

# Advanced Master's Degree Therapeutic Personal Training and Sports Rehabilitation

Endorsed by the NBA:





## Advanced Master's Degree Therapeutic Personal Training and Sports Rehabilitation

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

Website: [www.techtute.com/us/sports-science/advanced-master-degree/advanced-master-degree-therapeutic-personal-training-sports-rehabilitation](http://www.techtute.com/us/sports-science/advanced-master-degree/advanced-master-degree-therapeutic-personal-training-sports-rehabilitation)

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# 01

# Introduction

The high demand for personal trainers makes this profession a booming labor niche for which a high level of academic knowledge is required to prepare professionals in an effective way and with guarantees of success. This profession, in addition, finds in people with different pathologies or who have suffered some kind of accident a new job opportunity, since each person, according to their physical needs, needs an adapted exercise plan that allows them to improve their pathologies or return to physical activity. For this program TECH has designed a complete program on therapeutic personal training and sports rehabilitation.







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*Get superior knowledge in personal training and be able to design tailored exercise programs for each user, taking into account their personal characteristics”*

The increase in the number of people who have incorporated physical exercise into their daily lives has led to an increase in the demand for personal trainers who are able to design routines suitable for each person, taking into account their physical conditions. But the field of personal trainers is very wide, if the type of sport or the characteristics of the athletes are taken into account.

In order to increase the training of professionals from this field, this very complete Advanced Master's Degree has been designed in two large blocks: On the one hand, therapeutic personal training and, on the other hand, personal training specialized in sports rehabilitation, functional recovery and injury prevention. Therefore, this is a new educational program that addresses in an updated and in-depth way those pathologies more prevalent in today's society and for which a well-developed exercise prescription can be a fundamental part of the treatment. It also integrates rehabilitation, recovery and prevention, both for sports injuries and at a functional level.

In addition, the inclusion of renowned international lecturers in this program results in a unique opportunity to learn first-hand from the best in the field. With the masterclasses given by these experts, students will be able to delve deeper into the therapeutic management of the best basketball league in the world, the NBA, preparing themselves in an advanced way to face the most demanding challenges in this field.

The Advanced Master's Degree will not only take the student through the theoretical knowledge offered, but will show another way of studying and learning, more organic, simpler and more efficient. TECH works to keep you motivated and to create a passion for learning. This will encourage the student to think and develop critical thinking. All this with the latest technologies, which will allow students to update their knowledge in a comfortable and totally remote way, so that the students are the only ones who decide where and when to study, with total ease of organization and time management. In this way, you will be able to easily combine study time with the rest of your daily obligations.

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

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



*An educational program created for professionals who aspire for excellence, and that will enable you to acquire new skills and strategies easily and effectively"*

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*Appropriate sports routines for patients with different diseases or injured athletes allow better results in their recovery. Don't think twice and get qualified in this field"*

Our teaching staff is made up of working professionals. In this way, it ensures that it delivers the educational update objective it intends. A multidisciplinary team of professionals prepared and experienced in different environments, who will develop theoretical knowledge efficiently, but, above all, will put at the service of specialization the practical knowledge derived from their own experience.

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

The design of this program is based on Problem-Based Learning: An approach that conceives learning as a highly practical process. To achieve this remotely, telepractice is used. With the help of an innovative system of interactive videos and *Learning from an Expert*, you will be able to acquire the knowledge as if you were facing the scenario you are currently learning. A concept that will make it possible to integrate and fix learning in a more realistic and permanent way.

*Learn from the best specialists in the sports field, with experience in treating elite NBA athletes.*

*We have the best methodology, the most updated syllabus and a multitude of practical cases that will help you to prepare for success.*



# 02 Objectives

TECH's objective is to prepare highly qualified professionals for work experience. An objective that is complemented in a global manner, by promoting human development that lays the foundations for a better society. This objective is focused on helping professionals reach a much higher level of expertise and control. A goal that our students can take for granted with a high-intensity and high-precision specialization.







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*If your goal is to acquire a qualification that will enable you to compete among the best, look no further, at TECH we have everything you need"*



