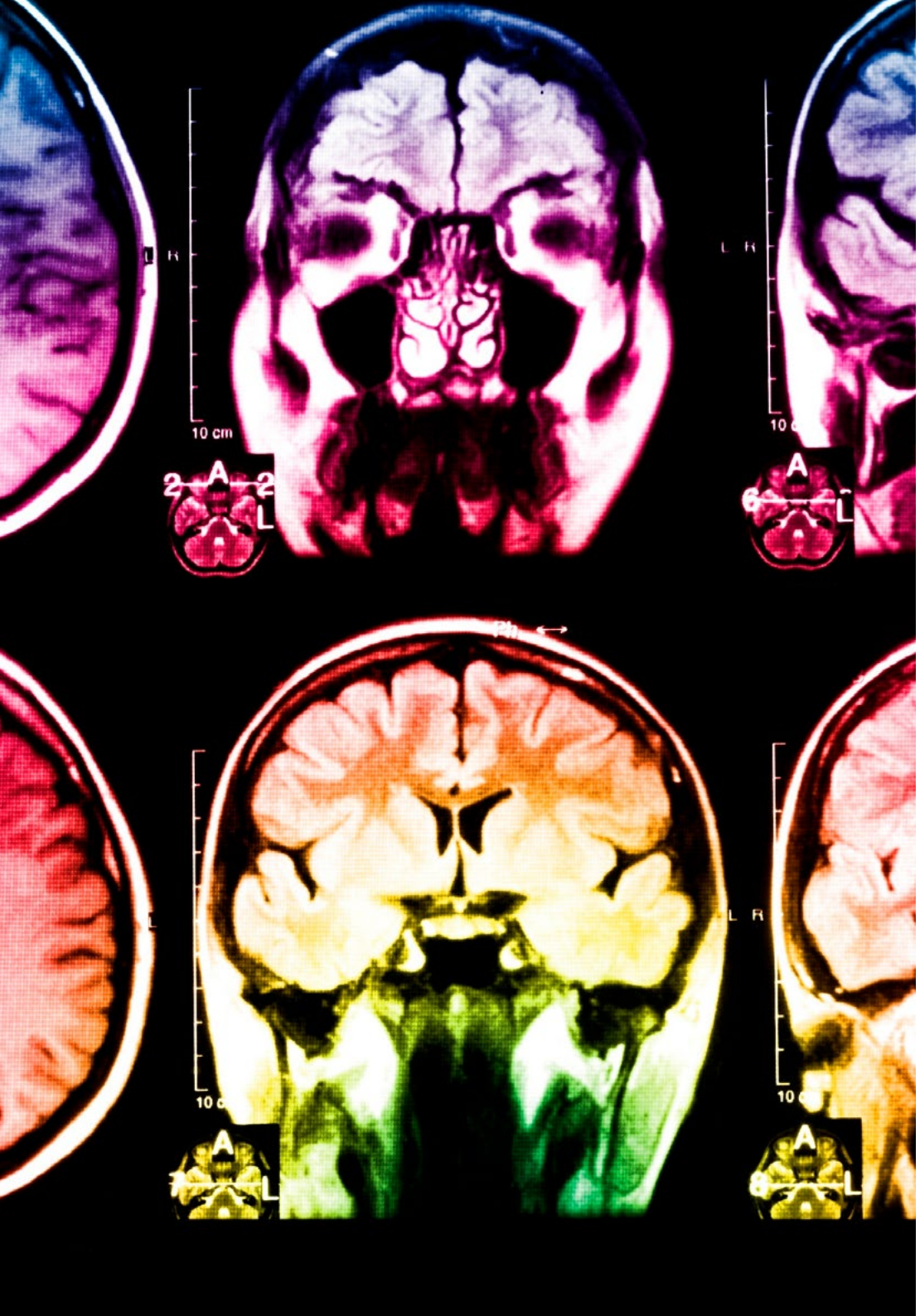
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

In 2019, we obtained the best learning results of all online universities in the world.

At TECH, you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only one in the world authorized to employ this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.



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. With this methodology, we have trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, markets, and financial instruments. All this in a highly demanding environment, where the students have a strong 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.

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.

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.

