Hybrid Professional Master's Degree

High Performance in Sports

Endorsed by the NBA

tech technological university

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Hybrid Professional Master's Degree

High Performance in Sports

Modality: **Hybrid (Online + Internship)**
Duration: **12 months**
Certificate: **TECH Technological University**
Teaching Hours: **1,620 h.**
Website: **www.techtitute.com/in/sports-science/hybrid-professional-master-degree/hybrid-professional-master-degree-high-performance-sports**

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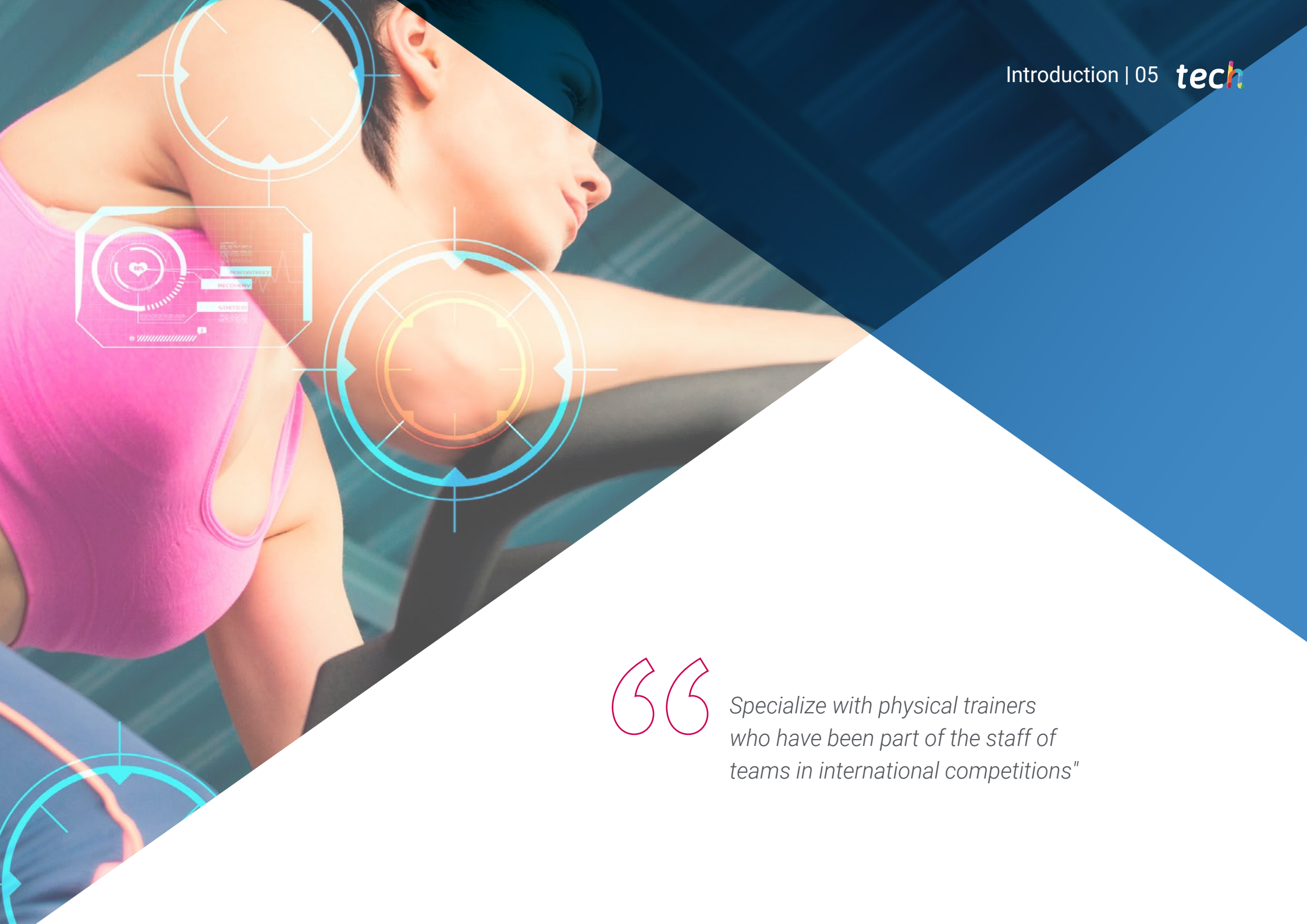
01

Introduction

Behind every high-level athlete there is a physical trainer specialized in High Performance capable of developing specific training programs to face relevant competitions and injury recovery. This is a professional who is increasingly in demand in the sports field, which has reached high levels of competitiveness and demand. This program provides students with a great mastery of strength, speed and endurance training methods, thanks to an expert teaching team with extensive experience in the field of sports. In addition, you will acquire these skills through a system of online teaching in the theoretical framework and a face-to-face and intensive internship in a prestigious center with which you will complete this program.



Specialize with physical trainers who have been part of the staff of teams in international competitions"

High Performance training includes all aspects of sports work: agility, power, endurance, speed, balance and stability. All this requires a highly qualified professional who knows how to guide and instruct the professional athlete to achieve their goals.

In recent years, the physical trainer of athletes has made progress in the development of their training thanks to scientific support, which demonstrates the effectiveness and efficiency of each of the exercises depending on the sport discipline, the athlete and the moment in which they are in their competition. A system that can only be achieved with monitoring, evaluation and statistical analysis to show more accurately where the athlete is physically.

This Hybrid Professional Master's Degree has a team of professional teachers with extensive experience in the sector, being part of the *staff* in different sports disciplines with teams and athletes who have participated in international competitions. This aspect is a guarantee for students who wish to learn the latest developments in the field of sports training.

In this course, students will be able to obtain a broad knowledge of the different training methods and proposals applied to any sport, whether it is soccer, rugby, field hockey, basketball, handball or athletics, among others. All this can be achieved thanks to a 100% online methodology in its theoretical framework, which gives you the flexibility to distribute the teaching load as you wish. You will only need a device with an internet connection to access the entire syllabus from day one. In addition, this program will be completed by a Internship Program that will allow you to advance in your career alongside professionals in High Performance Sports.

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

- Development of more than 100 cases presented by sports professionals with extensive experience in the sector
- Graphic, schematic and very practical contents are designed to provide scientific and assistance information on those disciplines that are essential for professional practice
- Exercises where the self-assessment process can be carried out to improve learning
- Algorithm-based interactive learning system for decision making
- Special emphasis on innovative methodologies in personal training
- All of this will be complemented by 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
- In addition, you will be able to do an internship in one of the best sports centers in the world

Take an intensive 3-week internship with top-level sports professionals"

Enroll in this program to progress in your professional career in the field of sports and acquire a specialization that will take you to the elite of sport"

This Hybrid Professional Master's Degree allows you to combine your personal responsibilities with quality learning.

Update your knowledge through the Hybrid Professional Master's Degree program and help athletes reach the top of their careers.

In this proposal for a Hybrid Professional Master's Degree, of a professionalizing nature and blended learning modality, the program is aimed at updating physical activity professionals who develop their functions in sports centers, and who require a high level of qualification. The contents are based on the latest scientific evidence, and oriented in a didactic way to integrate theoretical knowledge in sports practice, and the theoretical-practical elements will facilitate the updating of knowledge.

Thanks to multimedia content developed with the latest educational technology, professionals will enjoy a situated and contextual learning, which means, a simulated environment that will provide immersive learning programmed to prepare professionals for real situations. This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise throughout the program. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

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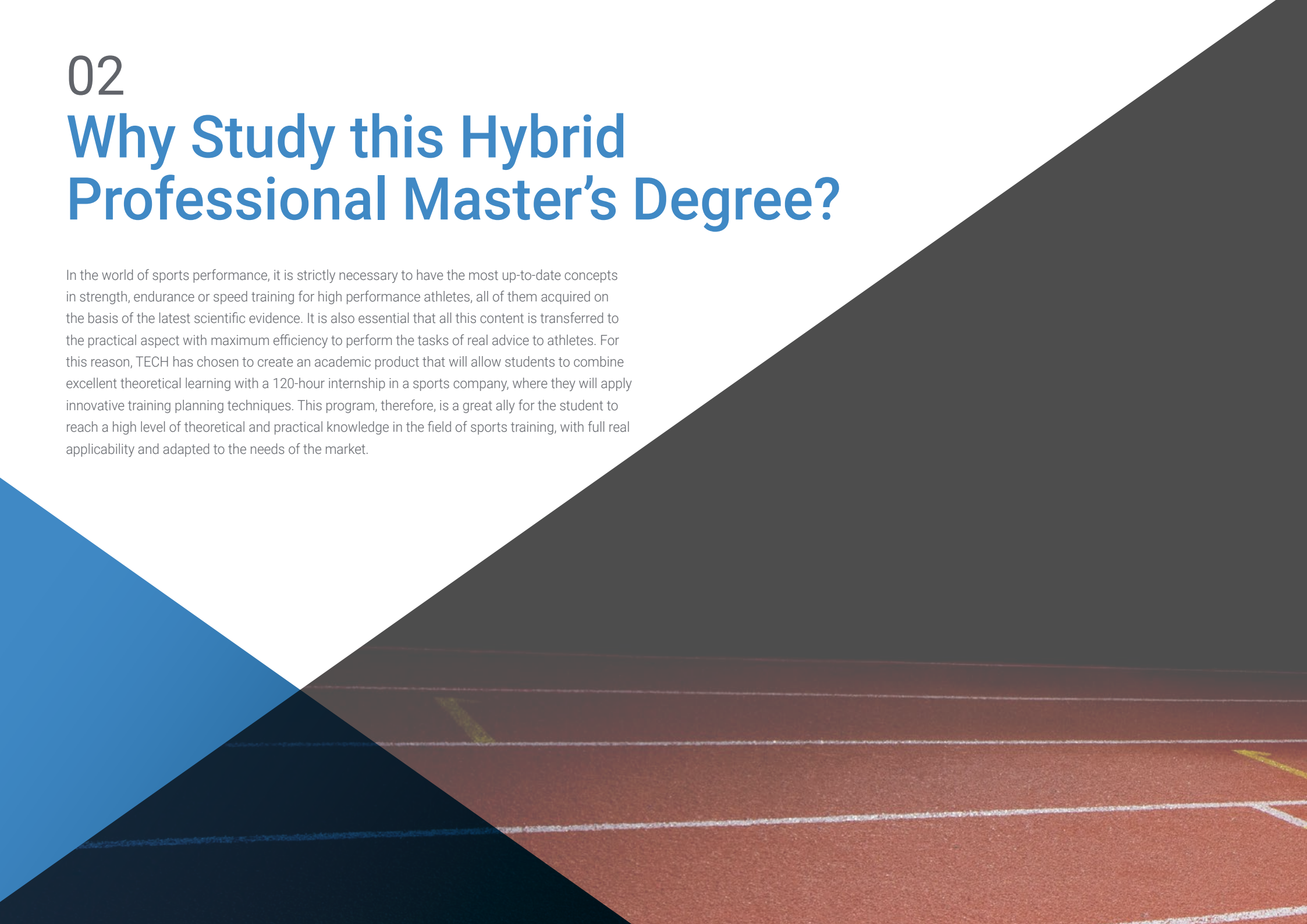
Why Study this Hybrid Professional Master's Degree?