## General Objectives

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- ◆ Understand the different variables of training and its application in people with pathologies with pathologies
- ◆ Offer a broad vision of the pathology and its most relevant characteristics
- ◆ Obtain an overview of the most frequent pathologies in society
- ◆ Understand the most relevant disease triggers to prevent the onset of comorbidities or the disease itself
- ◆ Know the existing contraindications in the different pathologies to avoid possible counterproductive effects of physical exercise
- ◆ Acquire specialized knowledge in sports rehabilitation, injury prevention and functional recovery
- ◆ Assess the athlete from the point of view of physical, functional and biomechanical condition to detect aspects that hinder recovery or favor relapses in the injury
- ◆ Design both specific readaptation and recovery work, as well as individualized integral work
- ◆ Acquire a specialization in the pathologies of the locomotor system with the highest incidence in the population as a whole
- ◆ Be able to plan prevention, rehabilitation and functional rehabilitation programs
- ◆ Delve into the characteristics of the most common types of injuries suffered by athletes today
- ◆ Assess the subject's nutritional needs and make nutritional recommendations and nutritional supplements to support the recovery process
- ◆ Assess and monitor the evolutionary process of recovery and/or rehabilitation of an athlete's or user's injury
- ◆ Acquire skills and abilities in readaptation, prevention and recovery, increasing professional possibilities as a personal trainer
- ◆ Differentiate from an anatomical point of view the different parts and structures of the human body
- ◆ To improve the injured athlete's physical condition as part of the integral work with the objective of achieving a better and efficient recovery after the injury
- ◆ Use coaching techniques that allow is to address the general psychological aspects of the athlete or injured subject and that favor an effective approach from the personal training work
- ◆ Understanding marketing as a key tool for success in personal training in the field of rehabilitation, prevention and functional recovery



*We offer you a high-level specialization to meet our goal of academic excellence, but, above all, to help you compete with the best”..*



## Specific Objectives

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### Module 1. Pathology in the Current Social and Health Care Context

- ◆ Gain an in-depth understanding of the current and future needs of the population with respect to physical exercise
- ◆ Explore other aspects that affect the health of the client/patient and that may have an impact on their physical development capacity
- ◆ Manage the reality and limitations of the most frequent diagnostic tests and their usefulness in physical exercise planning
- ◆ Interpret the interaction and impact of neuroscience and physical exercise
- ◆ Address and understand the influence of stress, nutrition and other habits on people's health
- ◆ Expand your vision of the microbiota on the health of the organism and the influence that certain factors, such as physical exercise, have on it

### Module 2. General Criteria for the Design of Physical Exercise Programs for Special Populations

- ◆ Understand in depth the most important variables of training in order to know how to apply them in an individualized way
- ◆ Manage the general criteria for the design of physical exercise programs for people with pathology
- ◆ Obtain the necessary tools to develop training planning tailored to the client's needs

### Module 3. Obesity and Physical Exercise

- ◆ Understand in depth the pathophysiology of obesity and its repercussions on health
- ◆ Understand the physical limitations of the obese individual
- ◆ Be able to plan and program training in an individualized way for a person with obesity

### Module 4. Diabetes and Physical Exercise

- ◆ In-depth understanding of the pathophysiology of diabetes and its impact on health
- ◆ Understanding the specific needs in diabetes
- ◆ Be able to plan and program training in an individualized way for a person with diabetes

### Module 5. Metabolic Syndrome and Physical Exercise

- ◆ In-depth understanding of the pathophysiology of metabolic syndrome
- ◆ Understand the criteria for intervention to improve the health and quality of life of patients with this pathology
- ◆ Be able to plan and program training in an individualized way for a person with metabolic syndrome

### Module 6. Cardiovascular Diseases

- ◆ Study the wide range of existing pathologies with cardiovascular involvement
- ◆ Understand the phases of action in cardiovascular rehabilitation
- ◆ Be able to plan and program training in an individualized way for a person with a cardiovascular pathology

### Module 7. Osteoarticular Pathology and Non-Specific Low Back Pain

- ◆ Study the different pathologies affecting the osteoarticular system
- ◆ Understand the term fragility and its impact on the osteoarticular system and non-specific low back pain
- ◆ Be able to plan and program the training in an individualized way in a person with different pathologies associated with the osteoarticular system and pain in a person with different diseases associated to the osteoarticular system and non-specific low back pain

### **Module 8. Respiratory Pathology and Physical Exercise**

- ♦ Study the different pulmonary conditions
- ♦ Understand, in depth, the pathophysiologic characteristics of pulmonary diseases
- ♦ Be able to plan and program training in an individualized way for people with pulmonary pathology

### **Module 9. Physical Exercise and Pregnancy**

- ♦ Manage the morphofunctional changes of the pregnancy process
- ♦ In-depth understanding of the biopsychosocial aspects of pregnancy
- ♦ Be able to plan and program training in an individualized way for a pregnant woman

### **Module 10. Physical Exercise in Children and Adolescents and Older Adults**

- ♦ In-depth understanding of the biopsychosocial aspects of children, adolescents and older adults
- ♦ Know the particularities of each age group and their specific approach
- ♦ Be able to plan and program training in an individualized way for children, adolescents and older adults

### **Module 11. Personal Training**

- ♦ Acquire a better understanding of the different characteristics of the personal trainer profession
- ♦ Integrate the concepts of training in cardiovascular balance, strength, plyometrics, speed, agility, etc. as a key tool for staff in the prevention and readaptation of injuries
- ♦ Design training programs individualized to the characteristics of the subject to achieve better results

