Master's Degree

Strength Training for Sports Performance

Endorsed by the NBA

tech global university

tech global university

Master's Degree
Strength Training for Sports Performance

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Credits: **60 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/sports-science/master-degree/master-strength-training-sports-performance

Index

01 Introduction p. 4

02 Objectives p. 8

03 Skills p. 14

04 Course Management p. 18

05 Structure and Content p. 24

06 Methodology p. 42

07 Certificate p. 50

01

Introduction

In this program you will find detailed content on how to use strength to improve expressions of strength, ranging from how strength training affects speed sports, endurance, situational sports, to how it affects acceleration, change of direction, etc.

Each topic has real specialists in the field who provide the best theoretical training and all their extensive practical experience, which makes this program unique.

Improve your knowledge in Strength Training for Sports Performance with this high-level program"

In recent years, strength training has burst with great impetus in the scientific community, covering multiple contexts, ranging from sports performance in time and brand sports, to situational sports, through the whole range of sports modalities.

This Master's Degree addresses the vital importance of strength in human performance in all its possible expressions with a unique level of theoretical depth and a level of descent to the practical totally differentiating with respect to what has been seen so far.

The students of this Master's Degree will have a differentiating qualification with respect to their professional colleagues, being able to perform in all areas of sport as a specialist in Strength Training.

The teaching team of this Master's Degree in Strength Training for Sports Performance has made a careful selection of each of the topics of this program, in order to offer the student the most complete study opportunity possible and always linked to current events.

As such, TECH Technological University has set out to create contents of the highest teaching and educational quality that will turn students into successful professionals, following the highest quality standards in teaching at an international level.

Therefore, we is displayed in this Master's Degree with a rich content that will help the student reach the elite of physical training. In addition, as it is an online Master's Degree, the student is not bound by fixed schedules or the need to move to another physical location, rather, they can access the content at any time of the day, balancing their professional or personal life with their academic life.

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

- The development of numerous case studies presented by specialists in personal training
- The graphic, schematic and practical contents of the course are designed to provide all the essential information required 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
- 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

Immerse yourself in this Master's Degree with high scientific rigor and improve your skills in strength training for high performance sports"

This Master's Degree is the best investment you can make when selecting a refresher program, for two reasons: in addition to updating your knowledge as a personal trainer, you will obtain a degree from TECH Global University"

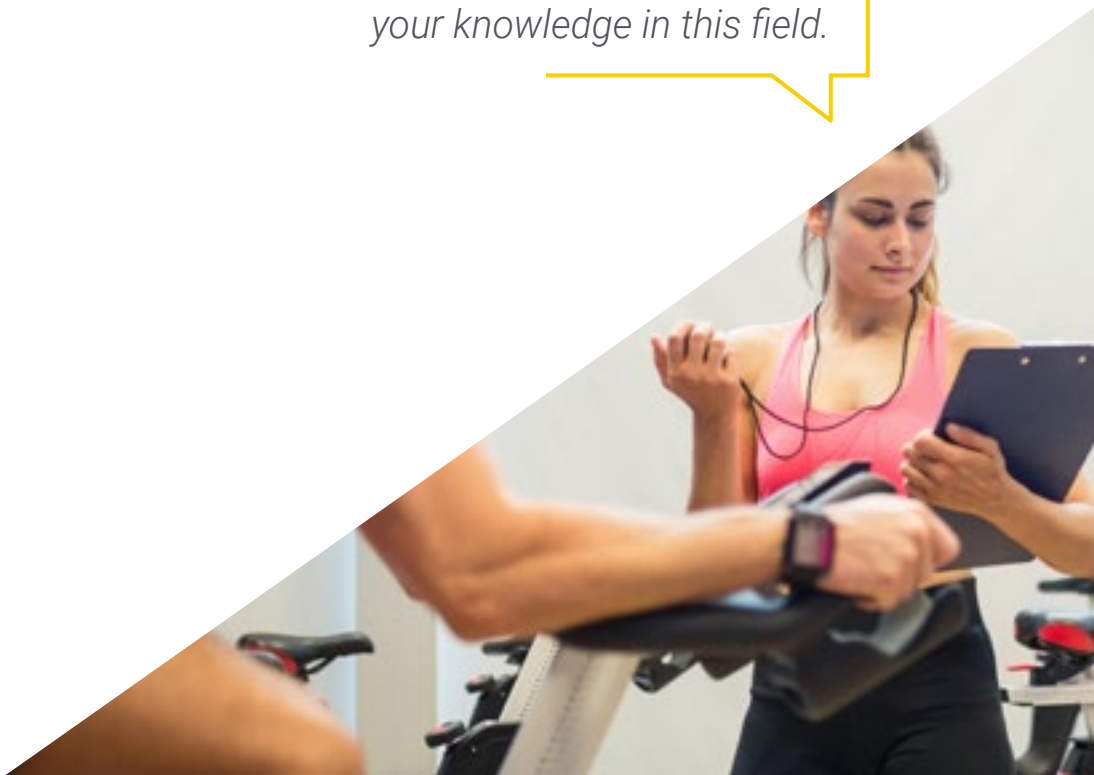
This Master's Degree offers education in simulated environments, which provides an immersive learning experience designed to prepare for real-life situations.

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

The teaching staff includes professionals from the field of sports science, who bring their experience to this training program, as well as renowned specialists from leading societies 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 immersive education programmed to learn in real situations.

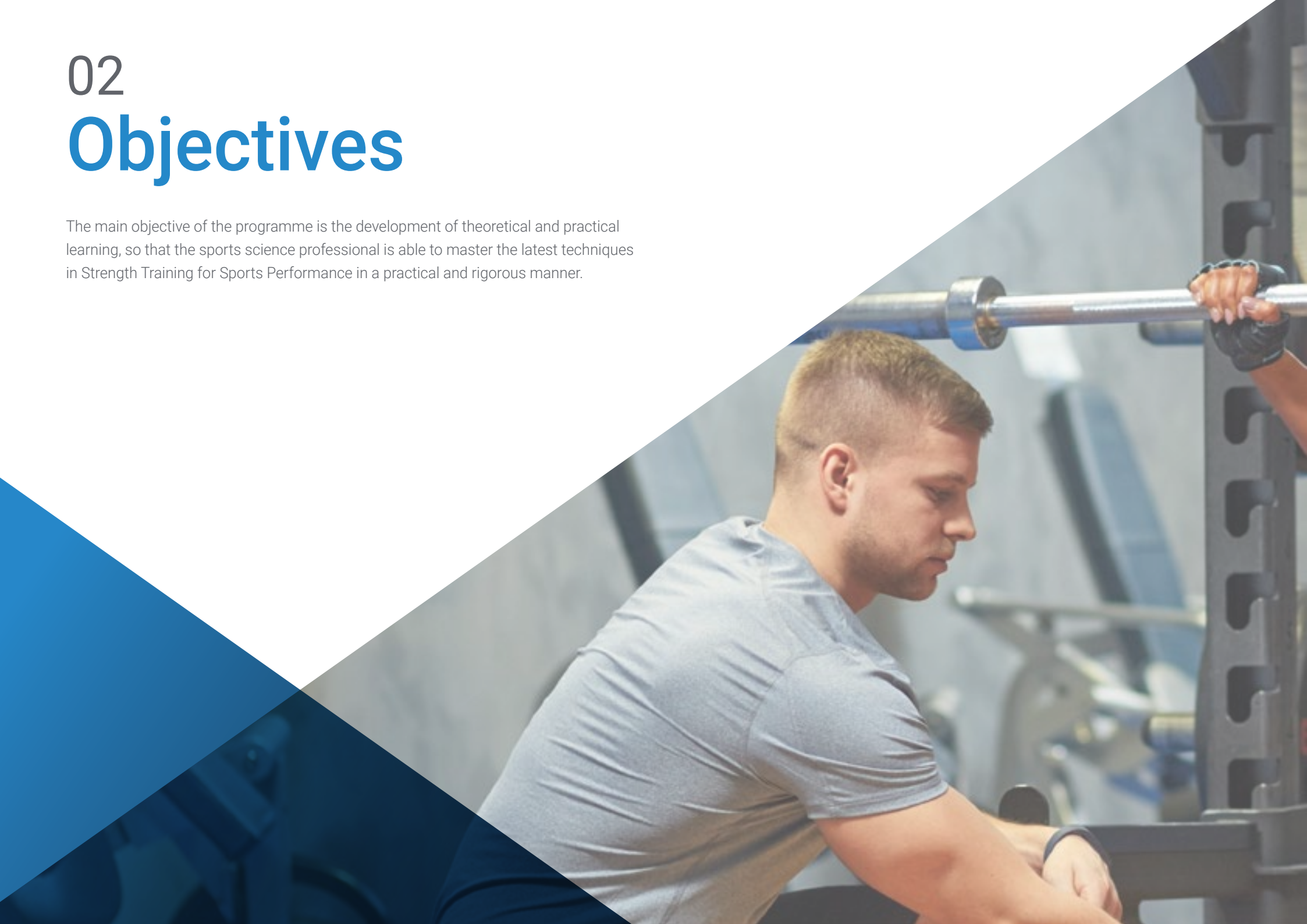
This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the course. In order to do so, the professional will have the help of an innovative interactive video system made by recognized experts in Strength Training for Sports Performance and with great experience.