In the world of sports performance, it is strictly necessary to have the most up-to-date concepts in strength, endurance or speed training for high performance athletes, all of them acquired on the basis of the latest scientific evidence. It is also essential that all this content is transferred to the practical aspect with maximum efficiency to perform the tasks of real advice to athletes. For this reason, TECH has chosen to create an academic product that will allow students to combine excellent theoretical learning with a 120-hour internship in a sports company, where they will apply innovative training planning techniques. This program, therefore, is a great ally for the student to reach a high level of theoretical and practical knowledge in the field of sports training, with full real applicability and adapted to the needs of the market.



Thanks to this TECH program, you will combine an excellent theoretical teaching with a practical stage of 3 weeks in a sports center, in which you will apply all the knowledge acquired throughout this program"

1. Updating from the Latest Technology Available

In recent years, the area of High Performance Sports has experienced the emergence of new methods to evaluate the work of athletes, the use of modern resistance training systems or the application of more effective nutritional strategies. Because of this, this TECH program will provide you with the most up-to-date skills in this field to be in tune with the needs of this sector.

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

This program is taught by professionals actively working in the world of training for high performance athletes, who are in charge of developing all the didactic contents of the program. Therefore, all the knowledge that will be offered to the students throughout this Hybrid Professional Master's Degree will be fully applicable to work in this sector.

3. Entering First-Class Sports Environments

TECH carefully selects all the centers available for its Internship Programs, which you will access at the end of the theoretical stage. In this line, the student will develop in an excellent training center oriented to High Performance Sports. In this way, it will determine the day-to-day work carried out in this field and apply the latest trends in this area.

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

The educational market has a wide variety of academic programs focused solely on the delivery of theoretical content. However, this program offers students the opportunity to combine excellent theoretical learning with a 3-week internship in a high-level professional environment.

5. Expanding the Boundaries of Knowledge

TECH offers the possibility of carrying out the Internship Program of thisHybrid Professional Master's Degree Program not only in centers of international importance. In this way, the specialist will be able to expand their boundaries and keep up to date with the best professionals, who practice in first class sports centers and in different continents. A unique opportunity that only TECH, the largest online university in the world, could offer.

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

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Objectives

This Hybrid Professional Master's Degree aims to develop the theoretical and practical learning of students, so that the professional Sports Sciences get to master the techniques and methods of training in High Performance Sports through a new and up-to-date multimedia content, as well as with simulations of real cases, offered by this program.

Learn about the latest developments in exercise, biomechanics and nutrition applied to elite athletes. Enroll now"

General Objective

- The general objective of this program is to enable students to master and apply with certainty the most current training methods, thanks to the extensive knowledge of statistics, the use of data obtained from the athlete, and research processes. Students will also be able to evaluate sports performance and understand the principles governing exercise physiology, biochemistry, biomechanics and nutrition

This 100% online program in its theoretical framework will allow you to learn about the latest technology applied in the evaluation of athletes".

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
- Determine the general causes of fatigue and its impact on different types and modalities of exercise
- Analyze the different physiological milestones and their application in practice

Module 2. 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 3. 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 4. 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 5. Endurance Training from Theory to Practice

- Study the different adaptations generated by aerobic endurance
- Apply the physical demands of situational sports
- Select the most appropriate tests to evaluate, monitor, tabulate and fractionate aerobic workloads
- Carry out the different methods to organize training sessions
- Design training sessions taking into account the sport

Module 6. 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 7. 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 8. 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 9. Biomechanics Applied to High-Performance 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 10. Nutrition Applied to High-Performance Sports

- Learn the physiological and biochemical bases of energy metabolism during physical
- Learn the processes and methods of nutritional assessment of the athlete, as well as his body composition
- Understand the different options for the evaluation of the athlete's energy output
- Use all the variables available in nutrition for sports disciplines of very different characteristics
- Familiarize yourself with the latest scientific evidence on sports supplementation
- Handle the nutritional aspects that are associated with eating disorders and sports injuries

04

Skills

The students, during the development of this Hybrid Professional Master's Degree, will acquire the technical and practical skills for a quality and up-to-date praxis in the field of High Performance, being able to implement a specific training plan for an athlete or for a complete team, regardless of the sport discipline.

Develop a complete training plan at the highest level thanks to this Hybrid Professional Master's Degree"

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

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

Specific Skills

- 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
- 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
- Select the most appropriate tests to evaluate, monitor, tabulate and fractionalize aerobic workloads
- 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

05

Course Management

TECH has assembled a complete team of highly qualified teachers with professional experience in the sports field. The presence of these experts in international competitions with elite teams and athletes guarantees the students a teaching very close to the current reality of the High Performance athlete. The professional background and detailed content of each training method will guide students to success.

This Hybrid Professional Master's Degree brings you closer to the High Performance in Sports by the hand of physical trainers of great international level"

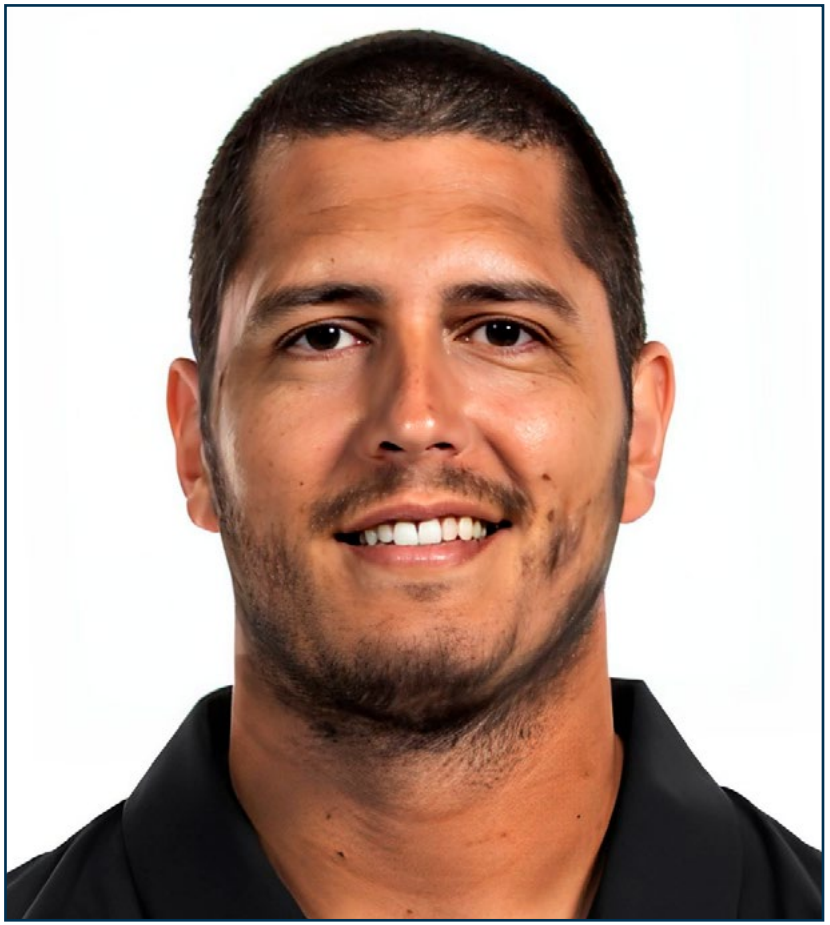
International Guest Director

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.

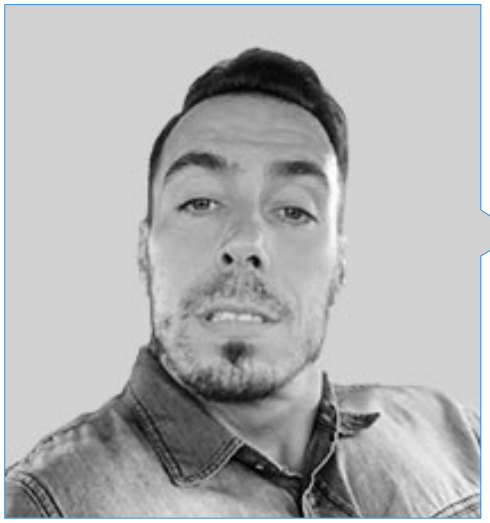


Dr. Friedrich, Tyler

- 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 Soccer), 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

Professors

Carbone, Leandro

- Teacher of Strength Training and Fitness Training
- 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 Teacher
- External Consultant for Speed4lift, a leading company in the area of Sports Technology
- Degree in Physical Activity from the Universidad del Salvador
- Specialist in Exercise Physiology, Universidad Nacional de La Plata
- MCs. Strength and Conditioning at Greenwich University, United Kingdom

Dr. Represas Lobeto, Gustavo Daniel

- Physical trainer and researcher oriented to High Performance Sports
- Responsible for the Laboratory of Sports Biomechanics of the National Center of High Performance Sports of Argentina
- Responsible for the Laboratory of Biomechanics, Functional Analysis of Movement and Human Performance at the National University of San Martín
- Physical trainer and Scientific Advisor of the Olympic Taekwondo team for the Sydney Olympic Games
- Physical trainer for professional rugby clubs and players
- Teacher in university studies
- PhD in High Performance Sports from the University of Castilla-La Mancha
- Degree in Physical Education and Sports from the Universidad Abierta Interamericana
- Master in High Performance Sports by the Autonomous University of Madrid
- National Physical Education Teacher

Dr. Del Rosso, Sebastián

- Expert Researcher in Sports Biochemistry
- Postdoctoral Researcher at the Center for Research in Clinical Biochemistry and Immunology
- 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
- PhD in Health Sciences from the National University of Córdoba
- Degree in Physical Education from the National University of Catamarca
- Master's Degree in Physical Education from the Catholic University of Brasilia

