

# Advanced Master's Degree High Performance Tennis and Competition





## Advanced Master's Degree High Performance Tennis and Competition

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

Website: [www.techtute.com/us/sports-science/advanced-master-degree/advanced-master-degree-high-performance-tennis-competition](http://www.techtute.com/us/sports-science/advanced-master-degree/advanced-master-degree-high-performance-tennis-competition)

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# 01

# Introduction

New technologies have made it possible to incorporate into professional sports the most sophisticated tools for the study of the biomechanics of the athlete, the improvement of technique and the most appropriate nutrition for injury prevention. These tools, along with the essential physical preparation, are essential for the player to stay at the top. For this reason, TECH Technological University has designed this 100% online and intensive 24-month degree, which leads students to the most complete and advanced knowledge about the planning and preparation at all levels of a tennis player. All this, in addition, with a syllabus prepared by top level specialists and with the best didactic material.



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*Specialize with TECH Technological University in High Performance Tennis and Competition with the most innovative and accessible teaching from any digital device with internet connection”*

The goal of every tennis player is to be one of the great players of Grand Slam, Masters 1000, Premier Mandatory or Premier 5. A goal that requires constant work, hand in hand with a first class coaching staff. For this reason, it is necessary that the coach has not only a deep knowledge of the sport, but also includes the latest technological advances for game analysis, performance or advances in the improvement of the hitting technique.

So, behind figures like Serena Williams, Rafa Nadal, Federer or Djokovic there is a preparation from childhood that is perfected in High Performance. To boost the professional career of those who want to be the next coaches or physical trainers, TECH Technological University has developed this 24-month university degree with the most advanced syllabus in High Performance Tennis and Competition.

A program that will lead the graduate to obtain an exhaustive learning on the study of biomechanics, the improvement of the tennis serve and stroke, the improvement of the movement on the court or the physical preparation and planning, taking into account the moment of competition. Also, this academic option includes the most advanced technology to be able to carry out technical-tactical studies of both the athlete and the opponent.

All this, in addition to a pedagogical material based on video summaries of each topic, videos in detail, specialized readings and case studies that provide a theoretical-practical and dynamic perspective. Likewise, the Relearning system, based on content reiteration, students will be able to reduce the long hours of study and easily consolidate the most important concepts.

A program that is also known for its flexibility and convenience. The future technician will only need a digital device with internet connection, which will allow him/her to view the program at any time of the day. So, with no classroom attendance or scheduled classes, the graduate will be able to reconcile his or her daily activities with quality education.

This **Advanced Master's Degree in High Performance Tennis and Competition** contains the most complete and up-to-date scientific program on the market.

The most important features include:

- ◆ The development of practical cases presented by experts in Tennis, Physical Activity and Sport Sciences, Nutrition and Psychology
- ◆ The graphic, schematic and eminently practical contents with which they are conceived gather scientific and practical information on those disciplines that are essential for professional practice
- ◆ The practical exercises where the self-evaluation process can be carried out to improve learning
- ◆ Its special emphasis on innovative methodologies in the direction, management and training of professional volleyball teams
- ◆ 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



*Incorporate into your training planning, proper nutrition, as well as the necessary supplementation for each athlete and time of the season"*

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*A study plan that will lead you to increase your training level and incorporate the most effective work methodology in High Performance Tennis”*

*TECH Technological University has designed a degree compatible with your most demanding responsibilities, without neglecting the quality of its content.*

*Work on the tactics and the best strategy of the Tennis player's game through an intensive syllabus with an eminently practical approach.*

It includes in its teaching staff professionals belonging to the Volleyball field who pour into this program the experience of their work, in addition to recognized specialists of renowned 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 an immersive learning experience designed to prepare for real-life situations.

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



# 02 Objectives

This Advanced Master's Degree in High Performance Tennis and Competition aims to provide professionals with the necessary tools and knowledge to improve the tennis players performance at the professional level. Throughout this degree, topics such as planning and designing training programs, performance evaluation and injury recovery, among others, are addressed. Participants also have the opportunity to learn from experts in the tennis field with extensive experience in this area. Upon completion of this academic option, the graduate will be prepared to assume leadership roles in the coaching and development of high-level tennis players.





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*In just 24 months you will increase your chances of professional success in the world of Tennis at the highest level”*



## General Objectives

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- ◆ Distinguish the different stages of tennis training and know how to work in each of them
- ◆ Know the tennis rules and know how to apply them
- ◆ Understand the position of the tennis coach from an ethical and moral point of view, and understand the crucial role that the mental aspect has in tennis players
- ◆ Deepen in the necessary physical preparation that a tennis player must have and in injury prevention
- ◆ Raise awareness of the importance of technology in today's tennis and analyze its evolution
- ◆ Improve sports performance
- ◆ Effectively integrate statistics to be able to make a correct use of the data obtained from the athlete, as well as to initiate research processes
- ◆ Acquire knowledge based on the most current scientific evidence with full applicability in the practical field
- ◆ Master all the most advanced methods of sports performance evaluation
- ◆ Deepen in the principles governing exercise physiology, as well as biochemistry
- ◆ Master the principles governing Biomechanics applied directly to Sports Performance
- ◆ Delve into the principles governing Nutrition applied to sports performance
- ◆ Successfully integrate all the knowledge acquired in the different modules in real practice





## Specific Objectives

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### Module 1. Exercise Physiology and Physical Activity

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

### Module 2. History and regulations

- ◆ Understand the rules that make up singles tennis
- ◆ Understand the rules that make up doubles tennis
- ◆ Learn the Code of Conduct

### **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. Tennis strokes techniques**

- ◆ Know what technique is, what it is used for, and how to achieve it efficiently
- ◆ Know the basic tennis strokes and how to perform them correctly from a technical point of view
- ◆ Study the special tennis strokes, and to know how to perform them correctly from a technical point of view
- ◆ Learn the different effects that exist in the tennis game

**Module 8. Pattern of play, tactics and strategy**

- ◆ Understand the concept of pattern of play, tactics and strategy and differentiate between each of them
- ◆ Know the existing game situations
- ◆ Understand at a tactical level how to play correctly depending on the position on the court and the ball that is received
- ◆ Deepen in the tactics in the doubles modality
- ◆ Identify the concept of the dominant eye and its importance

**Module 9. Biomechanics and movement**

- ◆ Understand what biomechanics is
- ◆ Understand, through theoretical and practical examples, how strokes work at a biomechanical level
- ◆ Analyze what is efficient in each stroke from a biomechanical point of view
- ◆ Make the student aware of the importance of footwork
- ◆ Know how to move correctly on the tennis court

**Module 10. Physical preparation and injury prevention**

- ◆ Make the student aware of the importance of physical preparation in order to achieve better player performance
- ◆ Understand and develop the concepts of endurance, strength, coordination and agility, among others
- ◆ Understand the work of elasticity and stretching as a method to prevent injuries

**Module 11. Training in the different stages, training, planning and periodization**

- ◆ Know the different stages of tennis training
- ◆ Know how to work in each of the different stages
- ◆ Distinguish between the type of ball used in each stage
- ◆ Know the measurements of the tennis courts in each stage
- ◆ Have basic knowledge of different training systems: hand feeding, racquet feeding, coach volley

**Module 12. 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 13. Adapted Tennis and Disability**

- ◆ Know the origins of adapted tennis and how it is developed
- ◆ Detect the different types of tennis adapted to the different types of disabilities that exist
- ◆ Analyze the rules of this type of competition

### **Module 14. 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 15. 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 16. Nutrition, supplementation and hydration for tennis players**

- ◆ Deepen in the importance of nutrition in a tennis player
- ◆ Identify the difference between carbohydrates, proteins, fats, vitamins and minerals
- ◆ Know what diet a player should follow during weeks of training, depending on the intensity of the same, as well as during competition
- ◆ Understand which elements are allowed and which are not allowed regarding sports supplementation
- ◆ Understand the concept of hydration, its importance for the tennis player, and how to practice it correctly

### **Module 17. Technology applicable to tennis and video analysis**

- ◆ Delve into the use of technology in tennis, its importance and its evolution
- ◆ Understand how the use of technology and artificial intelligence influences the tennis player
- ◆ Identify the possible use of technology in training
- ◆ Understand what video analysis is and the role it plays for the tennis player
- ◆ Become familiar with the implements that can be used by the tennis player during training

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*Develop your capabilities for physical exercise preparation to strengthen muscles and prevent injuries throughout the season”*

# 03 Skills

Thanks to this university degree, students will be able to acquire a wide variety of skills related to the preparation and development of professional tennis players. From the design and planning of effective training programs tailored to the individual needs of each player, the evaluation and monitoring of players' performance over time to the development of leadership and teamwork skills to collaborate with other professionals in the field of tennis.