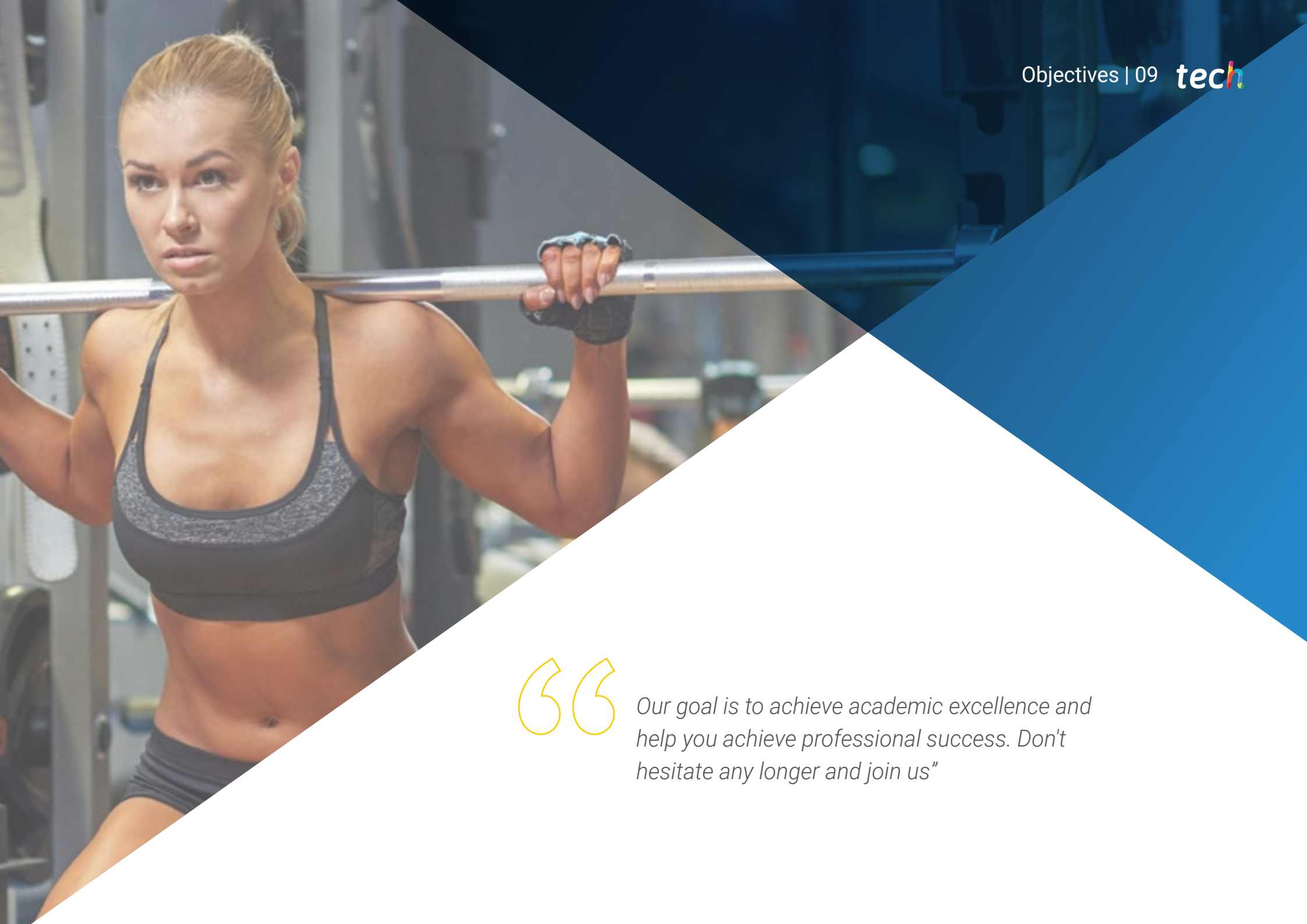


02

Objectives

The main objective of the programme is the development of theoretical and practical learning, so that the sports science professional is able to master the latest techniques in Strength Training for Sports Performance in a practical and rigorous manner.





Our goal is to achieve academic excellence and help you achieve professional success. Don't hesitate any longer and join us"

General Objectives

- Delve into the knowledge based on the most current scientific evidence with full applicability in the practical field regarding Strength training
- Master all the most advanced methods of strength training
- Apply with certainty the most current educational methods to improve sports performance regarding strength
- Effectively master strength training for performance enhancement in time and mark sports as well as situational sports
- Master the principles governing Exercise Physiology, as well as Biochemistry
- Delve into the principles that govern the Theory of Complex Dynamic Systems as they relate to strength training
- Successfully integrate strength training for the improvement of motor skills immersed in sport
- Successfully master 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
- Specialize in 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
- Delve into the functioning of the cardiovascular and respiratory systems and oxygen utilization during exercise
- Manage the general causes of fatigue and impact in different types and modalities of exercise
- Identify the different physiological breakthroughs and their practical application

Module 2. Strength Training for the Improvement of Movement Skills

- Understand in-depth the relationship that exists between strength and skills
- Identify the main skills in sports in order to analyze them, understand them and then enhance them through training
- Organize and systematize the skill development process
- Link and relate field and gym work to enhance skills

Module 3. Strength Training under the Paradigm of Complex Dynamic Systems

- Master specific knowledge about the theory of systems in sports training
- Analyze the different components that are interrelated in strength training and their application in situational sports
- Guide strength training methodologies towards a perspective that addresses the specific demands of sport
- Develop a critical view of the reality of strength training for athletic and non-athletic populations

Module 4. Prescription and Programming of Strength Training

- Specialize and interpret the key aspects of strength training
- In-depth knowledge of the different components of the load
- Delve into key aspects of planning, periodization and load monitoring
- Gain in-depth knowledge of the different session set-up schemes
- Manage the most common prescribing, monitoring and adjustment models

Module 5. Strength Training Methodology

- Gain in-depth knowledge of the different methodological proposals of strength training and their applicability to the field of practice
- Select the most appropriate methods for specific needs
- Recognize and safely apply the different methods proposed in the literature

Module 6. Theory of Strength Training and Basis for Structural Training

- Master in depth the theoretical terms as far as Strength Training is concerned
- Master the theoretical terms referred to in power training
- Master the methodological aspects of training for hypertrophic purposes
- Master the Physiological aspects of training for hypertrophic purposes

Module 7. Strength Training to Improve Speed

- Know and interpret the key aspects of the techniques for speed and changing direction
- Compare and differentiate the speed of situational sport with respect to the track and field model
- Know in depth which are the mechanical aspects that can influence in the decrease of performance and in the mechanisms of injury production in sprinting
- Analytically apply the different means and methods of strength training for the development of sprinting

Module 8. Sports Performance Assessment in Strength Training

- Specialize in the 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
- Delve into and apply different types of technologies currently used in the field of assessment, in the field of health and fitness performance at any level of demand

Module 9. Strength Training in Situational Sports

- Gain an in-depth understanding of the logic of movement-based training design
- Differentiate between means and methods for strength
- Detect priority movement patterns for applying force in the sport at hand
- Understand the functioning and application of technological means in the service of strength training

Module 10. Training in Medium and Long Duration Sports

- Identify and analyze the mechanisms of force production in different endurance disciplines
- Gain in-depth knowledge of the different means and methods of strength training and their practical application
- Delve deeper into the effects of concurrent training and its responses on endurance
- Program and organize strength training

The sports field requires prepared professionals and we give you the keys to position yourself among the professional elite"

03

Skills

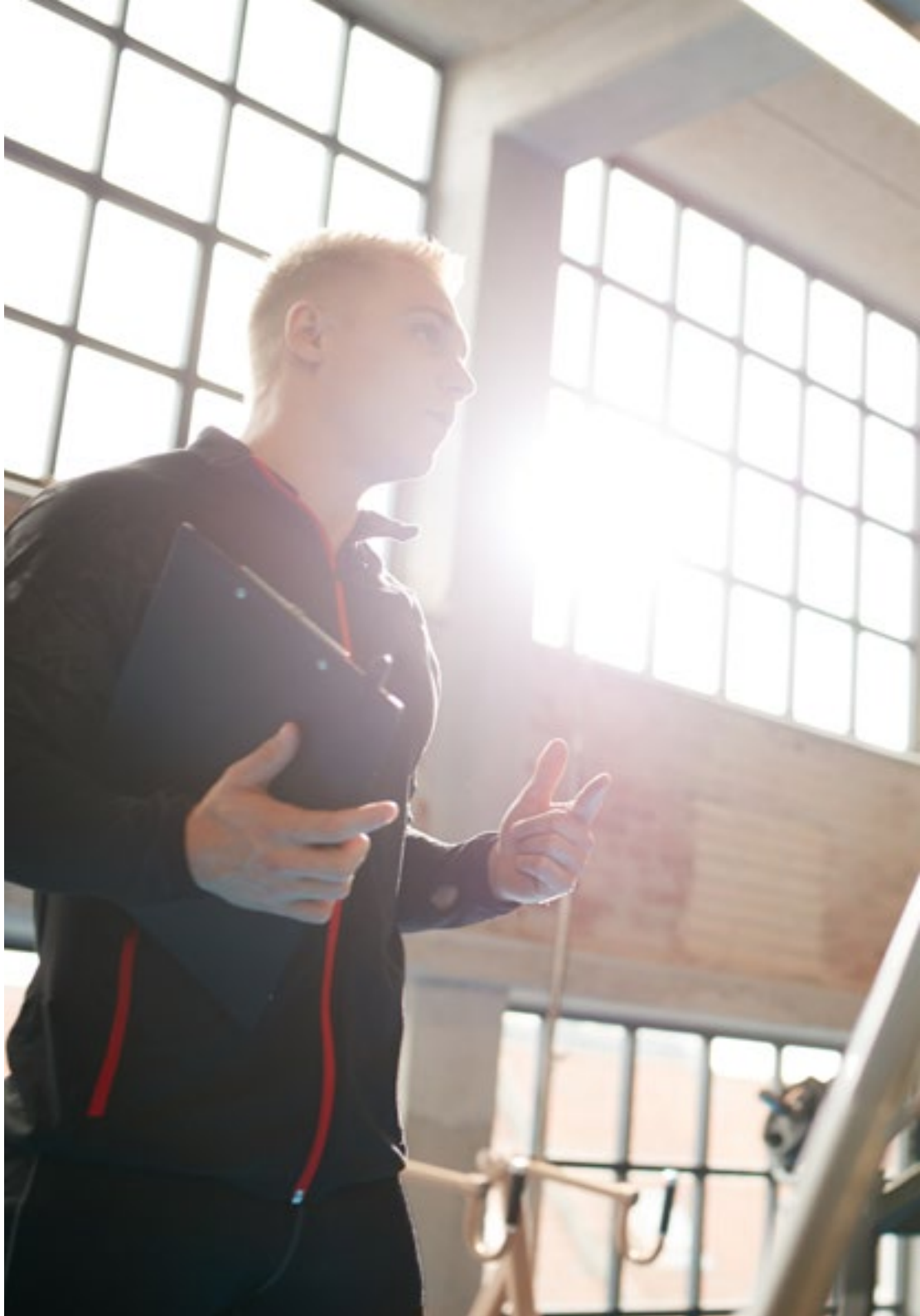
After passing the evaluations of the Master's Degree in Strength Training for Sports Performance, the professional will have acquired the necessary competences for a quality and up-to-date practice based on the most innovative teaching methodology.