Mr. Añon, Pablo

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

Mr. Vaccarini, Adrián Ricardo

- Physical Trainer Specializing in Top Level Soccer
- Responsible for the area of Applied Sciences of the Peruvian Football Federation
- Second Physical Trainer of the Peruvian National Senior Soccer Team
- Physical Trainer of the Peruvian Sub 23 National Team
- Responsible for the research and performance analysis area of Quilmes
- Responsible for the research and performance analysis area of Velez Sarsfield
- Regular speaker at High Performance Sport Congresses
- Degree in Physical Education
- National Physical Education Teacher

Mr. César García, Gastón

- Expert Hockey and Rugby Physical Trainer
- Physical Trainer of the professional field hockey player Sol Alias
- Physical Trainer of Carmen Tenis Club Hockey Team
- Personal Trainer of Rugby and Hockey athletes
- Physical Trainer for U18 Rugby clubs
- Physical Education Teacher for children
- Co-author of the book *Estrategias para la evaluación de la condición física en niños y adolescentes*
- Degree in Physical Education from the National University of Catamarca
- National Physical Education Teacher by the ESEF of San Rafael
- Technician in Anthropometry level 1 and 2

Mr. Díaz Jareño, Juan

- Specialist in Physical Preparation and Sport
- Coordinator of the Physical Education and Preparation Area at the Moratalaz Sports School
- University Tteacher
- Personal Trainer and Sports Rehabilitator at the 9.8 Gravity Training Studio
- Graduate in Physical Activity and Sport Sciences from the University of Castilla-La Mancha}
- Master's Degree in Physical Preparation in Football by the University of Castilla-La Mancha
- Postgraduate Degree in Personal Training from the University of Castilla-La Mancha

Ms. González Cano, Henar

- Sports nutritionist
- Nutritionist and Anthropometrist at GYM SPARTA
- Nutritionist and Anthropometrist at Promentium Center
- Nutritionist in men's soccer teams
- Teacher 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 in Nutrition in Physical Activity and Sport by the Catholic University San Antonio of Murcia
- Course in Nutrition and Dietetics applied to physical exercise by the University of Vich

Mr. Masse, Juan Manuel

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

06

Educational Plan

The syllabus of this program comprises 10 modules covering exercise physiology and physical activity, strength training with and without machines, exercises for speed improvement, statistics applied to performance and research, as well as the most effective nutrition for elite athletes. The video summaries of each topic, the specific additional readings and the Relearning learning system, based on the reiteration of content, will facilitate the consolidation of knowledge of eminently practical application in the day-to-day life of any coach of high-level athletes.

Learn with the best professionals in High Performance. They will provide you with the keys to improve the training plans of your athletes"

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. mTOR

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. Statistics Applied to Performance and Research

2.1. Notions of Probability
  2.1.1. Simple Probability
  2.1.2. Conditional Probability
  2.1.3. Bayes' Theorem
2.2. Probability Distributions
  2.2.1. Binomial Distribution
  2.2.2. Poisson distribution
  2.2.3. Normal Distribution
2.3. Statistical Inference
  2.3.1. Population Parameters
  2.3.2. Estimation of Population Parameters
  2.3.3. Sampling Distributions Associated with the Normal Distribution
  2.3.4. Distribution of the Sample Mean
  2.3.5. Point Estimators
  2.3.6. Properties of Estimators
  2.3.7. Estimator Comparison Criteria
  2.3.8. Estimators by Confidence Regions
  2.3.9. Method of Obtaining Confidence Intervals
  2.3.10 Confidence Intervals Associated With Normal Distribution
  2.3.11. Central Limit Theorem
2.4. Hypothesis Test
  2.4.1. P-Value
  2.4.2. Statistical Power
2.5. Exploratory Analysis and Descriptive Statistics
  2.5.1. Graphs and Tables
  2.5.2. Chi-Square Test
  2.5.3. Relative Risk
  2.5.4. Odds Ratio
2.6. The T-Test
  2.6.1. One-Sample T-Test
  2.6.2. T-Test for Two Independent Samples
  2.6.3. T-Test for Paired Samples
2.7. Correlation Analysis
2.8. Simple Linear Regression Analysis
  2.8.1. The Regression Line and its Coefficients
  2.8.2. Residuals
  2.8.3. Regression Assessment Using Residuals
  2.8.4. Coefficient of Determination
2.9. Variance and Analysis of Variance (ANOVA)
  2.9.1. *One-way* ANOVA
  2.9.2. Two-Way ANOVA
  2.9.3. ANOVA for Repeated Measures
  2.9.4. Factorial ANOVA

Module 3. Strength Training, from Theory to Practice

3.1. Strength: Conceptualization
  3.1.1. Strength Defined from a Mechanical Point of View
  3.1.2. Strength Defined from a Physiology Point of View
  3.1.3. Define the Concept of Applied Strength

3.1.4. Time-Strength Curve
3.1.4.1. Interpretation
3.1.5. Define the Concept of Maximum Strength
3.1.6. Define the Concept of RFD
3.1.7. Define the Concept of Useful Strength
3.1.8. Strength- Speed-Power Curves
3.1.8.1. Interpretation
3.1.9. Define the Concept of Strength Deficit
3.2. Training Load
3.2.1. Define the Concept of Strength Training Load
3.2.2. Define the Concept of Load
3.2.3. Load Concept: Volume
3.2.3.1. Definition and Applicability in Practice
3.2.4. Load Concept: Intensity
3.2.4.1. Definition and Applicability in Practice
3.2.5. Load Concept: Density
3.2.5.1. Definition and Applicability in Practice
3.2.6. Define the Concept of Effort Character
3.2.6.1. Definition and Applicability in Practice
3.3. Strength Training in the Prevention and Rehabilitation of Injuries
3.3.1. Conceptual and Operational Framework in Injury Prevention and Rehabilitation
3.3.1.1. Terminology
3.3.1.2. Concepts
3.3.2. Strength Training and Injury Prevention and Rehabilitation Under Scientific Evidence
3.3.3. Methodological Process of Strength Training in Injury Prevention and Functional Recovery
3.3.3.1. Defining the Method
3.3.3.2. Applying the Method in Practice
3.3.4. Role of Core Stability (*Core*) in Injury Prevention
3.3.4.1. Definition of Core
3.3.4.2. Core Training
3.4. Plyometric Method
3.4.1. Physiological Mechanisms
3.4.1.1. Specific General Information
3.4.2. Muscle Actions in Plyometric Exercises
3.4.3. The Stretch-Shortening Cycle (SSC)
3.4.3.1. Use of Energy or Elastic Capacity
3.4.3.2. Reflex Involvement Series and Parallel Elastic Energy Accumulation
3.4.4. CEA Classification Scheme
3.4.4.1. Short CEA
3.4.4.2. Long CEA
3.4.5. Properties of the Muscle and Tendon
3.4.6. Central Nervous System
3.4.6.1. Recruitment
3.4.6.2. Frequency (F)
3.4.6.3. Synchronization
3.4.7. Practical Considerations
3.5. Power Training
3.5.1. Definition of Power
3.5.1.1. Conceptual Aspects of Power
3.5.1.2. The Importance of Power in a Context of Sport Performance
3.5.1.3. Clarification of Power Terminology
3.5.2. Factors Contributing Peak Power Development
3.5.3. Structural Aspects Conditioning Power Production
3.5.3.1. Muscle Hypertrophy
3.5.3.2. Muscle Structure
3.5.3.3. Ratio of Fast and Slow Fibers in a Cross Section
3.5.3.4. Muscle Length and its Effect on Muscle Contraction
3.5.3.5. Quantity and Characteristics of Elastic Components
3.5.4. Neural Aspects Conditioning Power Production

3.5.4.1. Action Potential
3.5.4.2. Speed of Motor Unit Recruitment
3.5.4.3. Muscle Coordination
3.5.4.4. Intermuscular Coordination
3.5.4.5. Prior Muscle Status (PAP)
3.5.4.6. Neuromuscular Reflex Mechanisms and Their Incidence
3.5.5. Theoretical Aspects for Understanding the Strength-Time Curve
3.5.5.1. Strength Impulse
3.5.5.2. Phases of the Strength-Time Curve
3.5.5.3. Phases of Acceleration in the Strength-Time Curve
3.5.5.4. Maximum Acceleration Area of the Strength-Time Curve
3.5.5.5. Deceleration Phase of the Strength-Time Curve
3.5.6. Theoretical Aspects for Understanding Power Curves
3.5.6.1. Energy-Time Curve
3.5.6.2. Energy-Displacement Curve
3.5.6.3. Optimal Workload for Maximum Energy Development
3.5.7. Practical Considerations
3.6. Vector Strength Training
3.6.1. Definition of Force Vector
3.6.1.1. Axial Vector
3.6.1.2. Horizontal Vector
3.6.1.3. Rotational Vector
3.6.2. Benefits of Using this Terminology
3.6.3. Definition of Basic Vectors in Training
3.6.3.1. Analysis of the Main Sporting Actions
3.6.3.2. Analysis of the Main Overload Exercises
3.6.3.3. Analysis of the Main Training Exercises
3.6.4. Practical Considerations
3.7. Main Methods for Strength Training
3.7.1. Own Body Weight
3.7.2. Free Exercises
3.7.3. PAP
3.7.3.1. Definition
3.7.3.2. Application of PAP Prior to Energy-Related Sports Disciplines
3.7.4. Exercises with Machines
3.7.5. *Complex Training*
3.7.6. Exercises and Their Transfer
3.7.7. Contrasts
3.7.8. *Cluster Training*
3.7.9. Practical Considerations
3.8. VBT
3.8.1. Conceptualization of the Application of VBT
3.8.1.1. Degree of Stability of Execution Speed with Each Percentage of 1MR
3.8.2. Difference Between Scheduled Load and Actual Load
3.8.2.1. Definition of the Concept
3.8.2.2. Variables Involved in the Difference Between Programmed Load and Actual Training Load
3.8.3. VBT as a Solution to the Problem of Using 1MR and nMR to Program Loads
3.8.4. VBT and Degree of Fatigue
3.8.4.1. Connection to Lactate
3.8.4.2. Connection to Ammonium
3.8.5. VBT in Relation to the Loss of Speed and Percentage of Repetitions Performed
3.8.5.1. Define the Different Degrees of Effort in the Same Series
3.8.5.2. Different adaptations according to the degree of speed loss in the series
3.8.6. Methodological Proposals According to Different Authors
3.8.7. Practical Considerations
3.9. Strength in Connection to Hypertrophy
3.9.1. Hypertrophy-Inducing Mechanism: Mechanical Stress
3.9.2. Hypertrophy-Inducing Mechanism: Metabolic Stress
3.9.3. Hypertrophy-Inducing Mechanism: Muscle Damage
3.9.4. Hypertrophy Programming Variables