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*Improve your ability to coach and  
train the world's No. 1 ATP players”*



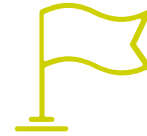
## General Skills

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- ◆ Acquire knowledge based on the most current scientific evidence with full applicability in the practical field
- ◆ To master all the most advanced methods of sports performance evaluation
- ◆ Master the necessary technological tools to be able to analyze the teams training sessions and matches
- ◆ Design and plan high competition training sessions
- ◆ Schedule the duration and number of training sessions in accordance with the competition
- ◆ Plan optimal nutrition for the athlete
- ◆ Analyze and Interpret Statistical and Video Data
- ◆ Understand the positive effects of a correct application of psychology in sport
- ◆ Correctly plan the recovery after load and/or injury of the athlete
- ◆ Organize exercises for the technical and tactical development of the player
- ◆ Obtain a global vision of the objectives set by the club and transfer them correctly to the team
- ◆ Achieve professional sporting success with the broadest mastery of all the elements involved in volleyball
- ◆ Improve the ability to communicate with the volleyball team staff
- ◆ Improve the choice of the strategy for each match depending on the opponent
- ◆ Improve the ability to manage beach volleyball and setting volleyball modalities
- ◆ Use qualitative and quantitative analysis based on the visualization of videos
- ◆ Understand the specific functions of the scoutman and physiotherapist
- ◆ Perform biomechanical analysis of each player and in the different phases of the game
- ◆ Reinforce the dialogue with the team and the appropriate decision making at each moment of the season
- ◆ Know the relevance of the nutritional adaptation according to the injuries suffered by the athletes
- ◆ Train students to detect technical and tactical errors in training sessions
- ◆ Establish motivation strategies for players
- ◆ Develop interpersonal skills of the volleyball player



*Perfect your on-court game development and improve the performance of your players thanks to the case studies in this intensive program”*



## Specific Skills

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- ◆ Correctly interpret all theoretical aspects defining strength and its components
- ◆ Incorporate elements of judgment of technical observation that make it possible to discriminate errors in the mechanics of the race and the procedures for their correction
- ◆ Select the most appropriate tests to evaluate, monitor, tabulate and fractionate 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
- ◆ 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

# 04

# Course Management

The teaching team of this Advanced Master's is composed of highly trained and experienced professionals in the world of tennis and physical activity. Each of them has been carefully selected for their extensive knowledge and skills in their area of specialization, which allows them to provide high quality and up-to-date teaching in the field of professional tennis. Additionally, all faculty members have practical experience in this sport, which allows them to offer a unique and valuable perspective to the student who attends this program.





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*An Advanced Master's that stands out for its excellent teaching team, made up of professionals with experience in High Performance”*

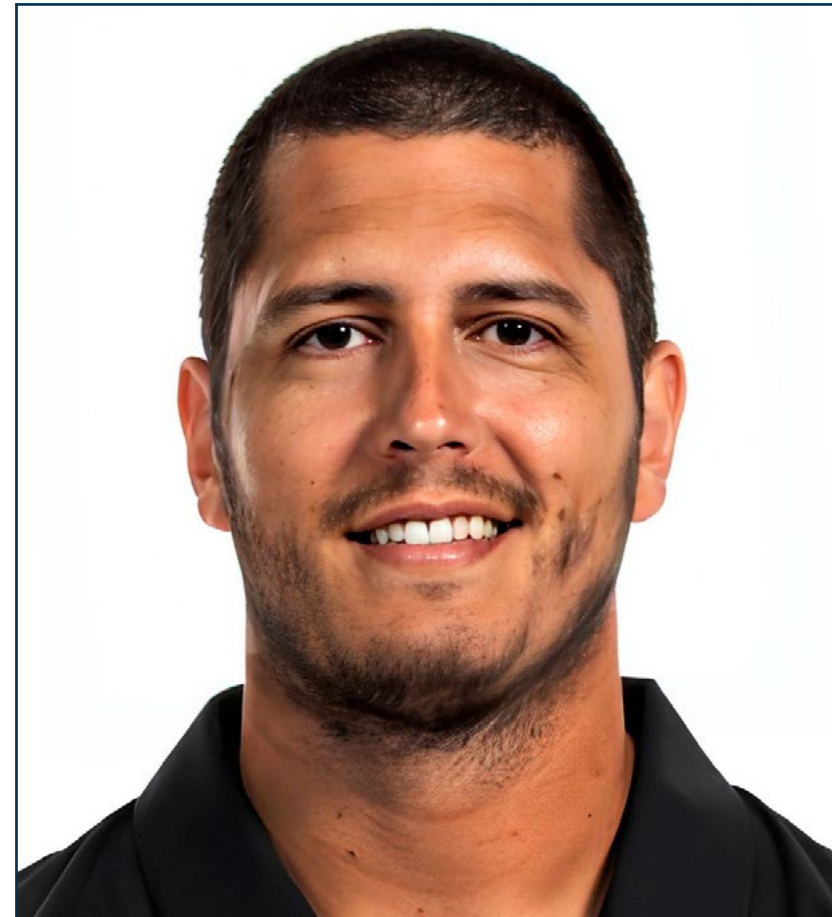
## International Guest Director

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

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- 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

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*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





### **D. Ramos Camacho, Alejandro**

- ◆ Tennis Coach at the Rafa Nadal Academy
- ◆ Tennis Coach at the JMO Tennis Academy
- ◆ Trainer at the Valle de Aridane Tennis Club
- ◆ Graduate in Primary Education Teaching
- ◆ National Monitor by the Royal Spanish Federation
- ◆ RPT Level 2 RPT Level 2

## Professors

### Mr. Concepción Barquer, Daniel

- ♦ Padel tennis instructor at JMO Tennis and Padel Tennis School
- ♦ Assistant Pharmacist
- ♦ Graduate in Pharmacy by the University of La Laguna
- ♦ Graduate in Nutrition and Dietetics from CEU San Pablo University
- ♦ Tennis instructor RPT level 1, 2 and 3
- ♦ Padel Tennis Instructor RPP level 1 and 2
- ♦ Course in Nutrition and Sports Supplementation

### Mr. Manco, Antonio

- ♦ Coach at the Rafa Nadal Academy
- ♦ Coach at the Global Tennis Team Academy
- ♦ Graduate in Sports Science from the Tor Vergata University of Rome
- ♦ Master's Degree in Sport Science and Techniques from Tor Vergata University of Rome
- ♦ Level II Coach by the Italian Tennis Federation
- ♦ Physical Trainer for the Italian Tennis Federation

### Mr. Barreto Mazorra, Eusebio

- ♦ Tennis coach and physical trainer at the Tenis Tafira Club
- ♦ Tennis coach at La Pardilla Sports Facilities
- ♦ Graduate in Physical Activity and Sport Sciences at ULPGC (University of Las Palmas de Gran Canaria)
- ♦ RPT level 1, 2 and 3 courses

### Mr. Goldie Barrios, Federico

- ♦ Tennis trainer at the Rafa Nadal Academy
- ♦ Tennis coach at the Uruguayan Tennis Association
- ♦ Tennis coach at the Bigua Club
- ♦ Teacher of group and individual tennis lessons
- ♦ ITF Play Tennis AUT/1TF
- ♦ ITF Level I/Level I
- ♦ ITF Psychology applied to tennis

### Mr. Zapata, Óscar

- ♦ Tennis trainer at the Rafa Nadal Academy
- ♦ Tennis instructor at Cet Alcalá
- ♦ Degree in Dietetics
- ♦ Master's Degree in Sports Nutrition
- ♦ Master's Degree in Personal Trainer

### Mr. Gazivoda, Petar

- ♦ Technology Manager at the Rafa Nadal Academy
- ♦ Coach at the Catalunya Tennis Academy
- ♦ Tennis Coach at Sanchez-Casal Club
- ♦ Degree in Business Administration and Technology