This program will allow you to acquire the necessary skills to achieve professional success in this field"

General Skill

- Successfully integrate strength training to improve sports skills

Increase your skills with our high quality program and give your career a boost"



Specific Skills

- Delve into the functioning of the cardiovascular and respiratory systems and oxygen utilization during exercise
- Organize and systematize the *skill* development process
- Analyze the different components that are interrelated in strength training and their application in situational sports
- Delve into key aspects of planning, periodization and load monitoring
- Master the theoretical terms as far as Strength Training is concerned
- Compare and differentiate the speed of situational sport with respect to the track and field model
- Correctly and safely administer the protocols of the different tests and the interpretation of the data collected
- Detect priority movement patterns for applying force in the sport at hand
- Identify and analyze the mechanisms of force production in different endurance disciplines

04

Course Management

Our teaching team, experts in Personal Training, has a wide prestige and are professionals with years of teaching experience who have come together to help you give a boost to your profession. To this end, they have developed this Master's Degree with the latest developments in the field that will allow you to train and increase your skills in this sector.

Learn from the best professionals and become a successful professional yourself"

Management

Mr. Rubina, Dardo

- CEO of Test and Training
- EDM Physical Training Coordinator
- Physical trainer of the EDM First Team
- Master's Degree in ARD COE
- EXOS CERTIFICATION
- Specialist in Strength Training for the Prevention of Injuries, Functional and Physical-Sports Rehabilitation
- Specialist in Strength Training Applied to Physical and Sports Performance
- Specialist in Applied Biomechanics and Functional Evaluation
- Certification in Weight Management and Physical Performance Technologies
- Postgraduate course in Physical Activity in Populations with Pathologies
- Postgraduate diploma in Injury Prevention and Rehabilitation
- Functional Assessment and Corrective Exercise Certificate
- Certificate in Functional Neurology
- Diploma in Advanced Studies (DEA) University of Castilla la Mancha
- PhD Candidate in ARD

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 of Quilmes Atlético Club
- National Professor of Physical Education (INEF) in Avellaneda.
- Postgraduate diploma in Sports Medicine and Applied Sports Sciences from the University of La Plata
- Master's Degree in High Performance Sports by the Catholic University of Murcia
- Training courses oriented to the field of High Performance Sports

Mr. Gizzarelli, Matías Bruno

- Specialized EXOS performance coach for basketball players
- Degree in Physical Education
- Postgraduate Diploma in Applied Neurosciences
- Author of the Book Basketball Training: Physical Preparation

Mr. Masse, Juan Manuel

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

Vilariño, Leandro

- Physical Trainer of the Bolivian Football Club The Strongest.
- Physical Trainer of professional teams of the Argentinean league.
- Degree in Physical Activity and Sport

Carbone, Leandro

- CEO of LIFT, a training and coaching 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 Professor
- External Consultant for Speed4lift, a leading company in sports technology
- Bachelor's Degree in Physical Activity from the University of Salvador
- Specialist in Exercise Physiology from the National University of La Plata
- MCs. Strength and Conditioning at Greenwich University, UK.

Mr. Garzon Duarte, Mateo

- Independent physical trainer
- Assistant and substitute teacher of Biochemistry and Training at Universidad del Salvador
- Physical trainer and coordinator at SportsLab, a high performance sports center specialized in tennis
- MGD -Customized Training. S&C Coach
- Bachelor's Degree in Physical Activity and Sport from the Universidad del Salvador
- Certified Strength and Condit Specialist by CSCS, CSCS
- Professional Massage Therapist by the Centro Médico Escuelaioning

Mr. Palarino, Matías

- CEO at An&En Analisis y Entrenamiento
- Physical Trainer of the Men's Soccer Reserve Team of Club Atletico Velez Sarsfield
- Physical trainer in Professional Soccer
- Physical Trainer in Field Hockey
- Physical Trainer in Rugby
- Therapeutic Personal
- Graduate in High Performance Sports at the National University of Lomas in Zamora
- Superior Professor of Physical Education by ISEF nº1
- Extensive teaching experience in physical preparation and load control courses

Mr. Trobadelo, Pablo Omar

- Physical Trainer of the Argentine Women's Volleyball National Team
- Trainer and consultant in T Movement, Strength & Performance
- Sports Technical Coordinator at KI Gym Concept
- Master in Training and Development of Sports Performance by the National University
- National University of Lomas de Zamora

Mr. Tinti, Hugo

- Physical Trainer at Club Estudiantes de Mérida
- Former Physical Trainer at Oriente Petrolero Soccer Club
- Former Physical Trainer in Alianza Petrolera
- Former Physical Trainer of the fourth division of Club Arsenal
- Master's Degree in Sports Big Data from Universidad Católica San Antonio de Murcia
- Degree in Physical Education from the National University Gral. San Martín

Rossanigo, Horacio

- Sports Director of Activarte Sport Barcelona
- Co-founder of Build Academy
- Physical trainer at Acumen Sports
- Physical Education teacher at Washington School
- Rugby Coach at Uncas Rugby Club
- Physical Education Teacher at the Instituto Superior Tandil
- Bachelor's Degree in Physical Education and Physiology of Physical Labor
- Master's Degree in Physical Preparation in Team Sports at INEF Barcelona

Mr. Vaccarini, Adrián Ricardo

- Head of the Applied Sciences Area of the Peruvian Football Federation
- Second Physical Trainer of the Peruvian National Soccer Team
- Physical Trainer of the Peruvian Under 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

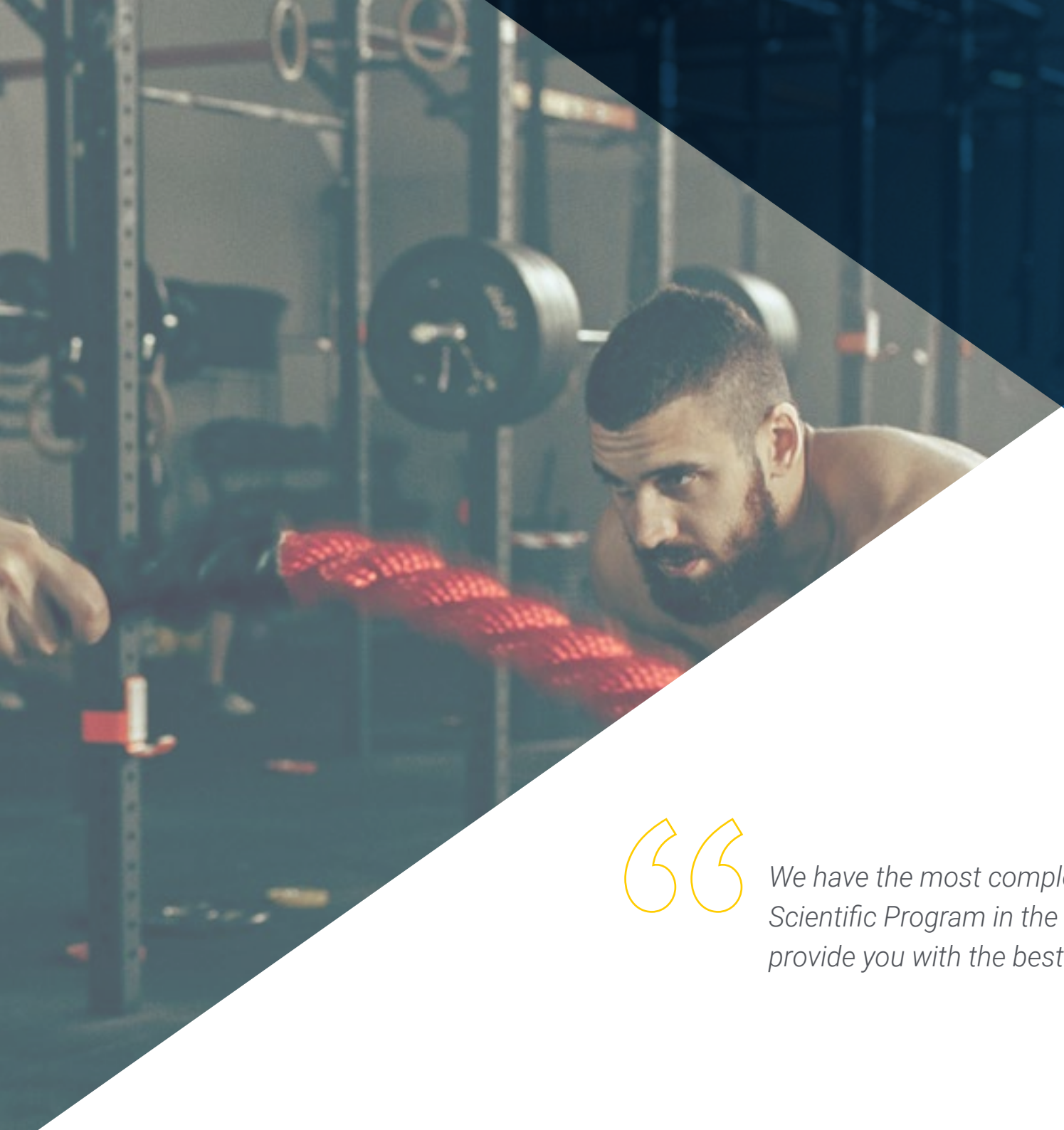
Mr. Varela, Mauricio Carlos

- Physical Education Teacher
- Personal trainer for seniors
- Physical Trainer, Personal Trainer of Elite Cyclists at the Astronomy Cycling Circuit
- Degree in Physical Education
- Specialization in Exercise Programming and Evaluation. Postgraduate Course, FaHCE-UNLP
- ISAK level 1 accredited anthropometrist.
- Member of the ISAK International Society for the Advancement of Cineanthropometry

05

Structure and Content

The structure of the contents has been designed by a team of professionals knowledgeable about the implications of training in daily practice, aware of the current relevance of quality education in the field of personal training; and committed to quality teaching through new educational technologies.