3.9.4.1. Frequency (F)
3.9.4.2. Volume
3.9.4.3. Intensity
3.9.4.4. Cadence
3.9.4.5. Series and Repetitions
3.9.4.6. Density
3.9.4.7. Order in the Execution of Exercises
3.9.5. Training Variables and Their Different Structural Effects
3.9.5.1. Effect on Different Types of Fiber
3.9.5.2. Effects on the Tendon
3.9.5.3. Bundle Length
3.9.5.4. Peneation Angle
3.9.6. Practical Considerations
3.10. Eccentric Strength Training
3.10.1. Conceptual framework
3.10.1.1. Definition of Eccentric Training
3.10.1.2. Different Types of Eccentric Training
3.10.2. Eccentric Training and Performance
3.10.3. Eccentric Training in the Prevention and Rehabilitation of Injuries
3.10.4. Technology Applied to Eccentric Training
3.10.4.1. Conical Pulleys
3.10.4.2. Isoinertial Devices
3.10.5. Practical Considerations

Module 4. Speed Training, from Theory to Practice

4.1. Speed
4.1.1. Definition
4.1.2. General concepts
4.1.2.1. Manifestations of Speed
4.1.2.2. Factors that Determine Performance
4.1.2.3. Difference Between Speed and Quickness
4.1.2.4. Segmental Speed
4.1.2.5. Angular Speed
4.1.2.6. Reaction Time
4.2. Dynamics and Mechanics of Linear Sprint (100m Model)
4.2.1. Kinematic Analysis of the Take-off
4.2.2. Dynamics and Strength Application During Take-off
4.2.3. Kinematic Analysis of the Acceleration Phase
4.2.4. Dynamics and Strength Application During Acceleration
4.2.5. Kinematic Analysis of Running at Maximum Speed
4.2.6. Dynamics and Strength Application During Maximum Speed
4.3. Phases of Sprinting (Technique Analysis)
4.3.1. Technical Description of the Take-off
4.3.2. Technical Description of the Race During the Acceleration Phase
4.3.2.1. Technical Model of the Kinogram for the Acceleration Phase
4.3.3. Technical Description of the Race During the Maximum Speed Phase
4.3.3.1. Technical Kinogram Model (ALTIS) for Technique Analysis
4.3.4. Speed Endurance
4.4. Speed Bioenergetics
4.4.1. Bioenergetics of Single Sprints
4.4.1.1. Myoenergetics of Single Sprints
4.4.1.2. ATP-PC System
4.4.1.3. Glycolytic System
4.4.1.4. Adenylate Kinase Reaction
4.4.2. Bioenergetics of Repeated Sprints
4.4.2.1. Energy Comparison Between Single and Repeated Sprints
4.4.2.2. Behavior of Energy Production Systems During Repeated Sprints
4.4.2.3. Recovery of PC
4.4.2.4. Connection Between Aerobic Power and Recovery Processes of PC
4.4.2.5. Determinants of Performance in Repeated Sprints
4.5. Analysis of Acceleration Technique and Maximum Speed in Team Sports
4.5.1. Description of the Technique in Team Sports
4.5.2. Comparison of Sprinting Technique in Team Sports vs. Athletic Events
4.5.3. Time and motion analysis of speed events in team sports in team sports
4.6. Methodological Approach to Teaching the Technique
4.6.1. Technical Teaching of the Different Phases of the Race
4.6.2. Common Errors and Ways to Correct Them

4.7. Means and Methods for Speed Development
- 4.7.1. Means and Methods for Acceleration Phase Training
  - 4.7.1.1. Connection of Force to Acceleration
  - 4.7.1.2. Sled
  - 4.7.1.3. Slopes
  - 4.7.1.4. Jumpability
    - 4.7.1.4.1. Building the Vertical Jump
    - 4.7.1.4.2. Building the Horizontal Jump
  - 4.7.1.5. Training the ATP/PC System
- 4.7.2. Means and Methods for Training *Top Speed*
  - 4.7.2.1. Plyometry
  - 4.7.2.2. Overspeed
  - 4.7.2.3. Interval-Intensive Methods
- 4.7.3. Means and Methods for Speed Endurance Development
  - 4.7.3.1. Interval-Intensive Methods
  - 4.7.3.2. Repetition Method

4.8. Agility and Change of Direction
- 4.8.1. Definition of Agility
- 4.8.2. Definition of Change of Direction
- 4.8.3. Determinants of Agility and COD
- 4.8.4. Change of Direction Technique
  - 4.8.4.1. Shuffle
  - 4.8.4.2. Crossover
  - 4.8.4.3. Agility and COD Training Drills

4.9. Assessment and Control of Speed Training
- 4.9.1. Strength-Speed Profile
- 4.9.2. Test With Photocells and Variants With Other Control Devices
- 4.9.3. RSA

4.10. Programming Speed Training

Module 5. Endurance Training from Theory to Practice

5.1. General concepts
- 5.1.1. General Definitions
  - 5.1.1.1. Education
  - 5.1.1.2. Trainability
  - 5.1.1.3. Sports Physical Preparation
- 5.1.2. Objectives Endurance Training
- 5.1.3. General Principles of Training
  - 5.1.3.1. Principles of Load
  - 5.1.3.2. Principles of Organization
  - 5.1.3.3. Principles of Specialization

5.2. Physiology of Aerobic Training
- 5.2.1. Physiological Response to Aerobic Endurance Training
  - 5.2.1.1. Responses to Continuous Stress
  - 5.2.1.2. Responses to Intervallic Stress
  - 5.2.1.3. Responses to Intermittent Stress
  - 5.2.1.4. Responses to Stress in Small-Space Games
- 5.2.2. Factors Related to Aerobic Endurance Performance
  - 5.2.2.1. Aerobic Power
  - 5.2.2.2. Anaerobic Threshold
  - 5.2.2.3. Maximum Aerobic Speed
  - 5.2.2.4. Economy of Effort
  - 5.2.2.5. Use of Substrates
  - 5.2.2.6. Characteristics of Muscle Fibers
- 5.2.3. Physiological Adaptations to Aerobic Endurance
  - 5.2.3.1. Adaptations to Continuous Stress
  - 5.2.3.2. Adaptations to Intervallic Stress
  - 5.2.3.3. Adaptations to Intermittent Stress
  - 5.2.3.4. Adaptations to Stress in Small-Space Games

5.3. Situational Sports and Their Relation to Aerobic Endurance
- 5.3.1. Group I Situational Sport Demands; Soccer, Rugby and Hockey
- 5.3.2. Group II Situational Sport Demands; Basketball, Handball, Futsal
- 5.3.3. Group III Situational Sport Demands; Tennis and Volleyball

5.4. Monitoring and Assessment of Aerobic Endurance
- 5.4.1. Direct Treadmill Versus Field Evaluation
  - 5.4.1.1. VO2max Treadmill Versus Field
  - 5.4.1.2. VAM Treadmill Versus Field
  - 5.4.1.3. VAM versus VFA
  - 5.4.1.4. Time Limit (VAM)
- 5.4.2. Continuous Indirect Tests
  - 5.4.2.1. Time Limit (VFA)
  - 5.4.2.2. 1,000m Test
  - 5.4.2.3. 5-Minute Test
- 5.4.3. Incremental and Maximum Indirect Tests
  - 5.4.3.1. UMTT, UMTT-Brue, VAMEVAL and T-Bordeaux
  - 5.4.3.2. UNCa Test; Hexagon, Track, Hare
- 5.4.4. Indirect Back-and-Forth and Intermittent Tests
  - 5.4.4.1. 20m. *Shuttle Run Test* (*Course Navette*)
  - 5.4.4.2. YoYo Test
  - 5.4.4.3. Intermittent Test; 30-15 IFT, Carminatti, 45-15 Test
- 5.4.5. Specific Tests With Ball
  - 5.4.5.1. Hoff Test
- 5.4.6. Proposal Based on the VFA
  - 5.4.6.1. VFA Contact Points for Soccer, Rugby and Hockey
  - 5.4.6.2. FSR Contact Points for Basketball, Futsal and Handball

5.5. Planning Aerobic Exercise
- 5.5.1. Exercise Model
- 5.5.2. Training Frequency
- 5.5.3. Duration of the Exercise
- 5.5.4. Training Intensity
- 5.5.5. Density

5.6. Methods to Develop Aerobic Endurance
- 5.6.1. Continuous Training
- 5.6.2. Interval Training
- 5.6.3. Intermittent Training
- 5.6.4. SSG Training (Small-Space Games)
- 5.6.5. Mixed Training (Circuits)

5.7. Program Design
- 5.7.1. Preseason Period
- 5.7.2. Competitive Period
- 5.7.3. Postseason Period

5.8. Special Aspects Related to Training
- 5.8.1. Concurrent Training
- 5.8.2. Strategies to Design Concurrent Training
- 5.8.3. Adaptations Generated by Concurrent Training
- 5.8.4. Differences Between Genders
- 5.8.5. De-Training

5.9. Aerobic Training in Children and Youth
- 5.9.1. General concepts
  - 5.9.1.1. Growth, Development and Maturation
- 5.9.2. Evaluation of VO2max and VAM
  - 5.9.2.1. Indirect Measurement
  - 5.9.2.2. Indirect Field Measurement
- 5.9.3. Physiological Adaptations in Children and Youth
  - 5.9.3.1. VO2máx and VAM Adaptations
- 5.9.4. Design of Aerobic Training
  - 5.9.4.1. Intermittent Method
  - 5.9.4.2. Adherence and Motivation
  - 5.9.4.3. Games in Small Spaces

Module 6. Mobility: from Theory to Performance

6.1. Neuromuscular System
- 6.1.1. Neurophysiological Principles: Inhibition and Excitability
  - 6.1.1.1. Adaptations of the Nervous System
  - 6.1.1.2. Strategies to Modify Corticospinal Excitability
  - 6.1.1.3. Keys to Neuromuscular Activation
- 6.1.2. Somatosensory Information Systems
  - 6.1.2.1. Information Subsystems

6.1.2.2. Types of Reflexes
6.1.2.2.1. Monosynaptic Reflexes
6.1.2.2.2. Polysynaptic Reflexes
6.1.2.2.3. Muscle-Tendinous-Articular Reflexes
6.1.2.3. Responses to Dynamic and Static Stretches

6.2. Motor Control and Movement
6.2.1. Stabilizing and Mobilising Systems
6.2.1.1. Local System: Stabilizer System
6.2.1.2. Global System: Mobilizing System
6.2.1.3. Respiratory Pattern
6.2.2. Movement Pattern
6.2.2.1. Co-Activation
6.2.2.2. *Joint* by *Joint* Theory
6.2.2.3. Primary Motion Complexes