**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. Carbone, Leandro**

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

**Mr. Masse, Juan Manuel**

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

**Mr. Vaccarini, Adrián Ricardo**

- ◆ Physical Trainer Specialized in Top Level Soccer
- ◆ 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
- ◆ Graduate in Physical Education
- ◆ National Physical Education Teacher

**Mr. Jareño Díaz, Juan**

- ◆ Physical Preparation and Sports Specialist
- ◆ Coordinator of the education and physical preparation area at the Moratalaz Sports School
- ◆ University Lecturer
- ◆ Personal trainer and sports trainer at Estudio 9,8 Gravity
- ◆ Graduate in Physical Activity and Sport Sciences from the University of Castilla la Mancha
- ◆ Master's Degree in Physical Preparation in Soccer by the University of Castilla la Mancha
- ◆ Postgraduate degree in Personal Training from the University of Castilla la Mancha

**Dr. Del Rosso, Sebastián**

- ◆ Postdoctoral Researcher at the Clinical Biochemistry and Immunology Research Center
- ◆ Researcher in the Lifestyles and Oxidative Stress Research Group
- ◆ Co-author of numerous scientific publications
- ◆ Director of the Editorial Board of the journal PubliCE Standard
- ◆ Director of the Editorial Department of G-SE
- ◆ Doctorate in Health Sciences from the National University of Cordoba
- ◆ Graduate in Physical Education from the National University of Catamarca
- ◆ Master's Degree in Physical Education from the Catholic University of Brasilia

**Dr. César García, Gastón**

- ◆ Physical trainer of the professional field hockey player Sol Alias
- ◆ Physical trainer for the Carmen Tennis Club field hockey team
- ◆ Personal trainer for rugby and field hockey athletes
- ◆ Physical trainer for U18 rugby clubs
- ◆ Physical Education teacher for children
- ◆ Co-author of the book Strategies for the evaluation of physical condition in children and adolescents
- ◆ Graduate in Physical Education from the National University of Catamarca
- ◆ National Professor of Physical Education from ESEF San Rafael
- ◆ Level 1 and 2 Anthropometry Technician



**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 clubs and professional rugby players
- ◆ Teacher in university studies
- ◆ Doctor in High Performance Sports by the University of Castilla-La Mancha
- ◆ Graduate in Physical Education and Sports from the Interamerican Open University
- ◆ Master in High Performance Sports by the Autonomous University of Madrid
- ◆ National Physical Education Teacher

**Ms. González Cano, Henar**

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

# 05

## Structure and Content

The academic path of this degree will lead students to a learning process that will allow them to become an expert in tennis. From the physiology of exercise and physical activity, through the history and regulations, to the planning applied to high performance sports, the graduate will achieve a true specialization. Aided by the great teaching material of this Grand Master, the graduate will deepen in a dynamic way in the training of strength, speed and endurance, the technique of realization of tennis strokes or biomechanics and movement, among other topics.





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*The multimedia didactic resources of this university degree undoubtedly make the difference in this learning process of 3,000 teaching hours”*

## 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. VO<sub>2</sub> 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. History and regulations

- 2.1. Historical Evolution of Tennis and its Regulations
  - 2.1.1. What is Tennis, Where was it Invented and its Evolution Throughout History
  - 2.1.2. Tennis Timeline
  - 2.1.3. Counting, Origin and Evolution and other Normative Aspects
  - 2.1.4. Tennis Tournaments and their History and Olympic Level Tennis
- 2.2. The Tennis Court, Different Surfaces and Their Classification
  - 2.2.1. The Tennis Court Evolution
  - 2.2.2. Track Measurements and General and Specific Aspects
  - 2.2.3. The Different Existing Surfaces, General and Specific Concepts
  - 2.2.4. Division of Tennis Courts According to Surface Speed
- 2.3. Racket, Ball and Permanent Fixtures
  - 2.3.1. The Tennis Racket, the Ball and its Historical Timeline
  - 2.3.2. Regulatory Aspects Regarding Tennis Rackets and Balls
  - 2.3.3. What is a Permanent Fixture and its Regulatory Aspects
  - 2.3.4. The Ball Touches the Line or the Ball Touches the Permanent Fixture



- 2.4. Service and Returns
  - 2.4.1. Server and Subtractor Selection
  - 2.4.2. Side and Serve Selection
  - 2.4.3. Side Changes, Regulations and Peculiarities
  - 2.4.4. Service Faults Let and Repetition of the Serve
  - 2.4.5. A Return is Good
- 2.5. Side Changes, Punctuation and their Alternative Systems
  - 2.5.1. Track Side Changes and their Regulation
  - 2.5.2. Game, Set and Match Scoring System
  - 2.5.3. Alternative Scoring Systems
  - 2.5.4. A Player Loses a Point
- 2.6. Code of Conduct
  - 2.6.1. What is the Code of Conduct and its Purpose
  - 2.6.2. Benefits of the Code of Conduct and its Evolution
  - 2.6.3. General Aspects of the Code of Conduct
  - 2.6.4. Specific Aspects of the Code of Conduct
- 2.7. Competition Systems and their Alternatives and Regulations
  - 2.7.1. What Competition Systems Exist
  - 2.7.2. Rules of the Different Existing Competitions
  - 2.7.3. Modern Types of Competition and their Benefits
  - 2.7.4. Competition in Training Stages and its Regulations
- 2.8. Referees on the Court, their Importance and Function
  - 2.8.1. Referee's Role on the Court
  - 2.8.2. Player Instructions
  - 2.8.3. Arbitration Systems Hawk-Eye and its Peculiarities
  - 2.8.4. Continuous Play Principle
  - 2.8.5. Hindrance
  - 2.8.6. Error Correction
- 2.9. Doubles and its Rules
  - 2.9.1. General Aspects of the Doubles Games
  - 2.9.2. Scoring in Doubles and Existing Options
  - 2.9.3. Service and Rest in Doubles Games
  - 2.9.4. Doubles Competition

- 2.10. Professional Tennis Tournaments, Circuits and Regulations
  - 2.10.1. Evolution of Professional Tournaments, Circuits and their Regulations up to the Present Time
  - 2.10.2. Existing Tennis Tournaments and their Regulations
  - 2.10.3. ATP and WTA Circuits and Aspects Regulated by Guidelines
  - 2.10.4. Different Prizes in Tennis Tournaments and Aspects Determined by Regulations

### 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 CP
    - 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. Timing and Motion Analysis of Speed Events 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. VO<sub>2</sub>max 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 VO<sub>2</sub>max 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. VO<sub>2</sub>max 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 Prevention of Injuries: Practical Case
    - 6.9.2.1. Ruptured Ischialis in the Runner