### **Module 12. Preventive Work for Sports Practice**

- ♦ Identify the risk factors involved in the practice of physical-sports activities
- ♦ Use different types of materials for the planning of different types of exercises in a personalized training program
- ♦ Learning Pilates exercises with different types of machines designed to be fundamental in preventive work
- ♦ See Stretching and Postural Re-Education as essential methods for the prevention of injuries and alterations of the locomotor system

### **Module 13. Structure of the Locomotor System**

- ♦ Manage the different anatomical concepts: axes, planes and anatomical position
- ♦ Differentiate the different elements that make up the locomotor apparatus
- ♦ See the functioning processes of the integrated active and passive locomotor apparatus

### **Module 14. Fitness, Functional and Biomechanical Assessment**

- ♦ Use biomechanics of movement as a key tool in the prevention and rehabilitation process
- ♦ Clarify the importance of nutritional, biochemical, genetic and quality of life assessment from the initial period to the end of the process
- ♦ Assess the different parameters related to physical fitness: strength, speed, flexibility, endurance, etc
- ♦ Detect anomalies that hinder or prevent a correct recovery/rehabilitation process

### **Module 15. Frequent Injuries in Athletes**

- ♦ Determine the etiology of the most frequent injuries that occur in sports practice
- ♦ Identify the causes of the main injuries in sports
- ♦ Distinguish the different types of injuries: tendon, muscle, bone, ligament and joint injuries



**Module 16. Exercise for the Readaptation of Sports Injuries**

- ♦ Establishing exercise and physical activity as a strategy for improving health
- ♦ Classify the different types of exercises according to the planning of the personalized training to be performed
- ♦ Differentiate the different types of specific physical exercises according to the muscles or muscle groups to be readapted
- ♦ Manage the different techniques applied in the treatment of injuries produced in sports practice
- ♦ Employ proprioceptive re-education in all rehabilitation and recovery processes, as well as for a lower prevalence of injury recurrence
- ♦ Plan and design specific programs and protocols with preventive effects
- ♦ Manage the different types of sports and essential sports practices as adjuvants during the process of functional rehabilitation and recovery

**Module 17. Frequent Pathologies of the Locomotor System**

- ♦ Analyze the severity of ligament diseases and their assessment for a better and more efficient rehabilitation
- ♦ Focus on the analysis of joint pathologies due to their high incidence in sports
- ♦ Examine the most common pathologies that usually occur in the spine
- ♦ Assess pain as an element to be taken into account in the diagnosis of a greater or lesser degree of injury

**Module 18. Exercise for Functional Recovery**

- ♦ Analyze the different possibilities offered by functional training and advanced rehabilitation and advanced rehabilitation
- ♦ Apply the Pilates method as an integral system for the rehabilitation of the locomotor system in functional recovery
- ♦ Plan specific Pilates exercises and programs for the different zones of the locomotor apparatus with and without apparatus

**Module 19. Nutrition for Functional Recovery and Rehabilitation**

- ♦ Approach the concept of integral nutrition as a key element in the rehabilitation and functional recovery process
- ♦ Distinguish the different structures and properties of both macronutrients and micronutrients
- ♦ Prioritize the importance of both water intake and hydration in the recovery process
- ♦ Analyze the different types of phytochemicals and their essential role in improving the state of health and regeneration of the organism

**Module 20. Coaching and Business of the Personal Trainer**

- ♦ In-depth knowledge of specific elements of the personal trainer profession
- ♦ Acquire and understand the different healthy habits and lifestyles, as well as their implementation possibilities
- ♦ Apply motivational strategies to achieve better results in the process of sports rehabilitation and functional recovery
- ♦ Plan and design spaces that favor a better development of the specific personal training work to be carried out
- ♦ Understand the personal training process where the relationship with the client and the feedback he/she provides are fundamental to the process

# 03 Skills

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



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*Achieve success in any profession that requires effort and perseverance. But, above all, the support of professionals, who will give you the boost you need, with the necessary means and assistance. At TECH, we offer you everything you need”*





## General Skills

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- ◆ Design appropriate training programs for people with various pathologies and adjust it to the needs of each individual
- ◆ Manage an appropriate technical vocabulary that will allow you to communicate with different health professionals and understand the multiple diagnostic tests, being able to generate synergy with multidisciplinary groups to improve the health of people with pathologies
- ◆ Program, plan and investigate the process of prevention, sports readaptation and functional recovery through an individualized training program
- ◆ Planning and execution of programs aimed at prevention, sports rehabilitation and functional recovery to be carried out in a sports club, sports federation and/or sports centers, entities related to physical activity for health and centers working with people with physical disabilities or injuries