6.3. Understanding Mobility
6.3.1. Key Concepts and Beliefs in Mobility
6.3.1.1. Manifestations of Mobility in Sport
6.3.1.2. Neurophysiological and Biomechanical Factors Influencing Mobility Development
6.3.1.3. Impact of Mobility on Strength Development
6.3.2. Objectives of Training Mobility in Sport
6.3.2.1. Mobility in the Training Session
6.3.2.2. Benefits of Mobility Training
6.3.3. Mobility and Stability by Structures
6.3.3.1. Foot-Ankle Complex
6.3.3.2. Knee-Hip Complex
6.3.3.3. Spine-Shoulder Complex

6.4. Training Mobility
6.4.1. Fundamental Block
6.4.1.1. Strategies and Tools to Optimize Mobility
6.4.1.2. Specific Pre-Exercise Scheme
6.4.1.3. Specific Post-Exercise Scheme
6.4.2. Mobility and Stability in Basic Movements
6.4.2.1. *Squat* & *Dead Lift*
6.4.2.2. Acceleration and Multidirection

6.5. Methods of Recovery
6.5.1. Proposal for Effectiveness Based on Scientific Evidence

6.6. Methods for Training Mobility
6.6.1. Tissue-Centered Methods: Passive Tension and Active Tension Stretching
6.6.2. Methods focused on arthro-coinematics: isolated stretching and integrated stretching
6.6.3. Eccentric Training

6.7. Mobility Training Programming
6.7.1. Effects of Stretching in the Short and Long Term
6.7.2. Optimal Timing for Applying Stretching

6.8. Athlete Assessment and Analysis
6.8.1. Functional and Neuromuscular Assessment
6.8.1.1. Key Concepts in Assessment
6.8.1.2. Evaluation Process
6.8.1.2.1. Analyze the Movement Pattern
6.8.1.2.2. Identify the Test
6.8.1.2.3. Detect the Weak Links
6.8.2. Athlete Assessment Methodology
6.8.2.1. Types of Tests
6.8.2.1.1. Analytical Assessment Test
6.8.2.1.2. General Assessment Test
6.8.2.1.3. Specific-Dynamic Assessment Test
6.8.2.2. Assessment by Structures
6.8.2.2.1. Foot-Ankle Complex
6.8.2.2.2. Knee-Hip Complex
6.8.2.2.3. Spine-Shoulder Complex

6.9. Mobility in Injured Athletes
6.9.1. Pathophysiology of Injury: Effects on Mobility
6.9.1.1. Muscle Structure
6.9.1.2. Tendon Structure
6.9.1.3. Ligament Structure
6.9.2. Mobility and Preventiion of Injuries: Practical Case
6.9.2.1. Ruptured Ischialis in the Runner

Module 7. Sports Performance Assessment

7.1. Assessment
- 7.1.1. Definitions: Test, Assessment, Measurement
- 7.1.2. Validity, Reliability
- 7.1.3. Purposes of the Evaluation

7.2. Types of Tests
- 7.2.1. Laboratory Test
  - 7.2.1.1. Strengths and Limitations of Laboratory Tests
- 7.2.2. Field Tests
  - 7.2.2.1. Strengths and Limitations of Field Tests
- 7.2.3. Direct Tests
  - 7.2.3.1. Applications and Transfer to Training
- 7.2.4. Indirect Tests
  - 7.2.4.1. Practical Considerations and Transfer to Training

7.3. Assessment of Body Composition
- 7.3.1. Bioimpedance
  - 7.3.1.1. Considerations in its Application to Field
  - 7.3.1.2. Limitations on the Validity of Its Data
- 7.3.2. Anthropometry
  - 7.3.2.1. Tools for its Implementation
  - 7.3.2.2. Models of Analysis for Body Composition
- 7.3.3. Body Mass Index (IMC)
  - 7.3.3.1. Restrictions on the data obtained for interpretation of body composition

7.4. Assessing Aerobic Fitness
- 7.4.1. Vo2max Test on the Treadmill
  - 7.4.1.1. Astrand Test
  - 7.4.1.2. Balke Test
  - 7.4.1.3. ACSM Test
  - 7.4.1.4. Bruce Test
  - 7.4.1.5. Foster Test
  - 7.4.1.6. Pollack Test
- 7.4.2. Cycloergometer VO2max Test
  - 7.4.2.1. Astrand. Ryhming
  - 7.4.2.2. Fox Test

7.4.3. Cycloergometer Power Test
7.4.3.1. Wingate Test
7.4.4. Vo2max Test in he Field
7.4.4.1. Leger Test
7.4.4.2. Montreal University Test
7.4.4.3. Mile Test
7.4.4.4. 12-Minute Test
7.4.4.5. 2.4Km Test
7.4.5. Field Test to Establish Training Areas
7.4.5.1. 30-15 IFT Test
7.4.6. UNca Test
7.4.7. Yo-Yo Test
7.4.7.1. Yo-Yo Endurance YYET Level 1 and 2
7.4.7.2. Yo-Yo Intermittent Endurance YYEIT Level 1 and 2
7.4.7.3. Yo-Yo Intermittent Recovery YYERT Level 1 and 2

7.5. Neuromuscular Fitness Evaluation
7.5.1. Submaximal Repetition Test
7.5.1.1. Practical Applications for its Assessment
7.5.1.2. Validated Estimation Formulas for the Different Training Exercises
7.5.2. 1 RM Test
7.5.2.1. Protocol for its Performance
7.5.2.2. Limitations of 1 RM Assessment
7.5.3. Horizontal Jump Test
7.5.3.1. Assessment Protocols
7.5.4. Speed Test (5m,10m,15m, Etc.)
7.5.4.1. Considerations on the Data Obtained in Time/Distance Assessments
7.5.5. Maximum/Submaximum Incremental Progressive Tests
7.5.5.1. Validated Protocols
7.5.5.2. Practical Applications
7.5.6. Vertical Jump Test
7.5.6.1. SJ Jump
7.5.6.2. CMJ Jump
7.5.6.3. ABK Jump
7.5.6.4. DJ Test
7.5.6.5. Continuous Jump Test

7.5.7. Strength/Speed Vertical/Horizontal Profiles
7.5.7.1. Morin and Samozino Assessment Protocols
7.5.7.2. Practical Applications from a Strength/Speed Profile
7.5.8. Isometric Tests With Load Cell
7.5.8.1. Voluntary Isometric Maximal Strength Test (IMS)
7.5.8.2. Bilateral Deficit Isometry Test (%BLD)
7.5.8.3. Lateral Deficit (%LD)
7.5.8.4. Hamstring/Quadriceps Ratio Test

7.6. Assessment and Monitoring Tools
7.6.1. Heart Rate Monitors
7.6.1.1. Device Characteristics
7.6.1.2. Training Areas by Heart Rate
7.6.2. Lactate Analyzers
7.6.2.1. Device Types, Performance and Characteristics
7.6.2.2. Training zones according to Lactate Threshold lactate threshold (UL)
7.6.3. Gas Analyzers
7.6.3.1. Laboratory vs Portable Laptops
7.6.4. GPS
7.6.4.1. GPS Types, Characteristics, Strengths and Limitations
7.6.4.2. Metrics Established to Interpret the External Load
7.6.5. Accelerometers
7.6.5.1. Types of Accelerometers and Characteristics
7.6.5.2. Practical Applications of Data Obtained From an Accelerometer
7.6.6. Position Transducers
7.6.6.1. Types of Transducers for Vertical and Horizontal Movements
7.6.6.2. Variables Measured and Estimated by of a Position Transducer
7.6.6.3. Data Obtained from a Position Transducer and its Applications to Training Programming
7.6.7. Strength Platforms
7.6.7.1. Types and Characteristics.of Strength Platforms
7.6.7.2. Variables Measured and Estimated by Means of a Strength Platform
7.6.7.3. Practical Approach to Training Programming
7.6.8. Load Cells
7.6.8.1. Cell Types, Characteristics and Performance
7.6.8.2. Uses and Applications for Sports Performance and Health
7.6.9. Photoelectric Cells
7.6.9.1. Characteristics , and Limitations of the Devices
7.6.9.2. Practical Uses and Applicability
7.6.10. Movile Applications
7.6.10.1. Description of the Most Used Apps on the Market: My Jump, PowerLift, Runmatic, Nordic

7.7. Internal and External Load
7.7.1. Objective Means of Assessment
7.7.1.1. Speed of Execution
7.7.1.2. Average Mechanical Power
7.7.1.3. GPS Device Metrics
7.7.2. Subjective Means of Assessment
7.7.2.1. PSE
7.7.2.2. sPSE
7.7.2.3. Chronic/Acute Load Ratio

7.8. Fatigue
7.8.1. General Concepts of Fatigue and Recovery
7.8.2. Assessments
7.8.2.1. Laboratory Objectives: CK, Urea, Cortisol, Etc
7.8.2.2. Field Objectives: CMJ, Isometric Tests, etc
7.8.2.3. Subjective: Wellness Scales, TQR, etc
7.8.3. Recovery Strategies: Cold-Water Immersion, Nutritional Strategies, Self-Massage, Sleep

7.9. Considerations for Practical Applications
7.9.1. Vertical Jump Test Practical Applications
7.9.2. Maximum/Submaximum Incremental Progressive Test Practical Applications
7.9.3. Vertical Strength-Speed Profile. Practical Applications

Module 8. Planning Applied to High Performance in Sports

8.1. Basic Fundamentals
- 8.1.1. Adaptation Criteria
  - 8.1.1.1. General Adaptation Syndrome
  - 8.1.1.2. Current Performance Capability, Training Requirement
- 8.1.2. Fatigue, Performance, Conditioning as Tools
- 8.1.3. Dose-Response Concept and its Application

8.2. Basic Concepts and Applications
- 8.2.1. Concept and Application of the Plan
- 8.2.2. Concept and Application of Peridization
- 8.2.3. Concept and Application of Programming
- 8.2.4. Concept and Application of Load Control

8.3. Conceptual Development of Planning and its Different Models
- 8.3.1. First Historical Planning Records
- 8.3.2. First Proposals, Analyzing the Bases
- 8.3.3. Classic Models
  - 8.3.3.1. Traditional
  - 8.3.3.2. Pendulum
  - 8.3.3.3. High Loads