We have the most complete and up-to-date Scientific Program in the Market. We want to provide you with the best education"

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

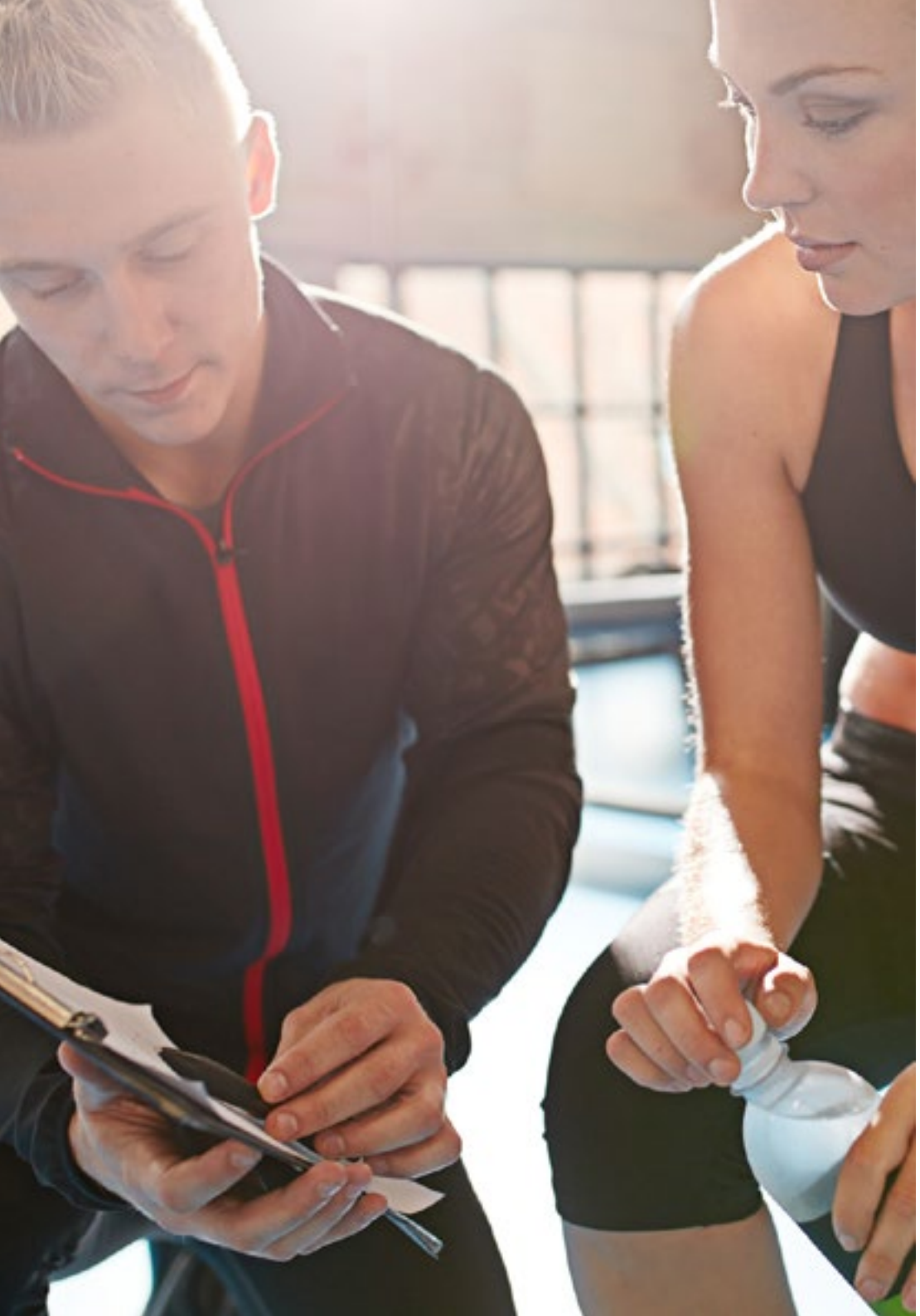
1.2. Energy Systems
- 1.2.1. General Concepts
  - 1.2.1.1. Capacity and Power
  - 1.2.1.2. Cytoplasmic Vs. Mitochondrial Processes
- 1.2.2. Phosphagen Metabolism
  - 1.2.2.1. ATP - PC
  - 1.2.2.2. Pentose Pathway
  - 1.2.2.3. Nucleotide Metabolism
- 1.2.3. Carbohydrate Metabolism
  - 1.2.3.1. Glycolysis
  - 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. Mitocondrial Crosstalk

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. Signal Transduction Mechanism
- 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. Evaluation
- 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. Strength Training for the Improvement of Movement Skills

2.1. Strength in Skill Development
- 2.1.1. The Importance of Strength in Developing Skills
- 2.1.2. Benefits of Strength Training Oriented Towards Skills Development
- 2.1.3. Types of Strength Present in Skills
- 2.1.4. Training Means Necessary for the Development of Srength in Skills

2.2. Skills in Team Sports
- 2.2.1. General Concepts
- 2.2.2. Skills in Performance Development
- 2.2.3. Classification of Skills
  - 2.2.3.1. Locomotive skills
  - 2.2.3.2. Manipulative skills

2.3. Agility and Movements
- 2.3.1. Basic Concepts
- 2.3.2. The Importance of Sports
- 2.3.3. Agility Components
  - 2.3.3.1. Classification of Movement skills
  - 2.3.3.2. Physical Factors: Strength
  - 2.3.3.3. Anthropometric Factors
  - 2.3.3.4. Perceptual-Cognitive Components

2.4. Posture
- 2.4.1. The Importance of Posture in Skills
- 2.4.2. Posture and Mobility
- 2.4.3. Posture and CORE
- 2.4.4. Posture and Center of Pressure
- 2.4.5. Biomechanical Analysis of Efficient Posture
- 2.4.6. Methodological Resources

2.5. Linear Skills
- 2.5.1. Characteristics of Linear Skills
  - 2.5.1.1. Main Planes and Vectors
- 2.5.2. Classification
  - 2.5.2.1. Starting, Braking and Deceleration
    - 2.5.2.1.1. Definitions and Context of Use
    - 2.5.2.1.2. Biomechanical Analysis
    - 2.5.2.1.3. Methodological Resources
  - 2.5.2.2. Acceleration
    - 2.5.2.2.1. Definitions and Context of Use
    - 2.5.2.2.2. Biomechanical Analysis
    - 2.5.2.2.3. Methodological Resources
  - 2.5.2.3. Backpedal
    - 2.5.2.3.1. Definitions and Context of Use
    - 2.5.2.3.2. Biomechanical Analysis
    - 2.5.2.3.3. Methodological Resources

2.6. Multidirectional Skills: Shuffle
- 2.6.1. Classification of MultidirectionalSkills
- 2.6.2. Shuffle: Definitions and Context of Use
- 2.6.3. Biomechanical Analysis
- 2.6.4. Methodological Resources

2.7. Multi-Directional Skills: Crossover
- 2.7.1. Crossover as a Change of Direction
- 2.7.2. Crossover as a Transitional Movement
- 2.7.3. Definitions and Context of Use
- 2.7.4. Biomechanical Analysis
- 2.7.5. Methodological Resources

2.8. Jump Skills 1
- 2.8.1. The Importance of Jumps in Skills
- 2.8.2. Basic Concepts
  - 2.8.2.1. Biomechanics of Jumps
  - 2.8.2.2. CEA
  - 2.8.2.3. Stiffness
- 2.8.3. Jump Classification
- 2.8.4. Methodological Resources

2.9. Jump Skills 2
- 2.9.1. Methods
- 2.9.2. Acceleration and Jumps
- 2.9.3. Shuffle and Jumps
- 2.9.4. Crossover and Jumps
- 2.9.5. Methodological Resources

2.10. Programming Variables

Module 3. Strength Training under the Paradigm of Complex Dynamic Systems

3.1. Introduction to Complex Dynamical Systems
- 3.1.1. Models Applied to Physical Preparation
- 3.1.2. The Determination of Positive and Negative Interactions
- 3.1.3. Uncertainty in Complex Dynamical Systems

3.2. Motor Control and its Role in Performance
- 3.2.1. Introduction to Motor Control Theories
- 3.2.2. Movement and Function
- 3.2.3. Motor Learning
- 3.2.4. Motor Control Applied to Systems Theory

3.3. Communication Processes in the Theory of Systems
- 3.3.1. From Message to Movement
  - 3.3.1.1. The Efficient Communication Process
  - 3.3.1.2. The Stages of Learning
  - 3.3.1.3. The Role of Communication and Sport Development in Early Ages
- 3.3.2. VAKT Principles
- 3.3.3. Performance Knowledge Vs. Outcome Knowledge
- 3.3.4. Verbal feedback in System Interactions

3.4. Strength as an Essential Condition
- 3.4.1. Strength Training in Team Sports
- 3.4.2. Manifestations of Strength Within the System
- 3.4.3. The Strength-Speed Continuum. Systemic Review

3.5. Complex Dynamical Systems and Training Methods
- 3.5.1. Periodization. Historical Review
  - 3.5.1.1. Traditional Periodization
  - 3.5.1.2. Contemporary Periodization
- 3.5.2. Analysis of Periodization Models in Training Systems
- 3.5.3. Evolution of Strength Training Methods