## Specific Skills

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- ◆ Knowing the particularities of personal training adapted to each person and design individualized and specific programs according to their needs
- ◆ Address safe and effective intervention through physical exercise programs, in population with pathologies
- ◆ Know the main pathologies that people may suffer, especially those in which physical exercise can be an effective therapy to improve their quality of life
- ◆ Design and carry out personalized training for people with obesity
- ◆ Knowing the relationship between diabetes and exercise and how exercise can achieve great benefits in patients
- ◆ Design specific exercise programs for people with cardiovascular pathologies
- ◆ Personalized training programs for users with respiratory pathologies
- ◆ Knowing the particularities of personal training adapted to each person and to design individualized and specific programs according to the needs of the athletes
- ◆ Plan the specific exercises for each workout, applying machines for functional training or pilates method
- ◆ In-depth knowledge of the locomotor system
- ◆ Know in depth the biomechanics of movement and apply it in the rehabilitation process
- ◆ Know and identify the main sports injuries
- ◆ Design and carry out customized training
- ◆ Identify the main joint and ligament pathologies
- ◆ Plan rehabilitation exercises using the Pilates method for the rehabilitation of the musculoskeletal system of the locomotor system
- ◆ Provide nutritional diets adapted to the needs of each athlete and taking into account their type of injury
- ◆ Apply coaching techniques to personal training and apply motivation to obtain better results in the recovery of the athlete



*Our objective is very simple: to offer you a quality specialization, with the best teaching system of the moment, so that you can improve yourself and obtain personal and professional growth"*

# 04

# Course Management

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





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*Our professors bring their vast experience and their teaching skills to offer you a stimulating and creative specialized educational program”*

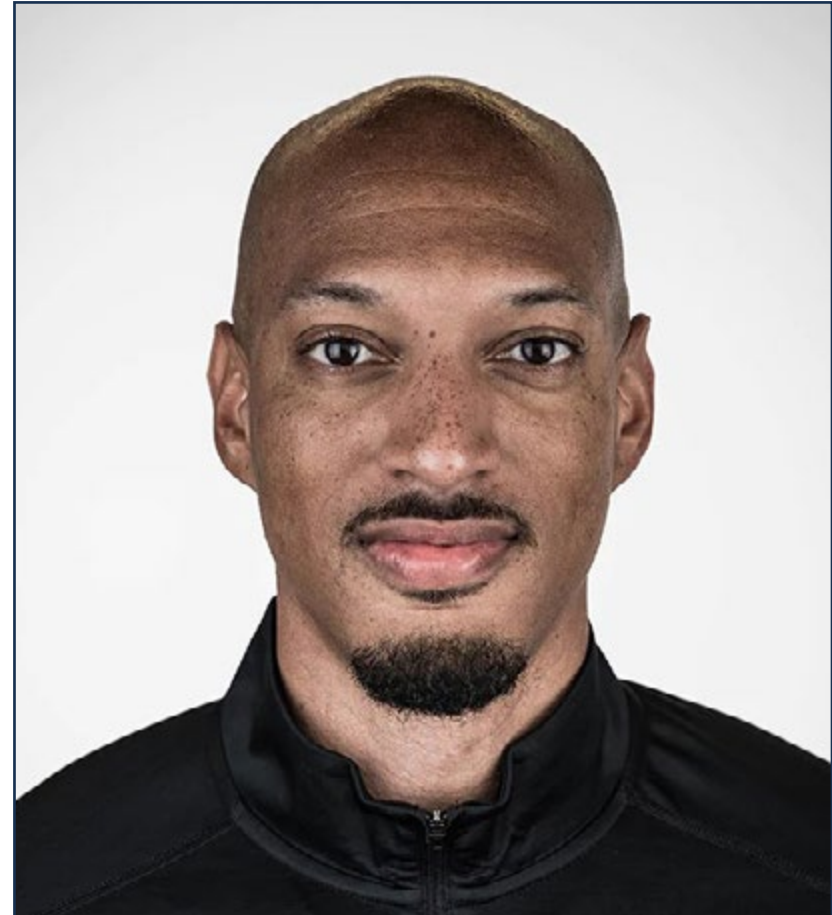
## International Guest Director

Dr. Charles Loftis is a renowned specialist who serves as a **sports performance therapist** for the **Portland Trail Blazers in the NBA**. His impact on the world's premier basketball league has been significant, bringing distinguished expertise in creating strength and conditioning programs.

Prior to joining the Trail Blazers, he was the head strength and conditioning coach for the Iowa Wolves, implementing and overseeing the development of a comprehensive player program. In fact, his experience in the sports performance field began with the establishment of XCEL Performance and Fitness, of which he was the founder and head coach. There, Dr. Charles Loftis worked with a wide range of athletes to develop strength and conditioning programs, as well as working on the **prevention and rehabilitation of sports injuries**.