8.4. Models Focused on Individuality and/or Load Concentration
- 8.4.1. Blocks
- 8.4.2. Integrated Macrocycle
- 8.4.3. Integrated Model
- 8.4.4. ATR
- 8.4.5. Keeping in Shape
- 8.4.6. By Objectives
- 8.4.7. Structural Bells
- 8.4.8. Self-Regulation (APRE)

8.5. Models Focused on Specificity and/or Movement Capacity
- 8.5.1. Cognitive (or Structured Microcycle)
- 8.5.2. Tactical Periodization
- 8.5.3. Conditional Development by Movement Capacity

8.6. Criteria for Correct Programming and Periodization
- 8.6.1. Criteria for Programming and Periodization in Strength Training
- 8.6.2. Criteria for Programming and Periodization in Endurance Training
- 8.6.3. Criteria for Programming and Periodization in Speed Training
- 8.6.4. "Interference" Criteria in Scheduling and Periodization in Concurrent Training

8.7. Planning Through Load Control With a GNSS Device (GPS)
- 8.7.1. Basis of Session Saving for Appropriate Control
  - 8.7.1.1. Calculation of the *Average* Group Session for a Correct Load Analysis
  - 8.7.1.2. Common Errors in Saving and Their Impact on Plannning
- 8.7.2. Relativization of the Load, a Function of Competence
- 8.7.3. Load Control by Volume or Density, Range and Limitations

8.8. Integrating Thematic Unit 1 (Practical Application)
- 8.8.1. Construction of a Real Model of Short-Term Planning
  - 8.8.1.1. Selecting and Applying the Periodization Model
  - 8.8.1.2. Designing the Corresponding Planning

8.9. Integrating Thematic Unit 2 (Practical Application)
- 8.9.1. Producing a Pluriannual Plannification
- 8.9.2. Producing an Annual Plannification

Module 9. Biomechanics Applied to High Performance in Sports

9.1. Introduction to Biomechanics
- 9.1.1. Biomechanics, Concept, Introduction and Purpose of Biomechanics
  - 9.1.1.1. Its Connection to Functional Anatomy
- 9.1.2. Biomechanics and Performance
  - 9.1.2.1. Its Application to Physical Education and Sport
  - 9.1.2.2. Parts of Biomechanics, Generalities
  - 9.1.2.3. Measuring Tools
- 9.1.3. Kinematics: Basic Concepts and Practical Applications

9.2. Movement in One Dimension

9.2.1. Speed
9.2.1.1. Concept of Speed
9.2.1.2. Average speed
9.2.1.3. Instant Speed
9.2.1.4. Constant Speed
9.2.1.5. Variable Speed
9.2.1.6. Equations and Units
9.2.1.7. Interpretation of Space-Time and Speed-Distance Graphs
9.2.1.8. Examples in Sport
9.2.2. Acceleration
9.2.2.1. Concept of Acceleration
9.2.2.2. Average Acceleration
9.2.2.3. Instant Acceleration
9.2.2.4. Constant Acceleration
9.2.2.5. Variable Acceleration
9.2.2.6. Connection With the Speed at Constant Acceleration
9.2.2.7. Equations and Units
9.2.2.8. Interpretation of acceleration-distance graphs, relation with velocity-time graphs with velocity-time graphs
9.2.2.9. Examples in Sport
9.2.3. Free Fall
9.2.3.1. Acceleration of Gravity
9.2.3.2. Ideal Conditions
9.2.3.3. Variations of Gravity
9.2.3.4. Equations
9.2.4. Graphical Surroundings
9.2.4.1. Accelerations and Speeds in Free Fall

9.3. Movement in a Plane
9.3.1. Speed
9.3.1.1. Concept Through its Vectorial Components
9.3.1.2. Interpreting Graphs Examples in Sport
9.3.2. Acceleration
9.3.2.1. Concept Through its Vectorial Components
9.3.2.2. Interpreting Graphs
9.3.2.3. Examples in Sport
9.3.3. Projectile Movement
9.3.3.1. Fundamental Components
9.3.3.2. Initial Speed
9.3.3.3. Initial Angle
9.3.3.4. Ideal Conditions Initial Angle for Maximum Reach
9.3.3.5. Equations Interpreting Graphs
9.3.3.6. Examples Applied to Jumps and Throws

9.4. Kinematics of Rotations
9.4.1. Angular Speed
9.4.1.1. Angular Movement
9.4.1.2. Average Angular Speed
9.4.1.3. Instant Angular Speed
9.4.1.4. Equations and Units
9.4.1.5. Interpretation and Examples in Sport
9.4.2. Angular Acceleration
9.4.2.1. Average and Instantaneous Angular Acceleration
9.4.2.2. Equations and Units
9.4.2.3. Interpretation and Examples in Sport Constant Angular Acceleration

9.5. Dynamics
9.5.1. First Law of Newton
9.5.1.1. Interpretation
9.5.1.2. Concept of Mass
9.5.1.3. Equations and Units
9.5.1.4. Examples in Sport
9.5.2. Second Law of Newton
9.5.2.1. Interpretation
9.5.2.2. Concept of Weight and Deference to Mass
9.5.2.3. Equations and Units Examples in Sport
9.5.3. Third Law of Newton
9.5.3.1. Interpretation
9.5.3.2. Equations
9.5.3.3. Centripetal and Centrifugal Force
9.5.3.4. Examples in Sport

9.5.4. Work, Power and Energy
9.5.4.1. Concept of Work
9.5.4.2. Equations, Units, Interpretation and Examples
9.5.5. Power
9.5.5.1. Equations, Units, Interpretation and Examples
9.5.6. Generalities on the Concept of Energy
9.5.6.1. Types of Energy, Units and Conversion
9.5.7. Kinetic Energy
9.5.7.1. Concept and Equations
9.5.8. Potential Elastic Energy
9.5.8.1. Concept and Equations
9.5.8.2. The Work and Energy Theorem
9.5.8.3. Interpretation from Examples in Sport
9.5.9. Amount of Movement and Collisions Interpretation
9.5.9.1. Equations Center of Mass and Movement of the Center of Mass
9.5.9.2. Collisions, Types, Equations and Graphs
9.5.9.3. Examples in Athletism
9.5.9.4. Impulsive Forces Calculation of the Initial Speed in a Jump That is Considered as a Collision

9.6. Dynamics of Rotations
9.6.1. Moment of Inertia
9.6.1.1. Moment of a Force, Concept and Units
9.6.1.2. Lever Arm
9.6.2. Kinetic Energy of Rotation
9.6.2.1. Moment of Inertia, Concept and Units
9.6.2.2. Summary of Equations
9.6.2.3. Interpretation. Examples in Sport

9.7. Statics-Mechanical Balance
9.7.1. Vectorial Algebra
9.7.1.1. Operations Between Vectors Using Graphical Methods
9.7.1.2. Addition and Subtraction
9.7.1.3. Calculating Momentum
9.7.2. Center of Gravity: Concept, Properties, Interpretation of Equations
9.7.2.1. Examples in Sport Rigid Bodies Human Body Model

9.8. Biomechanical Analysis
9.8.1. Analysis of Normal Gait and Running
9.8.1.1. Center of Mass Phases and Fundamental Equations
9.8.1.2. Types of Kinematic and Dynamometric Records
9.8.1.3. Related Graphs
9.8.1.4. Connections of Graphs With Speed
9.8.2. Jumps in Sport
9.8.2.1. Decomposing Movement
9.8.2.2. Center of Gravity
9.8.2.3. Phases
9.8.2.4. Distances and Component Heights

9.9. Video Analysis
9.9.1. Different Variables Measured Through Video Analysis
9.9.2. Technological Options for Video Analysis
9.9.3. Practical Examples

9.10. Case Studies
9.10.1. Biomechanical Analysis of Acceleration
9.10.2. Biomechanical Analysis of Sprinting
9.10.3. Biomechanical Analysis of Deceleration

Module 10. Nutrition Applied to High-Performance Sports

10.1. Energy Metabolism of Physical Effort
10.1.1. Matter and Energy: Introduction to Thermodynamics
10.1.2. Physicochemical Characteristics of Macronutrients
10.1.3. Digestion and Metabolism of Carbohydrates
10.1.4. Digestion and Metabolism of Lipids
10.1.5. Digestion and Metabolism of Proteins
10.1.6. Phosphagen System
10.1.7. Glycolytic System
10.1.8. Oxidative System
10.1.9. Metabolic Integration
10.1.10. Classification of Physical Effort

10.2. Assessing Nutritional Status and Body Composition
- 10.2.1. Retrospective and Prospective Methods
- 10.2.2. ABCDE Model
- 10.2.3. Clinical Assessment
- 10.2.4. Body composition
- 10.2.5. Indirect Methods
- 10.2.6. Double Indirect Methods
- 10.2.7. Dual X-ray Absorptiometry
- 10.2.8. Vector Analysis of Electrical Bioimpedance
- 10.2.9. Cineanthropometry
- 10.2.10. Data Analysis in Kinanthropometry

10.3. Assessing Energy Expenditure
- 10.3.1. Components of Total Daily Energy Expenditure
- 10.3.2. Basal Metabolic Rate and Resting Energy Expenditure
- 10.3.3. Thermal Effect of Food
- 10.3.4. NEAT and Energy Expenditure Due to Physical Exertion
- 10.3.5. Technologies for Quantifying Energy Expenditure
- 10.3.6. Indirect Calorimetry
- 10.3.7. Estimation of Energy Expenditure
- 10.3.8. Ex-Post Calculations
- 10.3.9. Practical Recommendations

10.4. Bodybuilding Nutrition and Body Recomposition
- 10.4.1. Characteristics of Bodybuilding
- 10.4.2. Nutrition for *Bulking*
- 10.4.3. Nutrition for Preparation
- 10.4.4. Post-Competition Nutrition
- 10.4.5. Effective Supplements
- 10.4.6. Body Recomposition
- 10.4.7. Nutritional Strategies
- 10.4.8. Macronutrient Distribution
- 10.4.9. *Diet Breaks, Refeeds* and Intermittent Restrictions
- 10.4.10. Principles and Dangers of Pharmacology

10.5. Nutrition in Strength-Based Sports
- 10.5.1. Characteristics of Collective Sports
- 10.5.2. Energy Requirements
- 10.5.3. Protein Requirements
- 10.5.4. Distribution of Carbohydrates and Fats
- 10.5.5. Nutrition for Olympic Lifting
- 10.5.6. Nutrition for Sprint Racing
- 10.5.7. Nutrition for *Powerlifting*
- 10.5.8. Nutrition in Jumping and Throwing Sports
- 10.5.9. Nutrition in Combat-Based Sports
- 10.5.10. Morphological Characteristics of the Athlete