3.6. Strength and Motor Divergence
- 3.6.1. Developing Strength at Early Ages
- 3.6.2. The Manifestations of Strength in Infantile-Juvenile Ages
- 3.6.3. Efficient Programming at Youth Ages

3.7. The Role of Decision-Making in Complex Dynamical Systems
- 3.7.1. The Decision-Making Process
- 3.7.2. Decisional Timing
- 3.7.3. The Development of Decision Making
- 3.7.4. Programming Training Based on Decision Making

3.8. Perceptual Abilities in Sports
- 3.8.1. Visual Abilities
  - 3.8.1.1. Visual Recognition
  - 3.8.1.2. Central and Peripheral Vision
- 3.8.2. Motor Experience
- 3.8.3. Attentional Focus
- 3.8.4. The Tactical Component

3.9. Systemic Vision of Programming
- 3.9.1. The Influence of Identity on Programming
- 3.9.2. The System as a Path to Long-Term Development.
- 3.9.3. Long-Term Development Program

3.10. Global Programming: from System to Need
- 3.10.1. Program Design
- 3.10.2. Practical System Assessment Workshop

Module 4. Prescription and Programming of Strength Training

4.1. Introduction and Definition of Concepts
- 4.1.1. General Concepts
  - 4.1.1.1. Planning, Periodization, Prescription
  - 4.1.1.2. Qualities, Methods, Objectives
  - 4.1.1.3. Complexity, Risk and Uncertainty
  - 4.1.1.4. Complementary Pairs

4.2. Exercises
- 4.2.1. General Vs. Specific
- 4.2.2. Simple Vs. Complexity
- 4.2.3. Push Vs. Ballistic
- 4.2.4. Kinetics and Kinematics
- 4.2.5. Basic Patterns
- 4.2.6. Order, Emphasis, Importance

4.3. Programming Variables
- 4.3.1. Intensity
- 4.3.2. Effort
- 4.3.3. Intension
- 4.3.4. Volume
- 4.3.5. Density
- 4.3.6. Weight
- 4.3.7. Dose

4.4. Periodization Structures
- 4.4.1. Microcycle
- 4.4.2. Mesocycle
- 4.4.3. Macrocycle
- 4.4.4. Olympic Cycles

4.5. Session Structures
- 4.5.1. Hemispheres
- 4.5.2. Entries
- 4.5.3. Weider
- 4.5.4. Patterns
- 4.5.5. Muscle

4.6. Prescription
- 4.6.1. Load-Effort Tables
- 4.6.2. Based on %
- 4.6.3. Based on Subjective Variables
- 4.6.4. Based on Speed (VBT)
- 4.6.5. Others

4.7. Prediction and Monitoring
- 4.7.1. Speed-Based Training
- 4.7.2. Areas of Repetition
- 4.7.3. Load Areas
- 4.7.4. Time and Reps

4.8. Planning
- 4.8.1. Series– Repetition Schemes
  - 4.8.1.1. Plateau
  - 4.8.1.2. Step
  - 4.8.1.3. Waves
  - 4.8.1.4. Steps
  - 4.8.1.5. Pyramids
  - 4.8.1.6. Light-Heavy
  - 4.8.1.7. Cluster
  - 4.8.1.8. Rest-Pause
- 4.8.2. Vertical Planning
- 4.8.3. Horizontal Planning
- 4.8.4. Classifications and Models
  - 4.8.4.1. Constant
  - 4.8.4.2. Lineal
  - 4.8.4.3. Reverse Linear
  - 4.8.4.4. Blocks
  - 4.8.4.5. Accumulation
  - 4.8.4.6. Undulating
  - 4.8.4.7. Reverse Undulating
  - 4.8.4.8. Volume-Intensity

4.9. Adaptation
- 4.9.1. Dose-Response Model
- 4.9.2. Robust-Optimal
- 4.9.3. Fitness– Fatigue
- 4.9.4. Micro Doses

4.10. Assessments and Adjustments
- 4.10.1. Self-Regulated Load
- 4.10.2. Adjustments Based on VBT
- 4.10.3. Based on RIR and RPE
- 4.10.4. Based on Percentages
- 4.10.5. Negative Pathway

Module 5. Strength Training Methodology

5.1. Training Methods Derived from Powerlifting
- 5.1.1. Functional Isometrics
- 5.1.2. Forced Repetitions
- 5.1.3. Eccentrics in Competition Exercises
- 5.1.4. Main Characteristics of the Most-Used Methods in Powerlifting

5.2. Training Methods from Weightlifting
- 5.2.1. Bulgarian Method
- 5.2.2. Russian Method
- 5.2.3. Origin of the Popular Methodologies in the School of Olympic Lifting
- 5.2.4. Differences Between the Bulgarian and Russian Concepts

5.3. Zatsiorsky Methods
- 5.3.1. Maximum Effort Method (ME)
- 5.3.2. Repeated Effort Method (RE)
- 5.3.3. Dynamic Effort Method (DE)
- 5.3.4. Load Components and Main Characteristics of Zatsiorsky's Methods
- 5.3.5. Interpretation and Differences of Mechanical Variables (Force, Power and Speed) Revealed Between ME, RE and DE and Their Internal Response (PSE)

5.4. Pyramidal Methods
- 5.4.1. Classic Ascending
- 5.4.2. Classic Descending
- 5.4.3. Double
- 5.4.4. Skewed Pyramid
- 5.4.5. Truncated Pyramid
- 5.4.6. Flat or Stable Pyramid
- 5.4.7. Load Components (Volume and Intensity) of the Different Proposals of the Pyramidal Method

5.5. Training Methods Derived from Bodybuilding
- 5.5.1. Superseries
- 5.5.2. Triseries
- 5.5.3. Compound Series
- 5.5.4. Giant Series
- 5.5.5. Congestive Series
- 5.5.6. Wave-Like Loading
- 5.5.7. ACT (Anti-Catabolic Training)
- 5.5.8. Bulk
- 5.5.9. Cluster
- 5.5.10. 10x10 Zatziorsky
- 5.5.11. Heavy Duty
- 5.5.12. Ladder
- 5. 5.13. Characteristics and Load Components of the Different Methodological Proposals of Training Systems Coming From Bodybuilding

5.6. Methods from Sports Training
- 5.6.1. Plyometry
- 5.6.2. Circuit Training
- 5.6.3. Cluster Training
- 5.6.4. Contrast
- 5.6.5. Main Characteristics of Strength Training Methods Derived from Sports Training

5.7. Methods From Non-Conventional and CROSSFIT Training
- 5.7.1. EMOM (Every Minute on the Minute)
- 5.7.2. Tabata
- 5.7.3. AMRAP (As Many Reps as Possible)
- 5.7.4. For Time
- 5.7.5. Main Characteristics of Strength Training Methods Derived from Crossfit Training

5.8. Speed-Based Training (VBT)
- 5.8.1. Theoretical Foundation
- 5.8.2. Practical Considerations
- 5.8.3. Own Data

5.9. The Isometric Method
- 5.9.1. Concepts and Physiological Fundamentals of Isometric Stresses
- 5.9.2. Proposal of Yuri Verkhoshansky

5.10. Methodology of Repeat Power Ability (RPA) From Alex Natera
- 5.10.1. Theoretical Foundation
- 5.10.2. Practical Applications
- 5.10.3. Continuous Vs. Own Data

5.11. Training Methodology Proposed by Fran Bosch
- 5.11.1. Theoretical Foundation
- 5.11.2. Practical Applications
- 5.11.3. Published Data vs Own Data

5.12. Cal Dietz and Matt Van Dyke's Three-Phase Methodology
- 5.12.1. Theoretical Foundation
- 5.12.2. Practical Applications

5.13. New Trends in Quasi-Isometric Eccentric Training
- 5.13.1. Neurophysiological Rationale and Analysis of Mechanical Responses Using Position Transducers and Force Platforms for Each Strength Training Approach

Module 6. Theory of Strength Training and Basis for Structural Training

6.1. Strength, its Conceptualization and Terminology
- 6.1.1. Strength from Mechanics
- 6.1.2. Strength from Physiology
- 6.1.3. Concept Strength Deficit
- 6.1.4. Concept of Applied Strength
- 6.1.5. Concept of Useful Strength
- 6.1.6. Terminology of Strength Training
  - 6.1.6.1. Maximum Strength
  - 6.1.6.2. Explosive Strength
  - 6.1.6.3. Elastic Explosive Strength
  - 6.1.6.4. Reflective Elastic Explosive Strength
  - 6.1.6.5. Ballistic Strength
  - 6.1.6.6. Rapid Force
  - 6.1.6.7. Explosive Power
  - 6.1.6.8. Speed Strength
  - 6.1.6.9. Resistance Training

6.2. Concepts Connected to Power 1
- 6.2.1. Definition of Power
  - 6.2.1.1. Conceptual Aspects of Power
  - 6.2.1.2. The Importance of Power in a Context of Sport Performance
  - 6.2.1.3. Clarification of Power Terminology
- 6.2.2. Factors Contributing Peak Power Development
- 6.2.3. Structural Aspects Conditioning Power Production
  - 6.2.3.1. Muscle Hypertrophy
  - 6.2.3.2. Muscle Structure
  - 6.2.3.3. Ratio of Fast and Slow Fibers in a Cross Section
  - 6.2.3.4. Muscle Length and its Effect on Muscle Contraction
  - 6.2.3.5. Quantity and Characteristics of Elastic Components
- 6.2.4. Neural Aspects Conditioning Power Production
  - 6.2.4.1. Action Potential
  - 6.2.4.2. Speed of Motor Unit Recruitment
  - 6.2.4.3. Muscle Coordination
  - 6.2.4.4. Intermuscular Coordination
  - 6.2.4.5. Prior Muscle Status (PAP)
  - 6.2.4.6. Neuromuscular Reflex Mechanisms and Their Incidence