His academic background in the field of chemistry and biology gives him a unique perspective on the science behind sports performance and physical therapy. As such, he holds CSCS and RSCC designations from the National Strength and Conditioning Association (NSCA), which recognise his knowledge and skills in the field. He is also certified in PES (Performance Enhancement Specialist), CES (Corrective Exercise Specialist) and dry needling.

All in all, Dr. Charles Loftis is a vital member of the NBA community, working directly with both the strength and performance of elite athletes as well as the necessary prevention and rehabilitation of various sports injuries.





## Dr. Loftis, Charles

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- Sports Performance Specialist with the Portland Trail Blazers - Oregon, USA
- Head Strength and Conditioning Coach for the Iowa Wolves
- Founder and Head Coach at XCEL Performance and Fitness
- Head Performance Coach for Oklahoma Christian University men's basketball team
- Physical Therapist at Mercy
- PhD in Physical Therapy from Langston University
- Degree in Chemistry and Biology from Langston University

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

## International Guest Director

Isaiah Covington is a highly skilled performance coach, with extensive experience in treating and addressing a variety of injuries in elite athletes. In fact, his professional career has been directed towards the **NBA**, one of the most important sports leagues in the world. He is the **performance coach of the Bolton Celtics**, one of the most important teams in the Eastern Conference and with the greatest projection in the United States.

His work in such a demanding league has made him specialize in **maximizing the physical and mental potential** of the players. Key to this has been his past experience with other teams, such as the Golden State Warriors and the Santa Cruz Warriors. This has also allowed him to work on sports injuries, focusing on the **prevention and rehabilitation** of the most common injuries in elite athletes.

In the academic field, his interest has focused on the field of kinesiology, exercise science and high performance sport. This has led him to excel prolifically in the NBA, working day-to-day with some of the most important basketball players and coaching staffs in the world.



## Mr. Covington, Isaiah

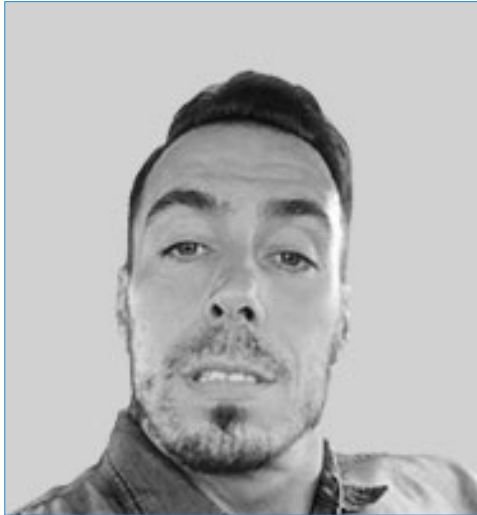
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- Boston Celtics Performance Coach - Massachusetts, USA
- Head Performance Coach, Golden State Warriors
- Head Performance Coach of the Santa Cruz Warriors
- Performance Coach at Pacers Sports & Entertainment
- Degree in Kinesiology and Exercise Science from the University of Delaware
- Specialization in Training Management
- Professional Master's Degree in Kinesiology and Exercise Science from Long Island University
- Professional Master's Degree in Performance Sport from the Australian Catholic University

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*A unique, key, and decisive educational experience to boost your professional development”*

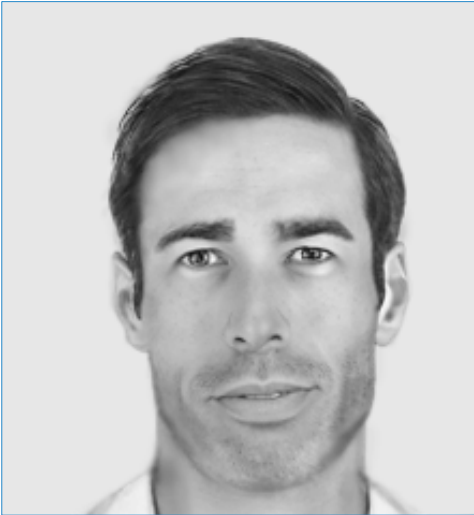
## Management



### Mr. 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. Gymnasia and Esgrima Club of 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





### **Dr. González Matarín, Pedro José**

- ◆ Researcher and Professor in Health Sciences
- ◆ Technical researcher of Health Education in Murcia
- ◆ Teacher and researcher at the University of Almeria
- ◆ Teacher and researcher at the University of Almeria
- ◆ High Performance Coach
- ◆ Doctor in Health Sciences
- ◆ Degree in Physical Education
- ◆ Master's Degree in Functional Recovery in Physical Activity and Sport
- ◆ Master's Degree in Regeneration Medicine
- ◆ Master's Degree in Physical Activity and Health
- ◆ Master in Dietetics and Diet Therapy
- ◆ Member of: SEEDO, AEEM