## Module 7. Tennis strokes techniques

- 7.1. What is the Technique, General and Specific Aspects
  - 7.1.1. What is Technique and the Importance of the Correct Execution of Tennis Strokes
  - 7.1.2. Benefits of Proper Technique
  - 7.1.3. The Stroke Cycle, General Aspects
  - 7.1.4. Talent
- 7.2. Evolution and Modern Use of the Technique
  - 7.2.1. Traditional View of Technique
  - 7.2.2. Evolution of Technique Throughout the History of Tennis
  - 7.2.3. Current Use of the Technique Modern Approach
  - 7.2.4. Improved Technique Based on Training
- 7.3. Grips, Use, Explanation and Identification
  - 7.3.1. Handle Types and Explanation
  - 7.3.2. How to Identify Different Grips and Their Correction
  - 7.3.3. Grip Use in Different Game Situations
  - 7.3.4. Serving Grips
- 7.4. Production of the Blows with Effect, Use and Explanation and Variability
  - 7.4.1. Different Effects in the Serve, How to Execute Them and Their Use
  - 7.4.2. Speed and Spin
  - 7.4.3. Lift Effect in Groundstrokes and its Use
  - 7.4.4. Slice Effect in Different Game Situations, How to Execute it and its Use
  - 7.4.5. Flat Spin, How to Execute it and its Use in Different Game Situations
- 7.5. Serving Technique and Return
  - 7.5.1. Position Before the Serve and Grip
  - 7.5.2. Throwing the Ball and Recommendations
  - 7.5.3. Setup, First Movement of the Racket and Load on the Shoulder
  - 7.5.4. Use of Legs in the Serve
  - 7.5.5. Use of the Upper Body and Rotations
  - 7.5.6. Point of Impact and Termination
- 7.6. The Return of Serve
  - 7.6.1. Handle for the Return of Serve
  - 7.6.2. Waiting Position in the Return of Serve
  - 7.6.3. Types of Returns of Serve
  - 7.6.4. Technical Aspects when Performing the Rest (Forehand and Backhand)
- 7.7. Forehand Technique
  - 7.7.1. Forehand Grips and Setup
  - 7.7.2. Leg Movements in the Forehand Stroke Preparation
  - 7.7.3. Racket Rotation and Backward Movement of the Racket
  - 7.7.4. Rotation of the Hips and Shoulders and Forward Movement of the Racket to Impact
  - 7.7.5. Impact and Completion of the Forehand Stroke
- 7.8. Backhand Stroke Technique
  - 7.8.1. Grips and Preparation in One-handed Backhand and Two-handed Backhand
  - 7.8.2. Leg Movements in the Backhand Stroke Preparation
  - 7.8.3. Racket Rotation and Backward Movement of the Racket
  - 7.8.4. Rotation of the Hips and Shoulders and Forward Movement of the Racket to Impact
  - 7.8.5. Impact and Termination Depending on Whether it is a One-handed or Two-handed Backhand
- 7.9. Technique of the Strokes on the Net
  - 7.9.1. Grip and Waiting Position
  - 7.9.2. Leg Movements Prior to Hitting Forehand and Backhand
  - 7.9.3. Shoulder Rotation in Preparation
  - 7.9.4. Impact and Movement of the Lower Body When Moving Towards the Ball
  - 7.9.5. Smash, Preparation, Impact and Completion
- 7.10. Special Strokes and Their Technique
  - 7.10.1. Drop Shot and Counter Drop Shot
  - 7.10.2. Lob
  - 7.10.3. The Passing-shot
  - 7.10.4. Other Special Shots

## Module 8. Pattern of play, tactics and strategy

- 8.1. General Concepts and Differentiation
  - 8.1.1. General Concepts of Pattern of Play
  - 8.1.2. General Concepts of Tactics
  - 8.1.3. General Concepts of Strategy
  - 8.1.4. Differentiation Between Pattern of Play, Tactics and Strategy
- 8.2. Strategies and Positive Vision in the Singles Game
  - 8.2.1. Definition of Strategy
  - 8.2.2. Strategy in Tennis
  - 8.2.3. Strategic Concepts to Take Into Account when Planning a Match
  - 8.2.4. Most Used Strategies in Tennis
- 8.3. What is a Pattern of Play, Classification and Player's Identity
  - 8.3.1. Definition of Pattern of Play
  - 8.3.2. Types of Patterns or Styles of Play
  - 8.3.3. Player Identity
  - 8.3.4. Profile of the Opposing Player, How to Identify Him and How to Carry Out the Tactics and Strategy Depending on it
- 8.4. Conceptualization of the Tactic and General Features
  - 8.4.1. Definition of Tactics and Importance
  - 8.4.2. Evolution of Tactics Throughout the History of Tennis
  - 8.4.3. Principles of Tactics
  - 8.4.4. Professional Tactics
- 8.5. Game Situations, Tennis Moves and Types of Tennis Moves
  - 8.5.1. What is a Game Situation
  - 8.5.2. Existing Game Situations
  - 8.5.3. Definition of Tennis Shots
  - 8.5.4. Types of Shots
- 8.6. General and Specific Tactical Considerations of the Baseline Game
  - 8.6.1. Introduction to Baseline Play
  - 8.6.2. Baseline Game Court Zones and How to Play from Each One of Them
  - 8.6.3. Objectives from Each Zone of the Court
  - 8.6.4. Tips to Play with a Correct Tactic in the Baseline Game

- 8.7. General and Specific Tactical Considerations of the Net Game
  - 8.7.1. Introduction to Net Play
  - 8.7.2. The First Four Strokes and the Approach to the Net
  - 8.7.3. Covering the Passing-shot
  - 8.7.4. Where to Play the Volley
- 8.8. General and Specific Tactical Considerations of the Serve and Return
  - 8.8.1. General Tactical Aspects of the Service
  - 8.8.2. Tactical Intent with Service
  - 8.8.3. Service Zones
  - 8.8.4. General Tactical Aspects of the Return
- 8.9. Tactics and Strategy in the Doubles Modality
  - 8.9.1. The Game of Doubles and its Tactical Evolution
  - 8.9.2. Modern Vision of Doubles Tactics
  - 8.9.3. Situations of the Doubles Game
  - 8.9.4. Types of Shots in Doubles Games
- 8.10. Laterality, General Aspects and Tactical Applicability
  - 8.10.1. What is Laterality, Concept and Meaning
  - 8.10.2. Homogeneous and Heterogeneous Laterality
  - 8.10.3. Importance in Tennis and Identification of the Type of Laterality
  - 8.10.4. Use of Tactics According to One's Own and the Opponent's Laterality

## Module 9. Biomechanics and movement

- 9.1. What is Biomechanics and its Evolution
  - 9.1.1. Definition and Introduction to Biomechanics
  - 9.1.2. Evolution of the Concept of Biomechanics Throughout History
  - 9.1.3. What is the Purpose of Biomechanics and What are its Objectives
  - 9.1.4. Benefits of Biomechanics and Main Components
  - 9.1.5. Traditional Vision of the Teaching of Tennis Strokes and Modern Vision
- 9.2. The Correct Performance of the Technique and its Benefits
  - 9.2.1. Definition of Optimal Technique
  - 9.2.2. Components of the Technique
  - 9.2.3. Benefits of the Optimal Technique
  - 9.2.4. Execution of the Optimal Technique

- 9.3. Variability as a Fundamental Part of the Strokes
  - 9.3.1. Concept of Variability
  - 9.3.2. Mechanical Variability of the Stroke
  - 9.3.3. Mechanical Variability in the Development of the Stroke
  - 9.3.4. Mechanical Variability in Tissue Loading
- 9.4. Principles of Biomechanics in Tennis, BIOMECH
  - 9.4.1. Balance
  - 9.4.2. Inertia
  - 9.4.3. Opposing Forces
  - 9.4.4. Momentum
  - 9.4.5. Elastic Energy
  - 9.4.6. Coordination Chain
- 9.5. Coordination chain
  - 9.5.1. Definition
  - 9.5.2. Coordination and Movement Chains
  - 9.5.3. How to Generate Power in the Strokes
  - 9.5.4. Problems in the Coordination Chains
- 9.6. The Phases of the Stroke in Tennis
  - 9.6.1. Preparation and Backswing Movement of the Racket
  - 9.6.2. Forward Movement of the Racket
  - 9.6.3. Impact
  - 9.6.4. Accompaniment and Termination
- 9.7. General Biomechanical Aspects of Groundstrokes
  - 9.7.1. Biomechanics of the Forehand Stroke Part I
  - 9.7.2. Biomechanics of the Forehand Stroke Part II
  - 9.7.3. Biomechanics of the Two-handed Backhand Stroke
  - 9.7.4. Biomechanics of the Backhand One-handed Stroke
- 9.8. General Biomechanical Aspects of the Service and Return Stroke
  - 9.8.1. Biomechanics of the Service in Tennis Part I
  - 9.8.2. Biomechanics of the Service in Tennis Part II
  - 9.8.3. Biomechanics of the Return Serve in Tennis
  - 9.8.4. Biomechanics of the Backhand in Tennis



- 9.9. General Biomechanical Aspects in the Net Strokes
  - 9.9.1. Biomechanics of the Forehand Volley
  - 9.9.2. Biomechanics of the Backhand Volley
  - 9.9.3. Biomechanics of the Approach
  - 9.9.4. Biomechanics of the Smash
- 9.10. Movement, Displacements and Footwork
  - 9.10.1. What are Displacements in Tennis
  - 9.10.2. Phases of the Displacements in Tennis
  - 9.10.3. Importance of Footwork
  - 9.10.4. How to Work on Footwork in Tennis