10.6. Nutrition in Team Sports
- 10.6.1. Characteristics of Collective Sports
- 10.6.2. Energy Requirements
- 10.6.3. Nutrition in preseason
- 10.6.4. Competitive Nutrition
- 10.6.5. Nutrition Before, During and After the Match
- 10.6.6. Fluid Replenishment
- 10.6.7. Recommendations for Lower Divisions
- 10.6.8. Nutrition in Football, Basketball and Volleyball
- 10.6.9. Nutrition in Rugby, Hockey and Baseball
- 10.6.10. Morphological Characteristics of the Athlete

10.7. Nutrition in Endurance-Based Sports
- 10.7.1. Characteristics of Endurance Sports
- 10.7.2. Energy Requirements
- 10.7.3. Glycogen Overcompensation
- 10.7.4. Energy Replenishment During Competition
- 10.7.5. Fluid Replenishment
- 10.7.6. Beverages and Sports Confectionery
- 10.7.7. Nutrition for Cycling
- 10.7.8. Nutrition for Running and Marathon
- 10.7.9. Nutrition for Triathlon
- 10.7.10. Nutrition for Other Olympic Sports

10.8. Nutritional Ergogenic Aids
- 10.8.1. Classification Systems
- 10.8.2. Creatine
- 10.8.3. Caffeine
- 10.8.4. Nitrates
- 10.8.5. β-alanin
- 10.8.6. Bicarbonate and Sodium Phosphate
- 10.8.7. Protein Supplements
- 10.8.8. Modified Carbohydrates
- 10.8.9. Herbal Extracts
- 10.8.10. Contaminant Supplementation

10.9. Eating Disorders and Sports Injuries
- 10.9.1. Anorexia
- 10.9.2. Bulimia Nervosa
- 10.9.3. Orthorexia and bigorexia
- 10.9.4. Binge Eating and Purging Disorder
- 10.9.5. Relative Energy Deficiency Syndrome
- 10.9.6. Micronutrient Deficiency
- 10.9.7. Nutrition Education and Prevention
- 10.9.8. Sports Injuries
- 10.9.9. Nutrition During Physical Rehabilitation

10.10. Advances and Research in Sports Nutrition
- 10.10.1. Nutrigenetics
- 10.10.2. Nutrigenomics
- 10.10.3. Modulation of the Microbiota
- 10.10.4. Probiotics and Prebiotics in Sport
- 10.10.5. Emerging Products
- 10.10.6. Systems Biology
- 10.10.7. Non-Experimental Designs
- 10.10.8. Experimental Designs
- 10.10.9. Systematic Reviews and Meta-Analyses

07

Internship

This Hybrid Professional Master's Degree includes an Internship Program that allows students to acquire a more authentic and real knowledge, thanks to the experience during internships with professionals in High Performance Sports. In this way, the program provides not only an exhaustive theoretical framework, but also a practice that allows the application of all the knowledge acquired.

Do your internship with professionals in the sector that will help you improve your preparation for elite athletes"

The Internship Program consists of a 3-week internship in a company with highly qualified experts in training with teams and athletes of the highest competitive level. This practical phase will take place once the students pass to the theoretical phase of this Hybrid Professional Master's Degree, and the student must know and master to perfection the different techniques, methods, technologies and tools used for physical exercise, before applying all this knowledge in athletes whose professional expectations are very high.

Students will be in this internship from Monday to Friday, in 8-hour consecutive days with professionals in the sector who will teach them the latest developments in training, statistics and evaluation of the elite athlete. The nutritional field, which has a specific module in this program, will be equally important in this phase of the Hybrid Professional Master's Degree, since nutrition is key to physical exercise and the recovery of the athlete after a competition or injury.

It is undoubtedly an opportunity to learn by working with true masters of the sport discipline and with whom to put into practice the concept of intensity and density loading, develop strength and speed training methods, plan aerobic exercises around endurance or build annual, multi-year or short-term plans.

The practical part will be carried out with the active participation of the student performing the activities and procedures of each area of competence (learning to learn and learning to do), with the accompaniment and guidance of teachers and other training partners that facilitate teamwork and multidisciplinary integration as transversal competences for the practice of sports performance (learning to be and learning to relate). the practice of sports performance (learning to be and learning to relate).

The procedures described below will be the basis of the practical part of the training, and their implementation will be subject to the center's own availability and workload, the proposed activities being the following:

Module	Practical Activity
Exercise Physiology and Physical Activity	Apply knowledge of exercise physiology in sports practice
	Transfer the knowledge of fatigue, energy systems and extreme physiological conditions to the practical setting
Statistics applied to performance and research	Master the use of sports statistics in the field of training
	Perform the analysis of different descriptive statistics
	Practicing data collection and handling the main analytical tests in the field of sports
Training strength training, from theory to practice	Apply the practice of the concept of intensity and density loading
	Develop strength training methods
Training endurance training from theory to practice	Plan aerobic exercises around endurance
	Develop physiological adaptations of endurance exercise for children and adolescents
Evaluation of sports performance	Perform sports assessments based on different types of test
	Learn about the practical use of mobile sports applications in high-performance environments
Planning applied to High Performance Performance Sports	Create sports schedules adapted to high performance environments
	Apply the most important criteria and fundamentals in the development of sport planning
	Develop annual, multiyear or short-term plans

Civil Liability Insurance

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

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

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

General Conditions of the Internship Program

The general terms and conditions of the internship program agreement shall be as follows:

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

2. DURATION: The internship program will have a duration of three continuous weeks, in 8-hour days, 5 days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

3. ABSENCE: If the students does not show up on the start date of the Hybrid Professional Master's Degree, they will lose the right to it, without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

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

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

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

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

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

08

Where Can I Do the Internship?

This Hybrid Professional Master's Degree program includes internships in companies and sports organizations that work with athletes who participate in international competitions and tournaments. TECH has rigorously selected the experts who teach, but also the organizations with which the students will carry out this Internship Program. All of this, with the objective that the student receives a quality education that will allow them to achieve their professional goals.

Plan the best training for athletes with this Hybrid Professional Master's Degree. It acquires the level demanded by the great athletes of the moment"

The student will be able to complete the practical part of this Hybrid Professional Master's Degree at the following centers:

Olympus Center

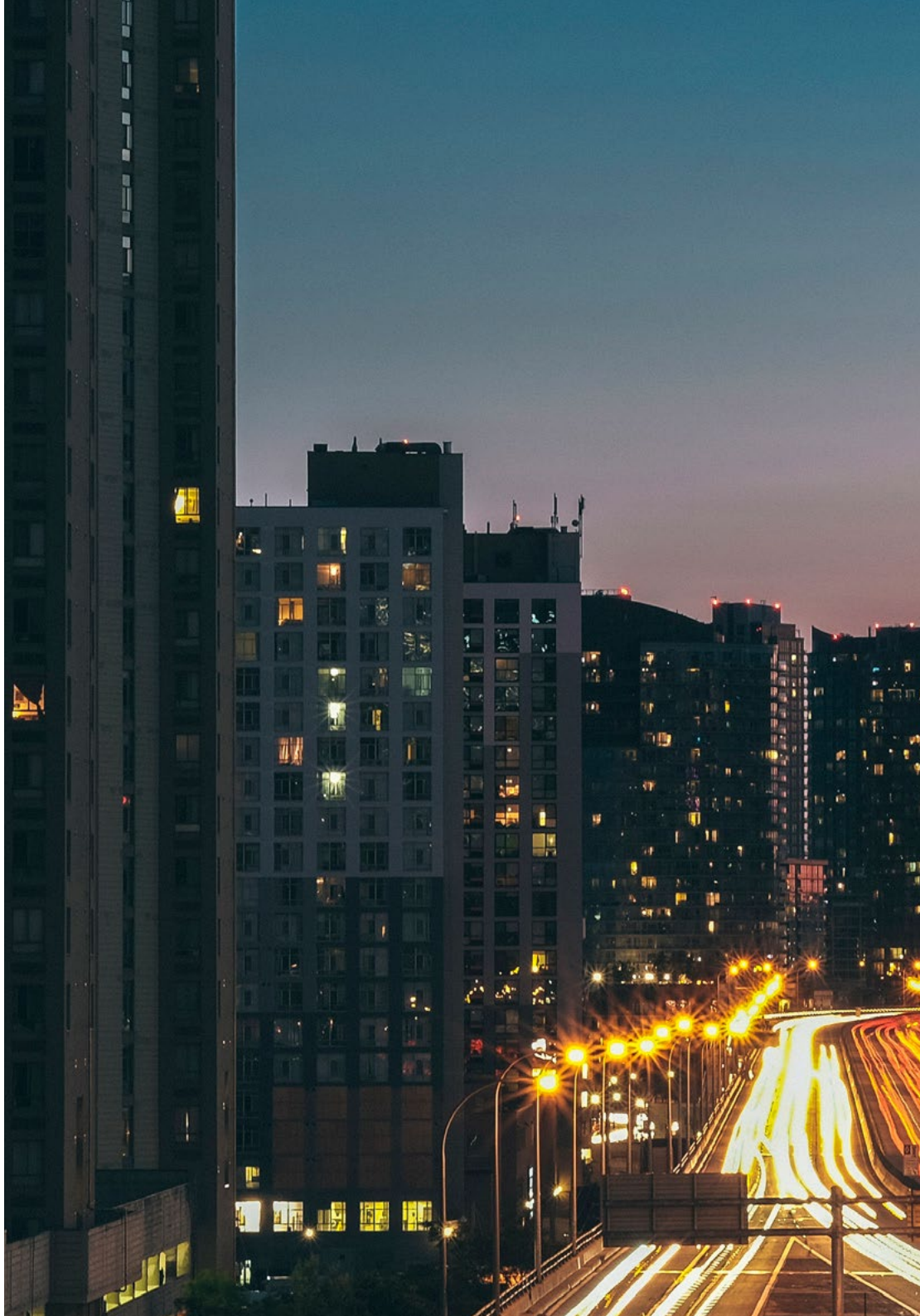
Country
Spain

City
Madrid

Management:
Calle de Palos de la Frontera, 16,
28012 Madrid

Olympus Center specializes in meeting the objectives of the person, according to their physical condition.