## Professors

### Dr. Avila, María Belén

- ◆ Psychologist and nutritionist
- ◆ Psychologist and nutritionist with private practice
- ◆ Nutrition and Diabetes service in different centers
- ◆ Nutritionist at the Argentine Diabetes Federation
- ◆ Member of the Psychology Scientific Committee of the Hospital de Clínicas José de San Martín
- ◆ Nutritionist in the Senior Adult Scientific Committee of the Argentine Diabetes Society
- ◆ Sports Psychologist at Club Atlético Vélez Sarsfield
- ◆ National Physical Education Teacher
- ◆ Degree in Psychology
- ◆ Degree in High Performance Sports
- ◆ Specialization in Sport Psychology
- ◆ Integral Therapeutic Program for the treatment of overweight and obesity by CINME Metabolic Research Center
- ◆ Certified Diabetes Educator

### Mr. Masabeu, Emilio Jose

- ◆ Neuromotricity Specialist
- ◆ National Physical Education Teacher
- ◆ Teacher at José C Paz University
- ◆ Professor at the National University of Villa María
- ◆ Professor at the University of Lomas de Zamora
- ◆ Degree in Kinesiology from the University of Buenos Aires

### Mr. Vallodoro, Eric

- ◆ Specialist in High Performance Sports
- ◆ Coordinator of the Biomechanics and Exercise Physiology Laboratory at the Modelo Lomas Institute
- ◆ Full Professor of Physical Education at the Instituto Superior Modelo Lomas Degree in High Performance Sports at the National University of Lomas de Zamora
- ◆ Full Professor in the chairs of: "Didactics of Secondary Education", "Education of Sports Training" and "Teaching Practice" at the Instituto Superior Modelo Lomas
- ◆ Graduate in Physical Education at Modelo Lomas Institute
- ◆ Master's Degree in Physical Activity and Sport. National University of Avellaneda. Predictamen
- ◆ Master's Degree in Child and Youth Training and Development. 1st promotion. National University of Lomas de Zamora - Thesis

### Mr. Crespo, Guillermo Javier

- ◆ Coordinator of Club Body Gym (Buenos Aires)
- ◆ Assistant Coach in the program of detection and development of juvenile weightlifting, Calabrian Association, San Carlos Gymnasium, dependent on the Federated Teaching Centers of the Argentinean Weightlifting Federation
- ◆ Coordinator of the gym and training center Asociación Calabresa
- ◆ National Olympic Weightlifting and Bodybuilding Coach at the Instituto Argentino del Deporte, Buenos Aires, Argentina Coordinator of the gym and training center Asociación Calabresa, Buenos Aires
- ◆ National Coach of Olympic Weightlifting and Bodybuilding at the Instituto Argentino del Deporte, Buenos Aires, Argentina
- ◆ Degree in Nutrition from the University Institute of Health Sciences H. A. Barceló
- ◆ Certified trainer of the TrainingGym Manager system and tools



**Mr. Renda, Juan Manuel**

- ◆ Physical Preparation Specialist
- ◆ Physical Education Teacher
- ◆ Degree in Physical Education from the National University Gral. San Martín
- ◆ Degree in Kinesiology and Physiatry from the University Institute H.A. Barceló
- ◆ Master's Degree in Physical Education, National University of Lomas de Zamora

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*Make the most of this opportunity to learn about the latest advances in this field in order to apply it to your daily practice"*

# 05

# Structure and Content

The contents of this specialization have been developed by different professors with a clear purpose: To ensure that our students acquire each and every one of the necessary skills to become true experts in this field. The content of this Advanced Master's Degree will allow you to learn all aspects of the different disciplines involved in this field. A comprehensive and well-structured program that will lead you to the highest standards of quality and success.







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*We offer you the most advanced knowledge of the moment in this field so that you can acquire a higher level of education that will allow you to compete with the best”*