6.3. Concepts Connected to Power 2
- 6.3.1. Theoretical Aspects for Understanding the Strength–Time Curve
  - 6.3.1.1. Strength Impulse
  - 6.3.1.2. Phases of the Strength–Time Curve
  - 6.3.1.3. Phases of Acceleration in the Strength–Time Curve
  - 6.3.1.4. Maximum Acceleration Area of the Strength–Time Curve
  - 6.3.1.5. Deceleration Phase of the Strength–Time Curve

6.3.2. Theoretical Aspects for Understanding Power Curves
6.3.2.1. Power–Time Curve
6.3.2.2. Power–Displacement Curve
6.3.2.3. Optimal Workload for Maximum Power Development
6.4. Relating Concepts of Strength and their Connection to Sports Performance
6.4.1. Objective of Strength Training
6.4.2. Relationship of Power to the Training Cycle or Phase
6.4.3. Connection of Maximum Force and Power
6.4.4. Connection Between Power and the Improvement of Athletic Performance
6.4.5. Relationship Between Strength and Sports Performance
6.4.6. Connection between Strength and Speed
6.4.7. Connection Between Strength and Jump
6.4.8. Connection between Strength and Changes in Direction
6.4.9. Connection Between Strength and Other Aspects of Athletic Performance
6.4.9.1. Maximum Strength and Its Effects on Training
6.5. Neuromuscular System (Hypertrophic Training)*
6.5.1. Structure and Function
6.5.2. Motor Unit
6.5.3. Sliding Theory
6.5.4. Types of Fiber
6.5.5. Types of Contraction
6.6. Responses and Their Adaptation to the Neuromuscular System (Hypertrophic Training)
6.6.1. Nerve Impulse Adaptations
6.6.2. Muscle Activation Adaptations
6.6.3. Motor unit Synchronization Adaptations
6.6.4. Adaptations in Antagonist Coactivation
6.6.5. Adaptations in Doublets
6.6.6. Muscle Preactivation

6.6.7. Muscular Stiffness
6.6.8. Reflexes
6.6.9. Internal Models of Motor Engrams
6.6.10 Muscle Tone
6.6.11 Action Potential Speed
6.7. Hypertrophy
6.7.1. Introduction
6.7.1.1. Parallel and Serial Hypertrophy
6.7.1.2. Sarcoplasmic Hypertrophy
6.7.2. Satellite Cells
6.7.3. Hyperplasia
6.8. Mechanisms that Induce Hypertrophy*
6.8.1. Mechanism that Induces Hypertrophy: Mechanical Stress
6.8.2. Mechanism that Induces Hypertrophy: Metabolic Stress
6.8.3. Mechanism that Induces Hypertrophy: Muscle Damage
6.9. Variables for Hypertrophy Training Programming*
6.9.1. Volume
6.9.2. Intensity
6.9.3. Frequency (F)
6.9.4. Weight
6.9.5. Density
6.9.6. Selecting Exercises
6.9.7. Order in the Execution of Exercises
6.9.8. Type of Muscle Action
6.9.9. Duration of Rest Intervals
6.9.10. Duration of Repetitions
6.9.11. Range of Movement
6.10. Main Factors Affecting Hypertrophic Development at the Highest Level
6.10.1. Genetics
6.10.2. Age
6.10.3. Sex
6.10.4. Training Status

Module 7. Strength Training to Improve Speed

7.1. Strength
7.1.1. Definition
7.1.2. General Concepts
7.1.2.1. Manifestations of Strength
7.1.2.2. Factors that Determine Performance
7.1.2.3. Strength Requirements for Sprint Improvement. Connection Between Force Manifestations and Sprint
7.1.2.4. Force-Velocity Curve
7.1.2.5. Relationship of the Force-Velocity and Power Curve and its Application to the Sprint Phases
7.1.2.6. Development of Muscular Strength and Power
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. Analysis of Acceleration Technique and Maximum Speed in Team Sports
7.3.1. Description of the Technique in Team Sports
7.3.2. Comparison of Sprinting Technique in Team Sports Vs. Athletic Events
7.3.3. Timing and Motion Analysis of Speed Events in Team Sports
7.4. Exercises as Basic and Special Means of Strength Development for Sprint Improvement
7.4.1. Basic Movement Patterns
7.4.1.1. Description of Patterns with Emphasis on Lower Limb Exercises
7.4.1.2. Mechanical Demand of the Exercises
7.4.1.3. Exercises Derived from Olympic Weightlifting
7.4.1.4. Ballistic Exercises
7.4.1.5. Force-Velocity Curve of the Exercises
7.4.1.6. Strength Production Vector

7.5. Special Methods of Strength Training Applied to Sprinting
- 7.5.1. Maximum Effort Method
- 7.5.2. Dynamic Effort Method
- 7.5.3. Repeated Effort Method
- 7.5.4. French Complex and Contrast Method
- 7.5.5. Speed-Based Training
- 7.5.6. Strength Training as a Means of Injury Risk Reduction

7.6. Means and Methods of Strength Training for Speed Development
- 7.6.1. Means and Methods of Strength Training for the Development of the Acceleration Phase
  - 7.6.1.1. Connection of Force to Acceleration
  - 7.6.1.2. Sledding and Racing Against Resistance
  - 7.6.1.3. Slopes
  - 7.6.1.4. Jumpability
    - 7.6.1.4.1. Building the Vertical Jump
    - 7.6.1.4.2. Building the Horizontal Jump
- 7.6.2. Means and Methods for Top Speed Training
  - 7.6.2.1. Plyometry
    - 7.6.2.1.1. Concept of the Shock Method
    - 7.6.2.1.2. Historical Perspective
    - 7.6.2.1.3. Shock Method Methodology for Speed Improvement
    - 7.6.2.1.4. Scientific Evidence

7.7. Means and Methods of Strength Training Applied to Agility and Change of Direction
- 7.7.1. Determinants of Agility and COD
- 7.7.2. Multidirectional Jumps
- 7.7.3. Eccentric Strength

7.8. Assessment and Control of Strength Training
- 7.8.1. Strength-Speed Profile
- 7.8.2. Load-Speed Profile
- 7.8.3. Progressive Loads

7.9. Integration.
- 7.9.1. Case Study

Module 8. Sports Performance Assessment in Strength Training

8.1. Evaluation
- 8.1.1. General Concepts on Assessment, Test and Measuring
- 8.1.2. Test Characteristics
- 8.1.3. Types of Tests
- 8.1.4. Assessment Objectives

8.2. Technology and Neuromuscular Assessments
- 8.2.1. Contact Mat
- 8.2.2. Strength Platforms
- 8.2.3. Load Cell
- 8.2.4. Accelerometers
- 8.2.5. Position Transducers
- 8.2.6. Cellular Applications for Neuromuscular Evaluation

8.3. Submaximal Repetition Test
- 8.3.1. Protocol for its Assessment
- 8.3.2. Validated Estimation Formulas for the Different Training Exercises
- 8.3.3. Mechanical and Internal Load Responses During a Submaximal Repetition Test

8.4. Progressive Maximum Incremental Exercise Test (IETmax)
- 8.4.1. Naclerio and Figueroa Protocol 2004
- 8.4.2. Mechanical (Linear Encoder) and Internal Load (PSE) Responses During a Max TPI.
- 8.4.3. Determining the Optimal Zone for Power Training

8.5. Horizontal Jump Test
- 8.5.1. Assessmen Without Using Technology
- 8.5.2. Assessment Using Technology (Horizontal Encoder and Force Platform).

8.6. Simple Vertical Jump Test
- 8.6.1. Squat Jump Assessment
- 8.6.2. Counter Movement Jump Assessment
- 8.6.3. Assessment of an Abalakov Salto ABK
- 8.6.4. Drop Jump Assessment

8.7. Repeated Vertical Jump Test (Rebound Jump)
- 8.7.1. 5-second Repeated Jump Test
- 8.7.2. 15-second Repeated Jump Test
- 8.7.3. 30-second Repeated Jump Test
- 8.7.4. Fast Strength Endurance Index (Bosco)
- 8.7.5. Effort Exercise Index in the Rebound Jump Test

8.8. Mechanical Responses (Strength, Power and Speed/Time) During Single and Repeated Jumps Tests
- 8.8.1. Strength/Time in Simple and Repeated Jumps
- 8.8.2. Speed/Time in Single and Repeated Jumps
- 8.8.3. Power/Time in Simple and Repeated Jumps

8.9. Strength/Speed Profiles in Horizontal Vectors
- 8.9.1. Theoretical Basis of an S/S Profile
- 8.9.2. Morin and Samozino Assessment Protocols
- 8.9.3. Practical Applications
- 8.9.4. Contact Carpet, Linear Encoder and Force Platform Evaluation of Forces.

8.10. Strength/Speed Profiles in Vertical Vectors
- 8.10.1. Theoretical Basis of an S/S Profile
- 8.10.2. Morin and Samozino Assessment Protocols
- 8.10.3. Practical Applications
- 8.10.4. Contact Carpet, Linear Encoder and Force Platform Evaluation of Forces.