## Module 10. Physical preparation and injury prevention

- 10.1. Physical Preparation in Tennis and its Importance
  - 10.1.1. Introduction to the Physical Training of the Tennis Player
  - 10.1.2. Evolution of Physical Preparation Throughout History
  - 10.1.3. Importance of Physical Preparation in Tennis
  - 10.1.4. Benefits of Physical Condition Training in Tennis
- 10.2. Physiological Aspects of the Tennis Player and how to Evaluate Them
  - 10.2.1. What is Physiology and What Does it Do
  - 10.2.2. Physiological Factors Influencing Tennis
  - 10.2.3. Physiological Profile of the Tennis Player
  - 10.2.4. The Physical Development of the Tennis Player and its Evolution in the Different Stages
- 10.3. Phases of Physical Training
  - 10.3.1. Introduction to Physical Preparation
  - 10.3.2. Parts of the Training
  - 10.3.3. Preparation and Pre-competition Phases
  - 10.3.4. Physical Training During the Competition and after the Competition



- 10.4. The Tennis Player and the Main Physical Skills
  - 10.4.1. Endurance, Concept and General Characteristics
  - 10.4.2. Strength, Concept and General Characteristics; The Increase of Power in the Tennis Player
  - 10.4.3. Coordination in the Tennis Player
  - 10.4.4. Flexibility in the Tennis Player
  - 10.4.5. The Speed and Agility in the Tennis Player
- 10.5. Professional Tennis and Physical Preparation
  - 10.5.1. Importance of Physical Preparation Before and During Tournaments
  - 10.5.2. The Planning and Periodization of the Physical Training of the Season in Professional Players
  - 10.5.3. Physical Training During and After the Competition
  - 10.5.4. The Physical Preparation Depending on the Type of Player and The Type of Tournament to be Prepared For
- 10.6. Physical Preparation in Women's Tennis
  - 10.6.1. Introduction and Evolution of Physical Preparation in Women's Tennis
  - 10.6.2. Specific Characteristics of Physical Training in Women
  - 10.6.3. Adaptations and Differences with the Physical Training in Women's Tennis
  - 10.6.4. Other Aspects to Take into Account
- 10.7. Injury Prevention, Concept and Importance
  - 10.7.1. Introduction to Injury Prevention Work, its Importance and Benefits
  - 10.7.2. Importance of the Trainer in Injury Prevention
  - 10.7.3. Most Common Types of Injuries in Tennis Players
  - 10.7.4. Causes of Injuries in Tennis Players
- 10.8. Treatment of Injuries and Ways to Prevent
  - 10.8.1. Rehabilitation
  - 10.8.2. Development of a Rehabilitation Plan
  - 10.8.3. Exercises for Prevention and Tips on How to Carry Them Out
  - 10.8.4. Tips for Tennis Players in the Field of Injury Prevention
- 10.9. The Recovery of the Tennis Player
  - 10.9.1. Introduction and Importance of Recovery in Tennis Players
  - 10.9.2. Routes of Recovery in Tennis Players: Control
  - 10.9.3. Pathways of Recovery in Tennis Players: Management
  - 10.9.4. Recovery in the Different Conditions that Tennis Players go Through

- 10.10. Physical Preparation for Wheelchair Tennis Players
  - 10.10.1. Introduction to the Physical Preparation for Wheelchair Tennis
  - 10.10.2. Specifics to the Training of the Wheelchair Tennis Player
  - 10.10.3. Aspects to Take into Account for the Physical Preparation of the Wheelchair Tennis Player
  - 10.10.4. Injury Prevention in Wheelchair Tennis Players

## Module 11. Training in the Different Stages, Training, Planning and Periodization

- 11.1. General Aspects of Tennis at the Grassroots Level and their Importance
  - 11.1.1. Introduction to Basic Tennis
  - 11.1.2. Evolution of Tennis Training at the Grassroots Level
  - 11.1.3. Conceptualization and Definition of Tennis in Stages
  - 11.1.4. General Objectives of the Impulse of the Work of Tennis by Stages
- 11.2. General and Specific Objectives of Tennis in Training
  - 11.2.1. Characteristics of Tennis in Stages
  - 11.2.2. General Objectives of Tennis in Training
  - 11.2.3. Factors That Influence the Initiation in Tennis
  - 11.2.4. Specific Objectives of Each of the Existing Stages in Training
- 11.3. Stages of Tennis Training and How to Work in Each One
  - 11.3.1. Red Stage, Definition and Characteristics
  - 11.3.2. Yellow Stage, Definition and Characteristics
  - 11.3.3. Green Stage, Definition and Characteristics
  - 11.3.4. Effectiveness of the Trainer in the Different Stages
- 11.4. Post-training Stages, Concept and Objectives
  - 11.4.1. Pre-competition Stage, General Characteristics
  - 11.4.2. Introduction to the Competition Stage, General Characteristics and Objectives
  - 11.4.3. High-Performance Stage
  - 11.4.4. Professional Stage
- 11.5. Training Concept, Methodology and its Evolution
  - 11.5.1. Concepts of Training and Evolution Throughout History
  - 11.5.2. Modern System of Training, What it Consists Of
  - 11.5.3. What is The Methodology
  - 11.5.4. Objectives of The Methodology

- 11.6. Training Systems in Tennis
  - 11.6.1. Types of Tennis Training According to Workload, Frequency, Volume and Intensity
  - 11.6.2. Continuous and Interval Trainings and Their Main Characteristics
  - 11.6.3. Specific Training Systems (Buckets, Rallies, Points, etc.) and What Each One of Them Consists Of
  - 11.6.4. What the Exercises During Tennis Training Consist Of, the Procedure to be Carried Out, and Their Components
  - 11.6.5. Variability in Tennis Training
  - 11.6.6. The Individual Training and Group Training, Theoretical and Practical Principles
- 11.7. The Training Session from the Theoretical and Practical Point of View
  - 11.7.1. Parts of the Tennis Session and What Each One of Them Consists Of
  - 11.7.2. Elaboration of the Training Session According to the Objectives
  - 11.7.3. How to Elaborate a Training Session
  - 11.7.4. Theoretical-practical Examples of the Elaboration of the Training Session
- 11.8. Concept of Planning, its Phases and Models
  - 11.8.1. What is to Plan and What Objectives are Pursued at the Time of Doing It
  - 11.8.2. Elements to Take into Account at the Time of Planning and Raising Objectives: Facilities, Means, Characteristics of the Player, Competitions, etc
  - 11.8.3. Advice to Follow at the Time of Planning
  - 11.8.4. Phases of the Planning and How to Elaborate It
  - 11.8.5. Current Planning Models
- 11.9. What is Periodization, its General and Specific Concepts
  - 11.9.1. Concept of Periodization and Characteristics of Tennis Related to Periodization
  - 11.9.2. Differences Between Periodization and Planning
  - 11.9.3. Benefits that Periodization Bring to Training and to the Tennis Player
  - 11.9.4. Characteristics of Periodization
- 11.10. Annual Phases of Tennis Players in Training and Competition
  - 11.10.1. The Life of a Tennis Player
  - 11.10.2. The Daily Phase
  - 11.10.3. The Microcycles
  - 11.10.4. The Mesocycles

## Module 12. Planning Applied to High Performance in Sports

- 12.1. Basic Fundamentals
  - 12.1.1. Adaptation Criteria
    - 12.1.1.1. General Adaptation Syndrome
    - 12.1.1.2. Current Performance Capability, Training Requirement
  - 12.1.2. Fatigue, Performance, Conditioning as Tools
  - 12.1.3. Dose-Response Concept and its Application
- 12.2. Basic Concepts and Applications
  - 12.2.1. Concept and Application of the Plan
  - 12.2.2. Concept and Application of Periodization
  - 12.2.3. Concept and Application of Programming
  - 12.2.4. Concept and Application of Load Control
- 12.3. Conceptual Development of Planning and its Different Models
  - 12.3.1. First Historical Planning Records
  - 12.3.2. First Proposals, Analyzing the Bases
  - 12.3.3. Classic Models
    - 12.3.3.1. Traditional
    - 12.3.3.2. Pendulum
    - 12.3.3.3. High Loads
- 12.4. Models Focused on Individuality and/or Load Concentration
  - 12.4.1. Blocks
  - 12.4.2. Integrated Macrocycle
  - 12.4.3. Integrated Model
  - 12.4.4. ATR
  - 12.4.5. Keeping in Shape
  - 12.4.6. By Objectives
  - 12.4.7. Structural Bells
  - 12.4.8. Self-Regulation (APRE)
- 12.5. Models Focused on Specificity and/or Movement Capacity
  - 12.5.1. Cognitive (or Structured Microcycle)
  - 12.5.2. Tactical Periodization
  - 12.5.3. Conditional Development by Movement Capacity