## Module 1. Pathology in the Current Social and Health Care Context

- 1.1. Introduction to the Concept of Health
  - 1.1.1. The Concept of Health
  - 1.1.2. Pathology, Disease and Syndrome
  - 1.1.3. Classification of Diseases According to Different Criteria
  - 1.1.4. Chronic Non-Communicable Diseases
  - 1.1.5. Self-defense Mechanisms
- 1.2. Impact of Chronic Stress on Health
  - 1.2.1. Stress and Eustress. Differences and their Implications for Health
  - 1.2.2. Stress in Today's Society
  - 1.2.3. Physiology and Psycho-physical Stress
  - 1.2.4. Lifestyle Modification and Healthy Habits in the Prevention and Treatment of Stress-Related Pathologies
  - 1.2.5. Psychological Benefits of an Active Lifestyle
- 1.3. Sedentary Lifestyle Modification and Sedentary Lifestyle
  - 1.3.1. Definition and Epidemiological Data
  - 1.3.2. Relationship between Sedentary Lifestyle and Pathologies
  - 1.3.3. Lifestyle Modification as a Therapeutic Guideline
  - 1.3.4. Intervention Proposals for a More Active and Healthier Lifestyle
- 1.4. Physical Activity, Physical Exercise and Health
  - 1.4.1. Differences between Physical Activity and Physical Exercise
  - 1.4.2. Implications of Physical Activity on Health over the Years
  - 1.4.3. Physical Exercise and the Biological Adaptation Process
- 1.5. Update on Anatomico-physiological Basis for Human Performance and Health
  - 1.5.1. Muscle and Strength and their Relationship to Health
  - 1.5.2. Bioenergetic Bases of Movement: An Update
  - 1.5.3. Biomolecular Bases of Physical Exercise
- 1.6. Nutrition and Health
  - 1.6.1. The Exercise Professional as a Transmitter of Healthy Habits: The Role of Nutrition
  - 1.6.2. Basic Criteria and Strategies for Healthy Nutrition

- 1.7. Assessment of Physical Activity
  - 1.7.1. Classification of Physical Tests and Assessments
  - 1.7.2. Quality Criteria for Physical Fitness Tests
  - 1.7.3. Objective Methods of Physical Activity Assessment
  - 1.7.4. Subjective Methods of Physical Activity Assessment
- 1.8. Relationship of Gut Microbiota to Pathology and Exercise
  - 1.8.1. What is the Intestinal Microbiota?
  - 1.8.2. Relationship of the Intestinal Microbiota to Health and Disease
  - 1.8.3. Modulation of the Intestinal Microbiota through Physical Exercise
- 1.9. Neurosciences and Health
  - 1.9.1. Implications of Neuroscience on Health
  - 1.9.2. Influence of Physical Activity on the Functionality of the Nervous System and its Relation to the Immune System
- 1.10. Benefits of Physical Exercise as a Kinephylactic and Therapeutic Tool
  - 1.10.1. Main Biological Benefits of Physical Exercise
  - 1.10.2. Main Cognitive Psychological Benefits of Physical Exercise
  - 1.10.3. Final Conclusions and Closing of Module 1

## Module 2. General Criteria for the Design of Physical Exercise Programs for Special Populations

- 2.1. Design of Exercise Programs for Special Populations
  - 2.1.1. Competencies and Protocols: From Diagnosis to Intervention
  - 2.1.2. Multidisciplinarity and Interdisciplinarity as the Basis of the Intervention Process through Physical Exercise in Special Populations
- 2.2. General Principles of Training and their Application to the Health Field
  - 2.2.1. Principles of Adaptation (Initiation and Development)
  - 2.2.2. Principles of Adaptation Guarantees
  - 2.2.3. Adaptation Specificity Principles
- 2.3. Training Planning for Special Populations
  - 2.3.1. Planning Phase I
  - 2.3.2. Planning Phase II
  - 2.3.3. Planning Phase III

- 2.4. Training Objectives in Health Fitness Training Programs
  - 2.4.1. Strength Training
  - 2.4.2. Resistance Training
  - 2.4.3. Flexibility/ADM Training
- 2.5. The Applied Evaluation
  - 2.5.1. Diagnostic Assessment as a Tool for Training Load Control
  - 2.5.2. Morphological and Functional Assessments
  - 2.5.3. Protocol and its Importance. Data Logging
  - 2.5.4. Processing of the Data Obtained, Conclusions and Practical Application to Training
- 2.6. The Programming of Training in Special Populations: Intervention Variables (I)
  - 2.6.1. Definition of the Training Load Concept
  - 2.6.2. Training Frequency
  - 2.6.3. Training Volume
- 2.7. The Programming of Training in a Special Population: Intervention Variables (II)
  - 2.7.1. Objective Training Intensity
  - 2.7.2. Subjective Training Intensity
  - 2.7.3. Recovery and Training Density
- 2.8. The Prescription of Training in Special Populations: Intervention Variables (I)
  - 2.8.1. Selection of Training Exercises
  - 2.8.2. Ordering Training Exercises
  - 2.8.3. Training Systems
- 2.9. The Prescription of Training in Special Populations: Intervention Variables (II)
  - 2.9.1. Strength Training Methods
  - 2.9.2. Resistance Training Methods
  - 2.9.3. Concurrent Training Methods in the Health Care Field
  - 2.9.4. HIIT Training Method in the Field of Health
  - 2.9.5. Flexibility/ADM Training Methods
  - 2.9.6. Internal and External Training Load Control
- 2.10. The Design of Training Sessions
  - 2.10.1. Training Preparation Phase
  - 2.10.2. Main Phase of Training
  - 2.10.3. Recovery Phase of the Training
  - 2.10.4. Conclusions and Closing of Module 2