8.11. Isometric Tests
- 8.11.1. McCall Test
  - 8.11.1.1. Evaluation Protocol and Values Recorded With a Force Platform
- 8.11.2. Mid-Thigh Pull Test
  - 8.11.2.1. Evaluation Protocol and Values Recorded With a Force Platform

Module 9. Strength Training in Situational Sports

9.1. Basic Fundamentals
- 9.1.1. Functional and Structural Adaptations
  - 9.1.1.1. Functional Adaptations
  - 9.1.1.2. Load-Pause Ratio (Density) as a Criterion for Adaptation
  - 9.1.1.3. Strength as a Base Quality
  - 9.1.1.4. Mechanisms or Indicators for Structural Adjustments
  - 9.1.1.5. Utilization, Conceptualization of the Muscular Adaptations Provoked, as an Adaptive Mechanism of the Imposed Load. (Mechanical Stress, Metabolic Stress, Muscle Damage)
- 9.1.2. Motor Unit Recruitment
  - 9.1.2.1. Recruitment Order, Central Nervous System Regulatory Mechanisms, Peripheral Adaptations, Central Adaptations Using Tension, Speed or Fatigue as a Tool for Neural Adaptation.
  - 9.1.2.2. Order of Recruitment and Fatigue During Maximum Effort
  - 9.1.2.3. Recruitment Order and Fatigue During Sub-Maximum Efforts
  - 9.1.2.4. Fibrillar Recovery

9.2. Specific Fundamentals
- 9.2.1. Movement as a Starting Point
- 9.2.2. Quality of Movement as a General Objective for Motor Control, Motor Pattern and Motor Programming
- 9.2.3. Priority Horizontal Movements
  - 9.2.3.1. Accelerating, Braking, Change of Direction With Inside Leg and Outside Leg, Maximum Absolute Speed and/or Sub-Maximum Speed Technique, Correction and Application According to the Specific Movements in Competition
- 9.2.4. Priority Vertical Movements
  - 9.2.4.1. Jumps, Hops, Bounds Technique, Correction and Application According to the Specific Movements in Competition

9.3. Technological Means for the Assessment of Strength Training and External Load Control
- 9.3.1. Introduction to Technology and Sport

9.3.2. Technology for Strength and Power Training Assessment and Control
9.3.2.1. Rotary Encoder (Operation, Interpretation Variables, Intervention Protocols, Application)
9.3.2.2. Load Cell (Operation, Interpretation Variables, Intervention Protocols, Application)
9.3.2.3. Strength Platforms (Operation, Interpretation Variables, Intervention Protocols, Application)
9.3.2.4. Electric Photocells (Operation, Interpretation Variables, Intervention Protocols, Application)
9.3.2.5. Contact Mat (Operation, Interpretation Variables, Intervention Protocols, Application)
9.3.2.6. Accelerometer (Operation, Interpretation Variables, Intervention Protocols, Application)
9.3.2.7. Applications for Mobile Devices (Operation, Interpretation Variables, Intervention Protocols, Application)
9.3.3. Intervention Protocols for the Assessment and Control of Training
9.4. Internal Load Control
9.4.1. Subjective Load Perception by Rating the Perceived Exertion
9.4.1.1. Subjective Perception of Load to Estimate Relative Load (% 1MR)
9.4.2. Scope
9.4.2.1. As Exercise Control
9.4.2.1.1. Repetitions and PRE
9.4.2.1.2. Repetitions in Reserve
9.4.2.1.3. Scale of Speed
9.4.2.2. Controlling the Overall Effect of a Session
9.4.2.3. As a Tool for Periodization
9.4.2.3.1. Use of (APRE) Self-Regulated Progressive Resistance Exercise, Interpretation of the Data and its Relation to the Correct Dosage of the Load in the Session
9.4.3. Recovery Quality Scale, Interpretation and Practical Application in the Session (TQR 0-10)
9.4.4. As a Tool for Daily Practice
9.4.5. Application
9.4.6. Recommendations
9.5. Means for Strength Training
9.5.1. Role of the Means in Designing a Method
9.5.2. Means at the Service of a Method and in Function of a Central Sporting Objective
9.5.3. Types of Means
9.5.4. Movement Patterns and Activations as a Central Axis for Media Selection and Method Implementation
9.6. Building a Method
9.6.1. Defining the Types of Exercises
9.6.1.1. Cross-Connectors as a Guide to the Movement Target
9.6.2. Exercise Evolution
9.6.2.1. Modification of the Rotational Component and the Number of Supports According to the Plane of Motion
9.6.3. Exercise Organization
9.6.3.1. Relationship With Priority Horizontal and Vertical Movements (2.3 and 2.4)
9.7. Practical Implementation of a Method (Programming)
9.7.1. Logical Implementation of the Plan
9.7.2. Implementation of a Group Session
9.7.3. Individual Programming in a Group Context
9.7.4. Strength in Context Applied to the Game
9.7.5. Periodization Proposal
9.8. ITU 1 (Integrating Thematic Unit)
9.8.1. Training Construction for Functional and Structural Adaptations and Recruitment Order
9.8.2. Constructing a Training Monitoring and/or Assessment System
9.8.3. Movement-Based Training Construction for the Implementation of Fundamentals, Means and External and Internal Load Control
9.9. ITU 2 (Integrating Thematic Unit)
9.9.1. Construction of a Group Training Session
9.9.2. Construction of a Group Training Session in Context Applied to the Game
9.9.3. Construction of a Periodization of Analytical and Specific Loads

Module 10. Training in Medium and Long Duration Sports

10.1. Strength
- 10.1.1. Definition and Concept
- 10.1.2. Continuum of Conditional Abilities
- 10.1.3. Strength Requirements for Endurance Sports. Scientific Evidence
- 10.1.4. Strength Manifestations and Their Relationship to Neuromuscular Adaptations in Endurance Sports

10.2. Scientific Evidence on the Adaptations of Strength Training and its Influence on Medium and Long Duration Endurance Tests
- 10.2.1. Neuromuscular Adaptations
- 10.2.2. Metabolic and Endocrine Adaptations
- 10.2.3. Adaptations When Performing Specific Tests

10.3. Principle of Dynamic Correspondence Applied to Endurance Sports
- 10.3.1. Biomechanical Analysis of Force Production in Different Gestures: Running, Cycling, Swimming, Rowing, Cross-Country Skiing.
- 10.3.2. Parameters of Muscle Groups Involved and Muscle Activation
- 10.3.3. Angular Kinematics
- 10.3.4. Rate and Duration of Force Production
- 10.3.5. Stress Dynamics
- 10.3.6. Amplitude and Direction of Movement

10.4. Concurrent Strength and Endurance Training
- 10.4.1. Historical Perspective
- 10.4.2. Interference Phenomenon
  - 10.4.2.1. Molecular Aspects
  - 10.4.2.2. Sports Performance
- 10.4.3. Effects of Strength Training on Endurance
- 10.4.4. Effects of Resistance Training on Strength Demonstrations
- 10.4.5. Types and Modes of Load Organization and Their Adaptive Responses
- 10.4.6. Concurrent Training. Evidence on Different Sports

10.5. Strength Training
- 10.5.1. Means and Methods for Maximum Strength Development
- 10.5.2. Means and Methods for Explosive Strength Development
- 10.5.3. Means and Methods for Reactive Strength Development
- 10.5.4. Compensatory and Injury Risk Reduction Training
- 10.5.5. Plyometric Training and Jumping Development as an Important Part of Improving Running Economy

10.6. Exercises and Special Means of Strength Training for Medium and Long Endurance Sports
- 10.6.1. Movement Patterns
- 10.6.2. Basic Exercises
- 10.6.3. Ballistic Exercises
- 10.6.4. Dynamic Exercises
- 10.6.5. Resisted and Assisted Strength Exercises
- 10.6.6. Core Exercises

10.7. Strength Training Programming Based on the Microcycle Structure
- 10.7.1. Selection and Order of Exercises
- 10.7.2. Weekly Frequency of Strength Training
- 10.7.3. Volume and Intensity According to the Objective
- 10.7.4. Recovery Times

10.8. Strength Training Aimed at Different Cyclic Disciplines
- 10.8.1. Strength Training for Middle-Distance and Long-Distance Runners
- 10.8.2. Strength Training for Cycling
- 10.8.3. Strength Training for Swimming
- 10.8.4. Strength Training for Rowing
- 10.8.5. Strength Training for Cross-Country Skiing

10.9. Controlling the Training Process
- 10.9.1. Load Speed Profile
- 10.9.2. Progressive Load Test

05

Methodology

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

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

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

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

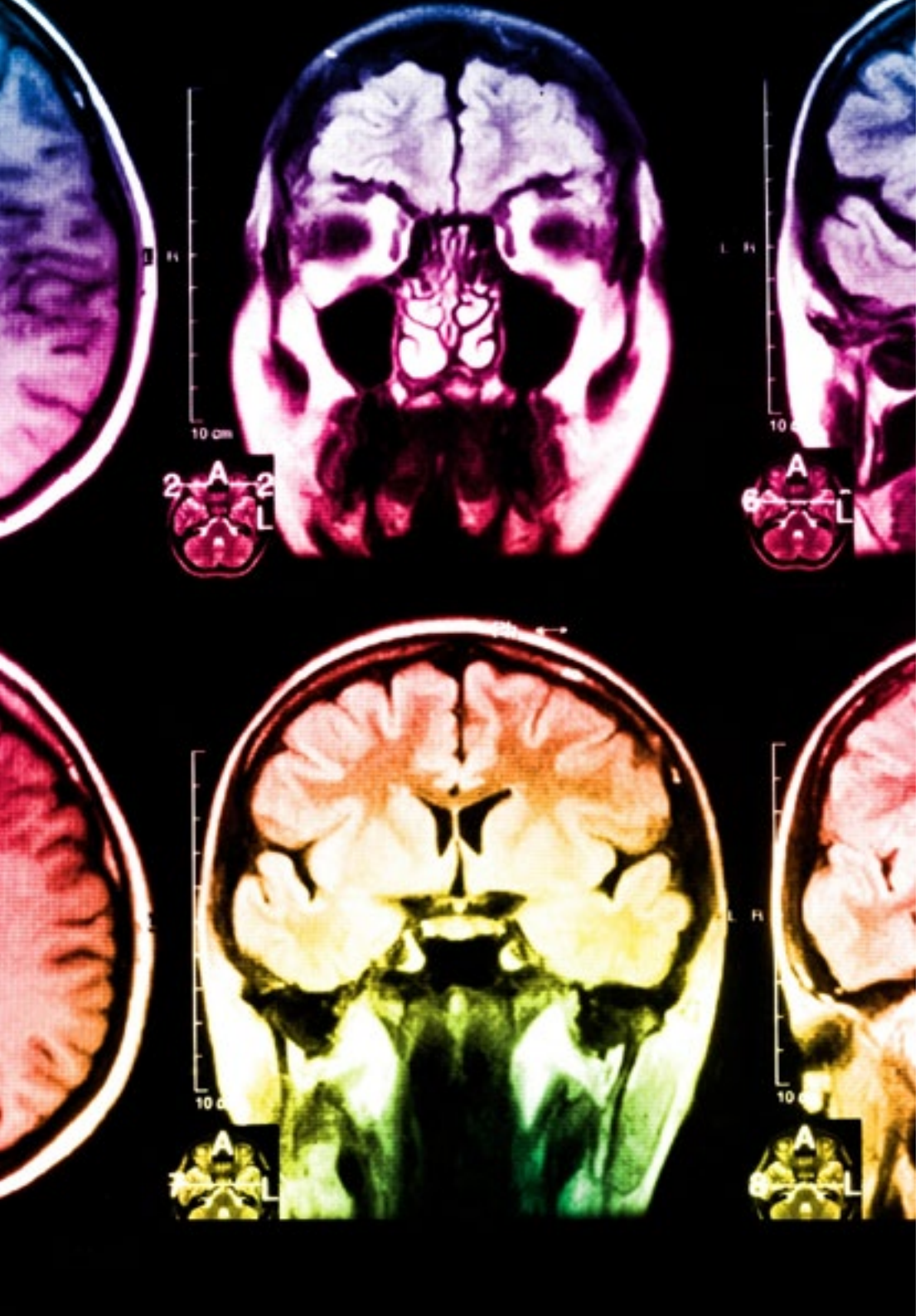
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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.