- 12.6. Criteria for Correct Programming and Periodization
  - 12.6.1. Criteria for Programming and Periodization in Strength Training
  - 12.6.2. Criteria for Programming and Periodization in Endurance Training
  - 12.6.3. Criteria for Programming and Periodization in Speed Training
  - 12.6.4. "Interference" Criteria in Scheduling and Periodization in Concurrent Training
- 12.7. Planning Through Load Control With a GNSS Device (GPS)
  - 12.7.1. Basis of Session Saving for Appropriate Control
    - 12.7.1.1. Calculation of the Average Group Session for a Correct Load Analysis
    - 12.7.1.2. Common Errors in Saving and Their Impact on Planning
  - 12.7.2. Relativization of the Load, a Function of Competence
  - 12.7.3. Load Control by Volume or Density, Range and Limitations
- 12.8. Integrating Thematic Unit 1 (Practical Application)
  - 12.8.1. Construction of a Real Model of Short-Term Planning
    - 12.8.1.1. Selecting and Applying the Periodization Model
    - 12.8.1.2. Designing the Corresponding Planning
- 12.9. Integrating Thematic Unit 2 (Practical Application)
  - 12.9.1. Producing a Pluriannual Plannification
  - 12.9.2. Producing an Annual Plannification

## Module 13. Adapted Tennis and Disability

- 13.1. Tennis as an Inclusive Sport and its Historical Progression
  - 13.1.1. Sport for the Disabled and its Inclusive Nature
  - 13.1.2. Adapted Sports
  - 13.1.3. Tennis as an Inclusive Sport
  - 13.1.4. Current Vision of Sport for the Disabled
- 13.2. What is Disability and its Relation to Tennis
  - 13.2.1. Concepts of Disabilities and in Tennis Throughout History
  - 13.2.2. The Tennis and Disabilities Throughout History
  - 13.2.3. Tennis Benefits for People with Disabilities
  - 13.2.4. Current Status of Tennis and Disability
- 13.3. Tennis and disability from the coach's point of view
  - 13.3.1. Introduction
  - 13.3.2. Ethics for Coaches of People with Disabilities
  - 13.3.3. Training for People with Sensory Disabilities
  - 13.3.4. Training for People with Physical Disabilities
- 13.4. Concept of Physical Disability and General Considerations
  - 13.4.1. The Concept of Physical Disability
  - 13.4.2. Different Types of Physical Disability
  - 13.4.3. Tennis and Physical Disability
  - 13.4.4. Adaptations to Tennis for People with Physical Disabilities
- 13.5. Wheelchair Tennis, its Evolution and Characteristics
  - 13.5.1. Introduction
  - 13.5.2. Historical Evolution of Wheelchair Tennis
  - 13.5.3. Main Characteristics of Wheelchair Tennis
  - 13.5.4. Wheelchair Tennis Mission Statement
- 13.6. The Competition and Other Characteristics of Wheelchair Tennis
  - 13.6.1. The Relationship Between Sport, Disability and its Benefits
  - 13.6.2. Types of Wheelchair Tennis Competitions
  - 13.6.3. Wheelchair Tennis as an Olympic Sport
  - 13.6.4. Organizations that Support Wheelchair Tennis
- 13.7. Wheelchair Tennis Rules and Regulations I
  - 13.7.1. Wheelchair Tennis Regulation
  - 13.7.2. Admission Rules
  - 13.7.3. The Wheelchair
  - 13.7.4. Scoring and General Rules
- 13.8. Tennis and Sensory Disability
  - 13.8.1. Definition of Sensory Disability
  - 13.8.2. Mission Statement of Tennis and Sensory Disability
  - 13.8.3. Benefits for People Who Practice It
  - 13.8.4. Tennis for the Hearing Impaired
  - 13.8.5. Tennis for the Visually Impaired



- 13.9. Tennis and Intellectual Disability
  - 13.9.1. Introduction
  - 13.9.2. Types of Intellectual Disabilities
  - 13.9.3. Evolution of Tennis and Intellectual Disability
  - 13.9.4. Tennis Benefits for People with Intellectual Disabilities
- 13.10. Tennis and Intellectual Disability II
  - 13.10.1. Tournaments and Types of Competitions for Adapted Tennis
  - 13.10.2. Equipment Needed for Tennis Adapted to Intellectual Disability
  - 13.10.3. Tennis Training for People with Intellectual Disabilities
  - 13.10.4. The Role of the Coach and the Family in Tennis for People with Intellectual Disabilities

## Module 14. Sports Performance Assessment

- 14.1. Assessment
  - 14.1.1. Definitions: Test, Assessment, Measurement
  - 14.1.2. Validity, Reliability
  - 14.1.3. Purposes of the Evaluation
- 14.2. Types of Tests
  - 14.2.1. Laboratory Test
    - 14.2.1.1. Strengths and Limitations of Laboratory Tests
  - 14.2.2. Field Tests
    - 14.2.2.1. Strengths and Limitations of Field Tests
  - 14.2.3. Direct Tests
    - 14.2.3.1. Applications and Transfer to Training
  - 14.2.4. Indirect Tests
    - 14.2.4.1. Practical Considerations and Transfer to Training
- 14.3. Assessment of Body Composition
  - 14.3.1. Bioimpedance
    - 14.3.1.1. Considerations in its Application to Field
    - 14.3.1.2. Limitations on the Validity of Its Data
  - 14.3.2. Anthropometry
    - 14.3.2.1. Tools for its Implementation
    - 14.3.2.2. Models of Analysis for Body Composition
  - 14.3.3. Body Mass Index (IMC)
    - 14.3.3.1. Restrictions on the Data Obtained for the Interpretation of Body Composition
- 14.4. Assessing Aerobic Fitness
  - 14.4.1. Vo2max Test on the Treadmill
    - 14.4.1.1. Astrand Test
    - 14.4.1.2. Balke Test
    - 14.4.1.3. ACSM Test
    - 14.4.1.4. Bruce Test
    - 14.4.1.5. Foster Test
    - 14.4.1.6. Pollack Test
  - 14.4.2. Cycloergometer VO2max Test
    - 14.4.2.1. Astrand. Ryhming
    - 14.4.2.2. Fox Test
  - 14.4.3. Cycloergometer Power Test
    - 14.4.3.1. Wingate Test
  - 14.4.4. Vo2max Test in he Field
    - 14.4.4.1. Leger Test
    - 14.4.4.2. Montreal University Test
    - 14.4.4.3. Mile Test
    - 14.4.4.4. 14-Minute Test
    - 14.4.4.5. 2.4Km Test
  - 14.4.5. Field Test to Establish Training Areas
    - 14.4.5.1. 30-15 IFT Test
  - 14.4.6. UNca Test
  - 14.4.7. Yo-Yo Test
    - 14.4.7.1. Yo-Yo Endurance YYET Level 1 and 2
    - 14.4.7.2. Yo-Yo Intermittent Endurance YYEIT Level 1 and 2
    - 14.4.7.3. Yo-Yo Intermittent Recovery YYERT Level 1 and 2