Classes

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

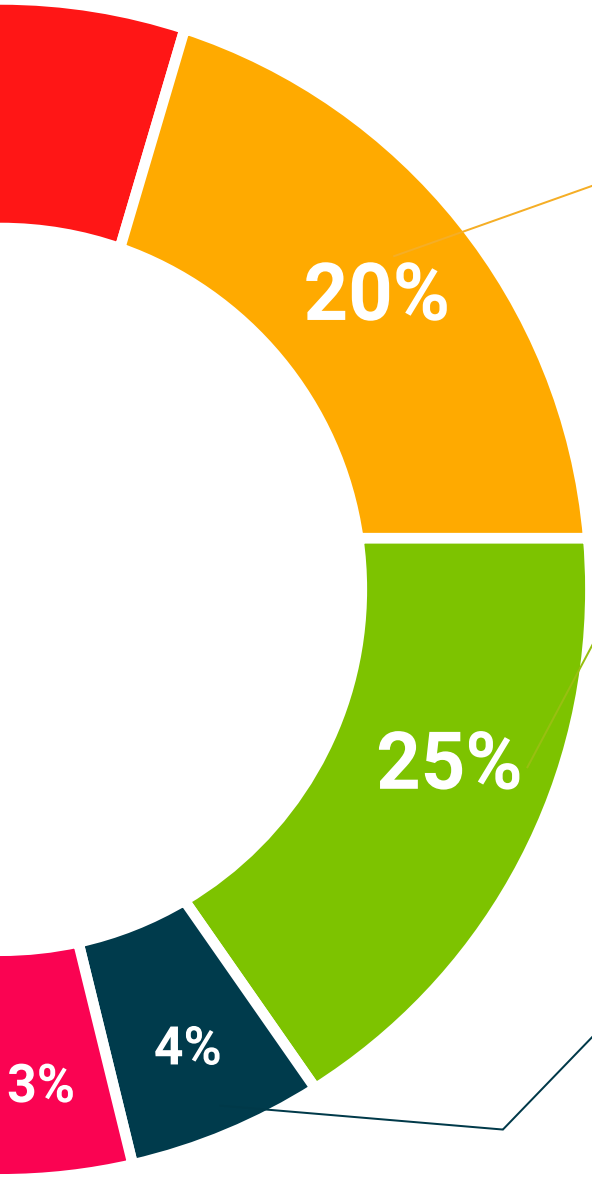
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

Practising Skills and Abilities

They will carry out activities to develop specific competencies and skills in each thematic area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.

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.



Case Studies

Students will complete a selection of the best case studies chosen specifically for this situation. Cases that are presented, analyzed, and supervised by the best specialists in the world.

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".

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.

07

Certificate

The Advanced Master's Degree in High Performance and Competitive Football guarantees students, in addition to the most rigorous and up-to-date education, access to a a 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 **Advances Master's Degree in High Performance and Competitive Football** 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** diploma issued by **TECH Technological University** via tracked delivery*.

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

Title: **Advanced Master's Degree in High Performance and Competitive Football**
Official Nº of Hours: **3,000 h.**
Endorsed by the NBA


tech technological university

Awards the following

DIPLOMA

to

Mr./Ms. _____, with identification number _____.
For having successfully passed and accredited the following program

ADVANCED MASTER'S DEGREE
in
High Performance and Competitive Football

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 High Performance and Competitive Football

General Structure of the Syllabus

Year	Subject	Hours	Type
1º	Exercise Physiology and Physical Activity	300	CO
1º	Biomechanics Applied to High Performance in Sports	150	CO
1º	Planning Applied to High Performance in Sports	150	CO
1º	Structure and operation of a football team	150	CO
1º	Training methodology	150	CO
1º	Strength Training from Theory to Practice	150	CO
1º	Speed Training from Theory to Practice	150	CO
1º	Endurance Training from Theory to Practice	150	CO
1º	Mobility: from Theory to Performance	150	CO

Year	Subject	Hours	Type
2º	Technical staff and coaching	150	CO
2º	Physical Preparation in Football	150	CO
2º	Technique in football	150	CO
2º	Tactics in football	150	CO
2º	Analysis in football	150	CO
2º	Football injuries	150	CO
2º	Sports Performance Assessment	150	CO
2º	Statistics Applied to Performance and Research	150	CO
2º	Psychology applied to Football	150	CO
2º	Nutrition applied to football	150	CO

Tere Guevara Navarro
Dean

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

tech technological university

Advanced Master's Degree

High Performance and Competition Football

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

Advanced Master's Degree

High Performance and Competition Football

Endorsed by the NBA

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