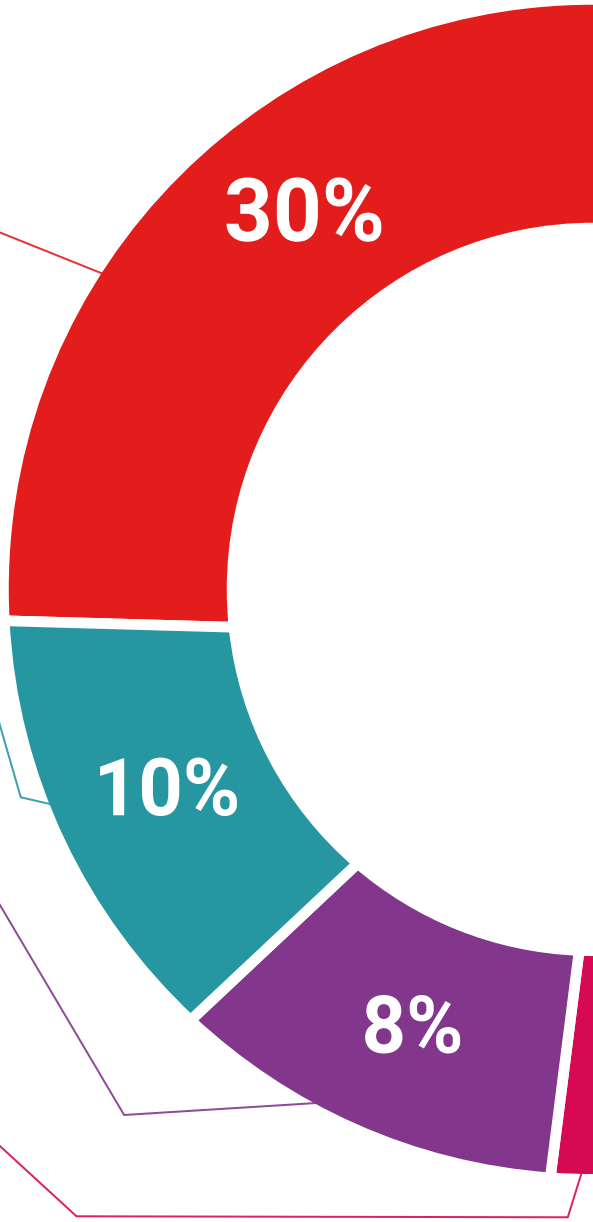
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions

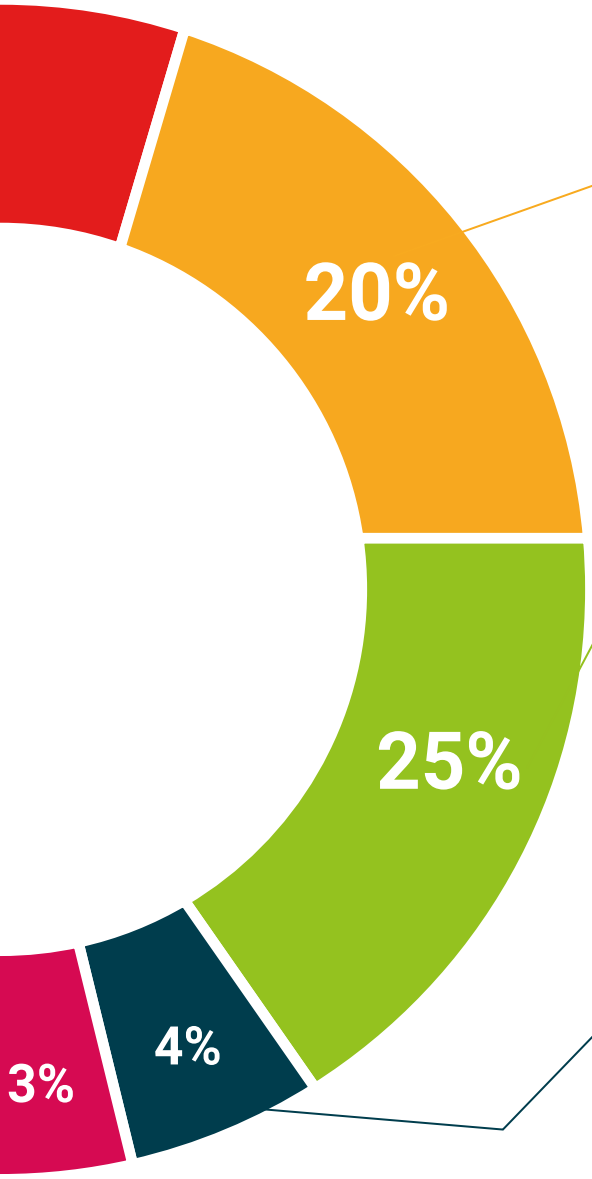
Practising Skills and Abilities

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 Master's Degree in in Strength Training for Performance in Sports guarantees students, in addition to the most rigorous and up-to-date education, access to a certificate issued by TECH Global University.

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

This private qualification will allow you to obtain a **Master's Degree diploma in Strength Training for Sports Performance** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra (***official bulletin***). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** private qualification is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Master's Degree in Strength Training for Sports Performance**

Modality: **online**

Duration: **12 months**

Accreditation: **60 ECTS**

tech global university

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

Master's Degree in Strength Training for Sports Performance

This is a private qualification of 1,800 hours of duration equivalent to 60 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy .

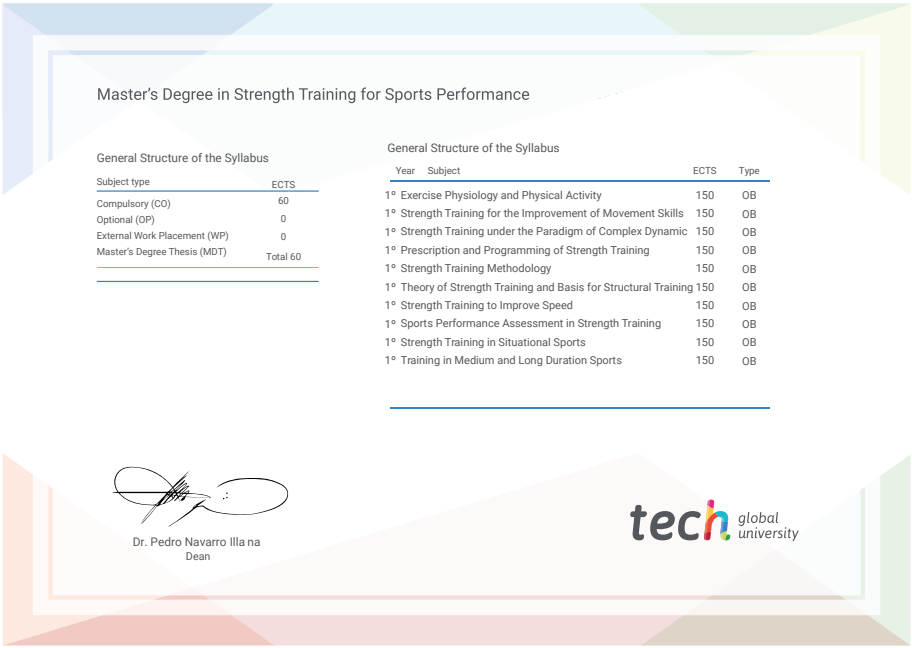
TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 202 4

Dr. Pedro Navarro Illa na
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


Master's Degree in Strength Training for Sports Performance

General Structure of the Syllabus

Subject type	ECTS
Compulsory (CO)	60
Optional (OP)	0
External Work Placement (WP)	0
Master's Degree Thesis (MDT)	Total 60

General Structure of the Syllabus

Year	Subject	ECTS	Type
1º	Exercise Physiology and Physical Activity	150	OB
1º	Strength Training for the Improvement of Movement Skills	150	OB
1º	Strength Training under the Paradigm of Complex Dynamic	150	OB
1º	Prescription and Programming of Strength Training	150	OB
1º	Strength Training Methodology	150	OB
1º	Theory of Strength Training and Basis for Structural Training	150	OB
1º	Strength Training to Improve Speed	150	OB
1º	Sports Performance Assessment in Strength Training	150	OB
1º	Strength Training in Situational Sports	150	OB
1º	Training in Medium and Long Duration Sports	150	OB

Dr. Pedro Navarro Illa na
Dean

tech global university

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

tech global university

Master's Degree
Strength Training for Sports Performance

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Credits: **60 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Master's Degree

Strength Training for Sports Performance

Endorsed by the NBA

tech global university