- 14.5. Neuromuscular Fitness Evaluation
  - 14.5.1. Submaximal Repetition Test
    - 14.5.1.1. Practical Applications for its Assessment
    - 14.5.1.2. Validated Estimation Formulas for the Different Training Exercises
  - 14.5.2. 1 RM Test
    - 14.5.2.1. Protocol for its Performance
    - 14.5.2.2. Limitations of 1 RM Assessment
  - 14.5.3. Horizontal Jump Test
    - 14.5.3.1. Assessment Protocols
  - 14.5.4. Speed Test (5m,10m,15m, Etc.)
    - 14.5.4.1. Considerations on the Data Obtained in Time/Distance Assessments
  - 14.5.5. Maximum/Submaximum Incremental Progressive Tests
    - 14.5.5.1. Validated Protocols
    - 14.5.5.2. Practical Applications
  - 14.5.6. Vertical Jump Test
    - 14.5.6.1. SJ Jump
    - 14.5.6.2. CMJ Jump
    - 14.5.6.3. ABK Jump
    - 14.5.6.4. DJ Test
    - 14.5.6.5. Continuous Jump Test
  - 14.5.7. Strength/Speed Vertical/Horizontal Profiles
    - 14.5.7.1. Morin and Samozino Assessment Protocols
    - 14.5.7.2. Practical Applications from a Strength/Speed Profile
  - 14.5.8. Isometric Tests With Load Cell
    - 14.5.8.1. Voluntary Isometric Maximal Strength Test (IMS)
    - 14.5.8.2. Bilateral Deficit Isometry Test (%BLD)
    - 14.5.8.3. Lateral Deficit (%LD)
    - 14.5.8.4. Hamstring/Quadriceps Ratio Test
- 14.6. Assessment and Monitoring Tools
  - 14.6.1. Heart Rate Monitors
    - 14.6.1.1. Device Characteristics
    - 14.6.1.2. Training Areas by Heart Rate



- 14.6.2. Lactate Analyzers
  - 14.6.2.1. Device Types, Performance and Characteristics
  - 14.6.2.2. Training Zones According to the Lactate Threshold Limit (LT)
- 14.6.3. Gas Analyzers
  - 14.6.3.1. Laboratory vs Portable Laptops
- 14.6.4. GPS
  - 14.6.4.1. GPS Types, Characteristics, Strengths and Limitations
  - 14.6.4.2. Metrics Established to Interpret the External Load
- 14.6.5. Accelerometers
  - 14.6.5.1. Types of Accelerometers and Characteristics
  - 14.6.5.2. Practical Applications of Data Obtained From an Accelerometer
- 14.6.6. Position Transducers
  - 14.6.6.1. Types of Transducers for Vertical and Horizontal Movements
  - 14.6.6.2. Variables Measured and Estimated by of a Position Transducer
  - 14.6.6.3. Data Obtained from a Position Transducer and its Applications to Training Programming
- 14.6.7. Strength Platforms
  - 14.6.7.1. Types and Characteristics of Strength Platforms
  - 14.6.7.2. Variables Measured and Estimated by Means of a Strength Platform
  - 14.6.7.3. Practical Approach to Training Programming
- 14.6.8. Load Cells
  - 14.6.8.1. Cell Types, Characteristics and Performance
  - 14.6.8.2. Uses and Applications for Sports Performance and Health
- 14.6.9. Photoelectric Cells
  - 14.6.9.1. Characteristics , and Limitations of the Devices
  - 14.6.9.2. Practical Uses and Applicability
- 14.6.10 Mobile Applications
  - 14.6.10.1. Description of the Most Used Apps on the Market: My Jump, PowerLift, Runmatic, Nordic



- 14.7. Internal and External Load
  - 14.7.1. Objective Means of Assessment
    - 14.7.1.1. Speed of Execution
    - 14.7.1.2. Average Mechanical Power
    - 14.7.1.3. GPS Device Metrics
  - 14.7.2. Subjective Means of Assessment
    - 14.7.2.1. PSE
    - 14.7.2.2. sPSE
    - 14.7.2.3. Chronic/Acute Load Ratio
- 14.8. Fatigue
  - 14.8.1. General Concepts of Fatigue and Recovery
  - 14.8.2. Assessments
    - 14.8.2.1. Laboratory Objectives: CK, Urea, Cortisol, Etc
    - 14.8.2.2. Field Objectives: CMJ, Isometric Tests, etc
    - 14.8.2.3. Subjective: Wellness Scales, TQR, etc
  - 14.8.3. Recovery Strategies: Cold-Water Immersion, Nutritional Strategies, Self-Massage, Sleep
- 14.9. Considerations for Practical Applications
  - 14.9.1. Vertical Jump Test Practical Applications
  - 14.9.2. Maximum/Submaximum Incremental Progressive Test Practical Applications
  - 14.9.3. Vertical Strength-Speed Profile. Practical Applications

## Module 15. Statistics Applied to Performance and Research

- 15.1. Notions of Probability
  - 15.1.1. Simple Probability
  - 15.1.2. Conditional Probability
  - 15.1.3. Bayes' Theorem
- 15.2. Probability Distributions
  - 15.2.1. Binomial Distribution
  - 15.2.2. Poisson distribution
  - 15.2.3. Normal Distribution

- 15.3. Statistical Inference
  - 15.3.1. Population Parameters
  - 15.3.2. Estimation of Population Parameters
  - 15.3.3. Sampling Distributions Associated with the Normal Distribution
  - 15.3.4. Distribution of the Sample Mean
  - 15.3.5. Point Estimators
  - 15.3.6. Properties of Estimators
  - 15.3.7. Estimator Comparison Criteria
  - 15.3.8. Estimators by Confidence Regions
  - 15.3.9. Method of Obtaining Confidence Intervals
  - 15.3.10. Confidence Intervals Associated With Normal Distribution
  - 15.3.11. Central Limit Theorem
- 15.4. Hypothesis Test
  - 15.4.1. P-Value
  - 15.4.2. Statistical Power
- 15.5. Exploratory Analysis and Descriptive Statistics
  - 15.5.1. Graphs and Tables
  - 15.5.2. Chi-Square Test
  - 15.5.3. Relative Risk
  - 15.5.4. Odds Ratio
- 15.6. The T-Test
  - 15.6.1. One-Sample T-Test
  - 15.6.2. T-Test for Two Independent Samples
  - 15.6.3. T-Test for Paired Samples
- 15.7. Correlation Analysis
- 15.8. Simple Linear Regression Analysis
  - 15.8.1. The Regression Line and its Coefficients
  - 15.8.2. Residuals
  - 15.8.3. Regression Assessment Using Residuals
  - 15.8.4. Coefficient of Determination

- 15.9. Variance and Analysis of Variance (ANOVA)
  - 15.9.1. One-Way ANOVA
  - 15.9.2. Two-Way ANOVA
  - 15.9.3. ANOVA for Repeated Measures
  - 15.9.4. Factorial ANOVA

## Module 16. Nutrition, Supplementation and Hydration for Tennis Players

- 16.1. Nutrition, General Considerations and Importance in Tennis
  - 16.1.1. Introduction to the Concept of Nutrition in the Tennis Player
  - 16.1.2. General Aspects of Nutrition
  - 16.1.3. Historical Evolution of the Concept of Nutrition as it Relates to Tennis
  - 16.1.4. Importance of Nutrition in the Tennis Player
- 16.2. Types of Nutrients and Their Benefits and Contributions
  - 16.2.1. What are Nutrients
  - 16.2.2. Essential Nutrients and Their Definition
  - 16.2.3. Functions Performed by Nutrients in Our Body
  - 16.2.4. Where These Nutrients are Found
- 16.3. Diet of the Tennis Player
  - 16.3.1. Nutritional Needs that Tennis Players Have
  - 16.3.2. Tennis Characteristics and Corresponding Needs
  - 16.3.3. What Makes up a Tennis Player's Diet
  - 16.3.4. What a Tennis Player Should Not Eat
- 16.4. Elaboration of the Tennis Player's Diet Modern Techniques for the Diet of the Tennis Player
  - 16.4.1. How to Create the Tennis Players Diet
  - 16.4.2. Examples of the Diet in Professional Tennis Players
  - 16.4.3. The Carbohydrate Overload 3 Days Before the Match
  - 16.4.4. "The waiting ration"
- 16.5. Nutrition of the Tennis Player in Training and Competition
  - 16.5.1. What Should the Tennis Player Eat During Training
  - 16.5.2. Nutrition of the Tennis Player Before the Match
  - 16.5.3. Nutrition of the Tennis Player Before the Tennis Match
  - 16.5.4. Nutrition of the Tennis Player After the Tennis Match
  - 16.5.5. Feeding of the Tennis Player with a Heavy Load of Matches or During a Journey
- 16.6. Hydration in Tennis
  - 16.6.1. Concept of Hydration
  - 16.6.2. Importance of Hydration in Tennis
  - 16.6.3. Thermoregulation
  - 16.6.4. Problems of Dehydration in Tennis
  - 16.6.5. Types of Beverages
- 16.7. Hydration During Training and Competition
  - 16.7.1. Practical Hydration Strategies
  - 16.7.2. Hydration Needs in Training
  - 16.7.3. Pre-competition Hydration Needs
  - 16.7.4. Hydration Needs During Competition
  - 16.7.5. Post-competition Hydration Requirements
- 16.8. What is Supplementation and its Benefits
  - 16.8.1. Introduction to Supplementation
  - 16.8.2. Health Effects of Sports Supplementation
  - 16.8.3. Benefits of Sports Supplementation
  - 16.8.4. Are Sports Supplements Safe?
- 16.9. Types of Supplementation for Tennis Players
  - 16.9.1. The Best Supplements for Tennis Players
  - 16.9.2. Amino Acid Supplements
  - 16.9.3. Antioxidant Supplements
  - 16.9.4. Supplements During Training and Matches
- 16.10. Doping in Tennis, Cases and Prohibitions
  - 16.10.1. Definition of Doping
  - 16.10.2. Doping Controls
  - 16.10.3. Substances Considered Doping
  - 16.10.4. Cases of Doping in Tennis Throughout History