Related internship programs:
-High Performance Sports
-Gym Monitor



Wakken

Country
Mexico

City
Mexico City

Management: Ozuluama 21 B Col. Hipódromo Condesa Del. Cuauhtemoc

Space for high-level physical activity

Related internship programs:
-High Sports Performance
-Sports Journalism

Delve into the most relevant theory in this field, subsequently applying it in a real work environment"

09

Method

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

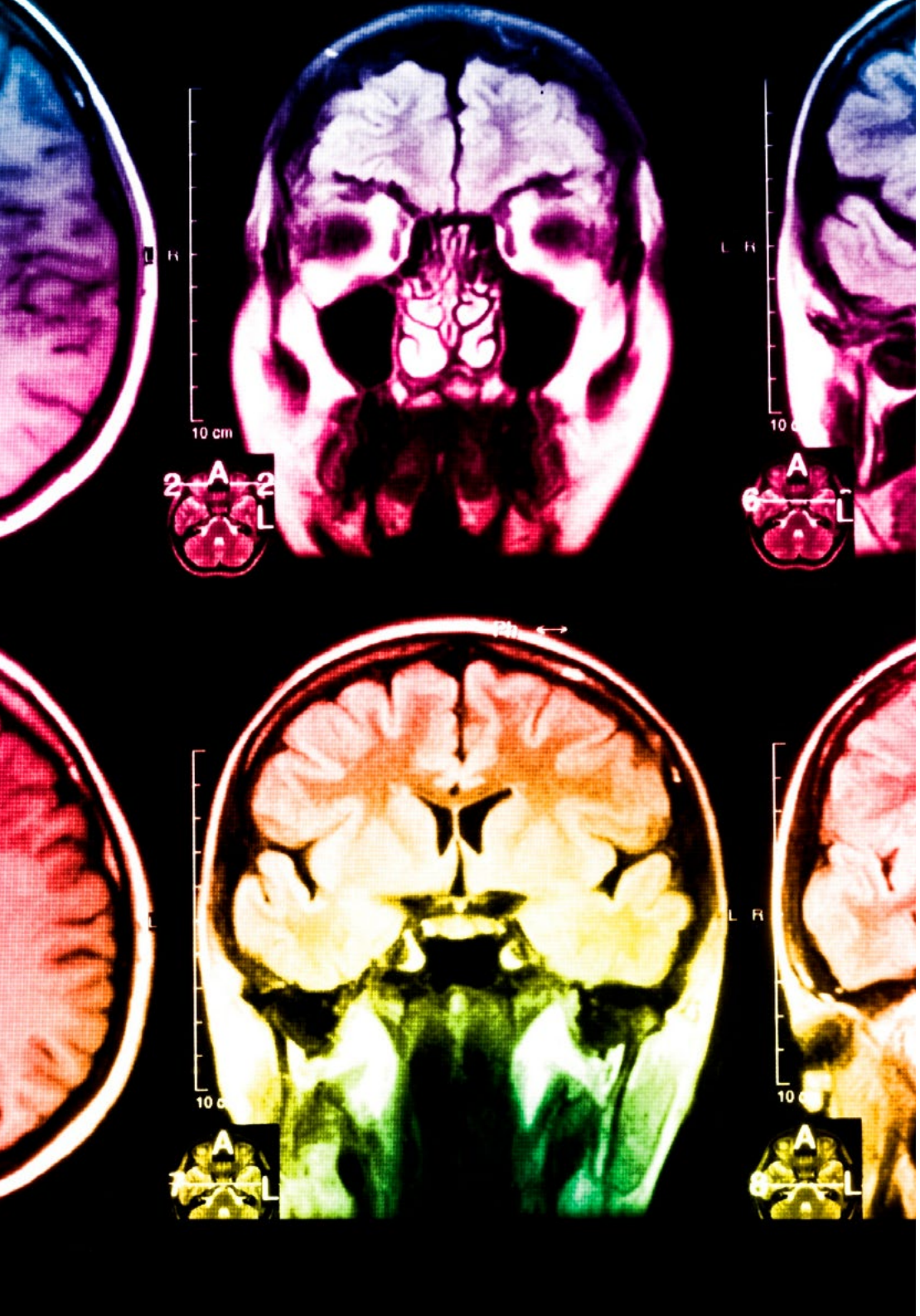
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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.

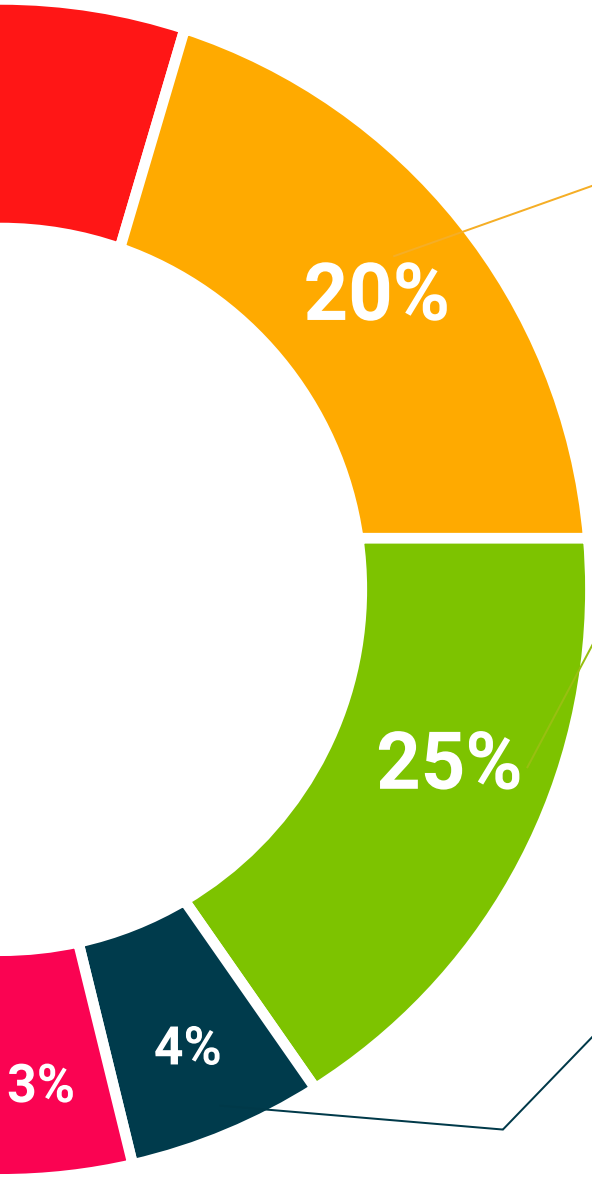
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

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.

10

Certificate

The Hybrid Professional Master's Degree in High Performance in Sports guarantees students, in addition to the most rigorous and up-to-date education, access to a Hybrid Professional Master's Degree diploma issued by TECH Technological University.

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

This **Hybrid Professional Master's Degree in High Performance in Sports**contains the most complete and up-to-date program on the professional and academic field.

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

In addition to the Certificate, students will be able to obtain an academic transcript, as well as a certificate outlining the contents of the program. In order to do so, students should contact their academic advisor, who will provide them with all the necessary information.

Title: **Hybrid Professional Master's Degree in High Performance in Sports**

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

Duration: **12 months**

Certificate: **TECH Technological University**

Teaching Hours: **1,620 h.**

Endorsed by the NBA


tech technological university

Awards the following

CERTFICATE

to

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

For having successfully passed and accredited the following program

HYBRID PROFESSIONAL MASTER'S DEGREE

in

High Performance in Sports

This is a qualification awarded by this University, with a duration of 1,620 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.

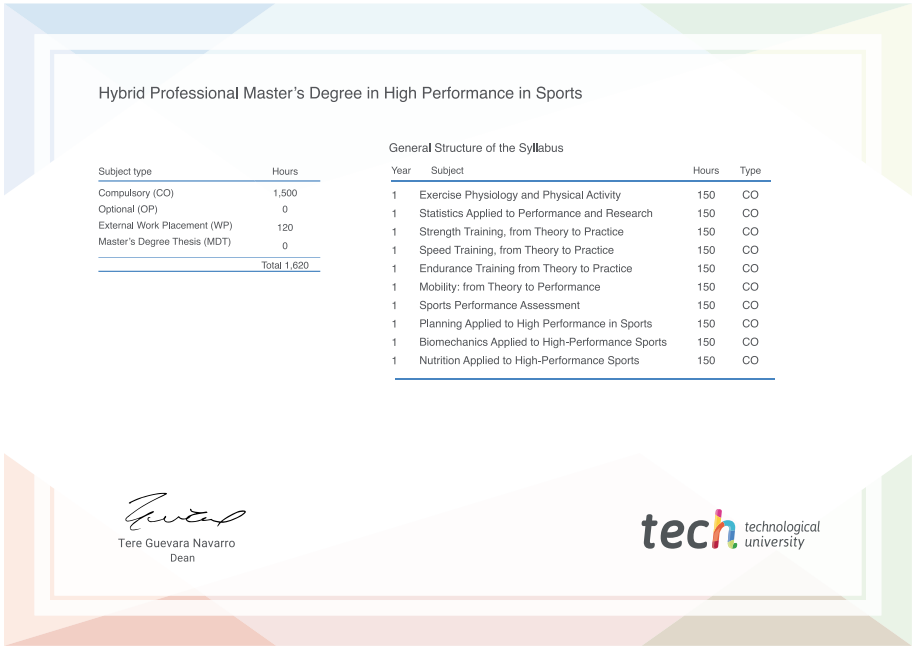
June 17, 2020

Tere Guevara Navarro
Dean

The Official Online University of the NBA

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

Unique TECH Code: AFWORD23S techtitute.com/certificates


Hybrid Professional Master's Degree in High Performance in Sports

Subject type	Hours
Compulsory (CO)	1,500
Optional (OP)	0
External Work Placement (WP)	120
Master's Degree Thesis (MDT)	0
	Total 1,620

General Structure of the Syllabus

Year	Subject	Hours	Type
1	Exercise Physiology and Physical Activity	150	CO
1	Statistics Applied to Performance and Research	150	CO
1	Strength Training, from Theory to Practice	150	CO
1	Speed Training, from Theory to Practice	150	CO
1	Endurance Training from Theory to Practice	150	CO
1	Mobility: from Theory to Performance	150	CO
1	Sports Performance Assessment	150	CO
1	Planning Applied to High Performance in Sports	150	CO
1	Biomechanics Applied to High-Performance Sports	150	CO
1	Nutrition Applied to High-Performance Sports	150	CO

Tere Guevara Navarro
Dean

tech technological university

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

tech technological university

Hybrid Professional Master's Degree

High Performance in Sports

Modality: **Hybrid (Online + Internship)**
Duration: **12 months**
Certificate: **TECH Technological University**
Teaching Hours: **1,620 h.**

Hybrid Professional Master's Degree

High Performance in Sports

Endorsed by the NBA

tech technological university