## Module 17. Technology applicable to tennis and video analysis

- 17.1. The Evolution of Technology, General Considerations and Applicable to Tennis
  - 17.1.1. Importance of Technology in the Sports Today
  - 17.1.2. The Evolution of Technology in Tennis Throughout History
  - 17.1.3. Types of Technologies Applicable in Tennis
  - 17.1.4. Technological Methodology
- 17.2. The Importance of Technology and Innovation in Tennis and its Benefits
  - 17.2.1. Technology, its Applicability to Tennis and its Importance
  - 17.2.2. Objectives of the Implementation of the New Technologies in Tennis
  - 17.2.3. Benefits of the Use of Technology in Tennis
  - 17.2.4. R&D&I in the Tennis Industry
- 17.3. Technology on the Tennis Court
  - 17.3.1. Evolution of Tennis Courts Throughout History
  - 17.3.2. Current Tennis Courts and Their Technology
  - 17.3.3. Advertising on the Tennis Court
  - 17.3.4. Technology in Tennis Materials
- 17.4. Hawk's Eye and Other Refereeing Systems
  - 17.4.1. What is the Hawk's Eye
  - 17.4.2. How is the Hawk's eye Used?
  - 17.4.3. Benefits of Using the Hawk's Eye in Competition
  - 17.4.4. When am I Entitled to Use the Hawk's Eye?
  - 17.4.5. Other Refereeing Systems
- 17.5. The Tennis Racket, its Evolution and the Implementation of Technology in the Racket
  - 17.5.1. Types of Existing Rackets
  - 17.5.2. Evolution of the Tennis Racket Throughout History
  - 17.5.3. The Tennis Racket Depending on the Style of the Player
  - 17.5.4. New Technologies Existing in Tennis Rackets
- 17.6. The Strings, Evolution and Types Depending on the Playing Style
  - 17.6.1. Importance of the Strings for the Tennis Players
  - 17.6.2. Evolution of Strings Throughout History
  - 17.6.3. Types of Strings and Classification
  - 17.6.4. Tension and Types of Strings Depending on the Tennis Player's Style of Play



- 17.7. What is the Video Analysis and its Benefits for Tennis Players
  - 17.7.1. Concept of Video Analysis
  - 17.7.2. Objectives of the Video Analysis in Tennis Players
  - 17.7.3. Benefits for Players and Coaches in the Use of Video Analysis
  - 17.7.4. Video Analysis and Tactics
- 17.8. The Apparel, the Tennis Ball and its Evolution and Implementation of Technology
  - 17.8.1. Evolution of the Clothing in Tennis Throughout History
  - 17.8.2. Types of Tennis Shoes Depending on the Surface of the Tennis Court
  - 17.8.3. Evolution of the Tennis Ball Throughout History
  - 17.8.4. Types of Tennis Ball and Their Classification Depending on the Speed
- 17.9. Practical Examples in the Use of Technology and Video Analysis in the Technique Work
  - 17.9.1. Analysis and Improvement of Ground Strokes Through Video Analysis
  - 17.9.2. Analysis and Improvement of the Service Through Video Analysis
  - 17.9.3. Analysis and Improvement of the Volleys Through Video Analysis
  - 17.9.4. Other Technical Aspects Through Video Analysis
- 17.10. Practical Examples in the Use of Technology and Video Analysis in the Tactical Work
  - 17.10.1. The Video-Analysis and the Improvement in the Height of the Ball Exercises to Correct It
  - 17.10.2. The Video-Analysis and the Improvement of the Depth Exercises to Correct
  - 17.10.3. Video-Analysis and Ball Directions Exercises to Improve
  - 17.10.4. Video analysis and improvement of service areas. Exercises to improve



*Our curriculum has been designed with teaching effectiveness in mind: so that you learn faster, more efficiently, and on a more permanent basis”*

06

# Methodology

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

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







“

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

### Case Study to contextualize all content

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

“

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



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



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

### A learning method that is different and innovative

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

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

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

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

## Relearning Methodology

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

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

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

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

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



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

With this methodology, we have trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, markets, and financial instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

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

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

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



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



### Study Material

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

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



### Classes

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

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



### Practising Skills and Abilities

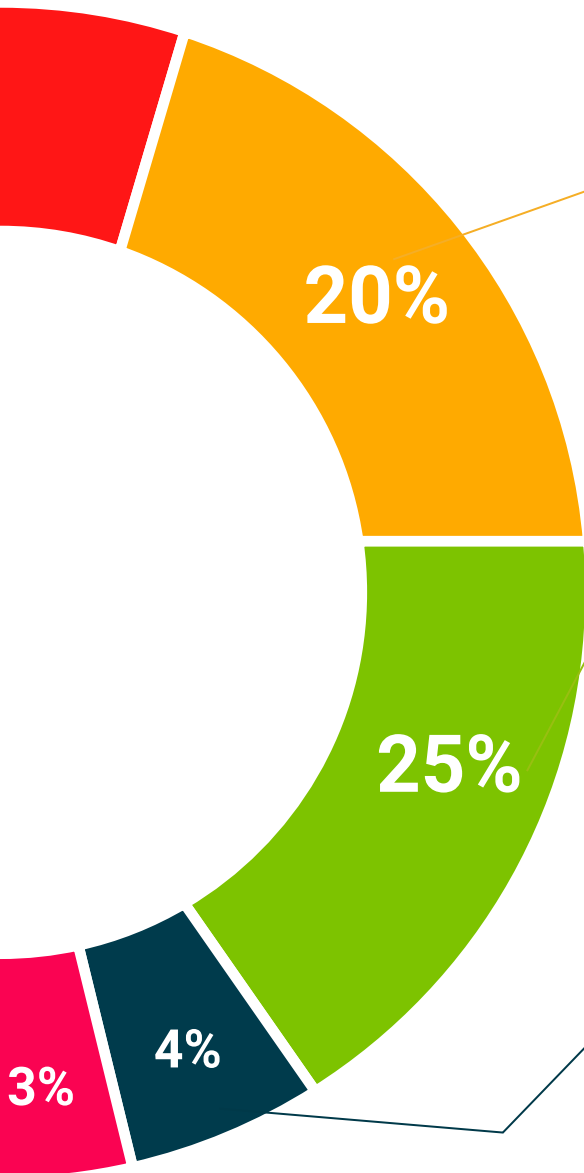
They will carry out activities to develop specific competencies and skills in each thematic area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



### Additional Reading

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





**Case Studies**

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



**Interactive Summaries**

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

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



**Testing & Retesting**

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



# 07 Certificate

The Advanced Master's Degree in High Performance Tennis and Competition guarantees, in addition to the most rigorous and updated training, access to a Advanced Master's degree issued by TECH Technological University.





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

This **Advanced Master's Degree in High Performance Tennis and Competition** contains the most complete and up-to-date scientific program on the market.

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

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

Title: **Advanced Master's Degree in High Performance Tennis and Competition**

Official N° of Hours: **3,000 h.**



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



Advanced Master's  
Degree  
High Performance  
Tennis and Competition

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

# Advanced Master's Degree High Performance Tennis and Competition