### Module 3. Obesity and Physical Exercise

- 3.1. Definition, Contextualization and epidemiology
  - 3.1.1. Evolution of Obesity: Associated Cultural and Social Aspects
  - 3.1.2. Obesity and Comorbidities: The Role of Interdisciplinarity
  - 3.1.3. Childhood Obesity and its Impact on Future Adults
- 3.2. Pathophysiological Bases
  - 3.2.1. Definition of Obesity and Health Risks
  - 3.2.2. Pathophysiological Aspects of Obesity
  - 3.2.3. Obesity and Associated Pathologies
- 3.3. Assessment and Diagnosis
  - 3.3.1. Body Composition: 2-Component and 5-Component Model
  - 3.3.2. Assessment: Main Morphological Assessments
  - 3.3.3. Interpretation of Anthropometric Data
  - 3.3.4. Prescription of Physical Exercise for the Prevention and Improvement of Obesity
- 3.4. Protocols and Treatments
  - 3.4.1. First Therapeutic Guideline: Lifestyle Modification
  - 3.4.2. Nutrition: Role in Obesity
  - 3.4.3. Exercise: Role in Obesity
  - 3.4.4. Medical treatment
- 3.5. Training Planning in Patients with Obesity
  - 3.5.1. Definition and Specification of Customer Level
  - 3.5.2. Definition and Specification of Objectives
  - 3.5.3. Definition and Specification of Assessment Processes
  - 3.5.4. Definition and Specification of Operability with Respect to Spatial and Material Resources
- 3.6. Strength Training Programming in Obese Patients
  - 3.6.1. Objectives of Strength Training in Obese People
  - 3.6.2. Volume, Intensity and Recovery of Strength Training in Obese Individuals
  - 3.6.3. Selection of Exercises and Methods of Strength Training in Obese People
  - 3.6.4. Design of Strength Training Programs in Obese People

- 3.7. Programming of Resistance Training in the Obese Patient
  - 3.7.1. Objectives of Resistance Training in Obese People
  - 3.7.2. Volume and Intensity and Recovery from Resistance Training in Obese People
  - 3.7.3. Selection of Exercises and Methods of Resistance Training in Obese People
  - 3.7.4. Design of Resistance Training Programs for Obese People
- 3.8. Joint Health and Complementary Training in Obese Patients
  - 3.8.1. Complementary Training in Obesity
  - 3.8.2. Admi/flexibility Training in Obese People
  - 3.8.3. Improved Trunk Control and Stability in Obese People
  - 3.8.4. Other Training Considerations for the Obese Population
- 3.9. Psycho-social Aspects of Obesity
  - 3.9.1. Importance of Interdisciplinary Treatment in Obesity
  - 3.9.2. Eating Disorders
  - 3.9.3. Childhood Obesity
  - 3.9.4. Adult Obesity
- 3.10. Nutrition and Other Factors Related to Obesity
  - 3.10.1. "Omics" Sciences and Obesity
  - 3.10.2. Microbiota and its Influence on Obesity
  - 3.10.3. Protocols for Obesity Nutritional Intervention: Evidence
  - 3.10.4. Nutritional Recommendations for the Practice of Physical Exercise

**Module 4. Diabetes and Physical Exercise**

- 4.1. Definition, Contextualization and epidemiology
  - 4.1.1. Definition and Fundamentals of Diabetes Mellitus
  - 4.1.2. Signs and Symptoms of Diabetes Mellitus
  - 4.1.3. Definition and Classification of Diabetes Mellitus
  - 4.1.4. Type II Diabetes and Lifestyle
- 4.2. Pathophysiological Bases
  - 4.2.1. Anatomic-Physiological Bases
  - 4.2.2. The Pancreas and the Regulation of Glycemia
  - 4.2.3. The Metabolism of in Diabetes Mellitus
  - 4.2.4. Insulin Resistance

- 4.3. Assessment and Diagnosis
  - 4.3.1. Diabetes: Assessment in the Clinical Setting
  - 4.3.2. Diabetes Complications Mellitus
  - 4.3.3. Diabetes: Assessment and Follow-up by the Exercise Physician
  - 4.3.4. Diagnosis and Intervention Protocol in Diabetes
- 4.4. Protocols and Treatments
  - 4.4.1. Glycemic Control and Nutritional Aspects
  - 4.4.2. Treatment of Type I and Type II Diabetes Mellitus
  - 4.4.3. Pharmacological Treatment. Basic Concepts to be Taken into Consideration
  - 4.4.4. Non-pharmacological Treatment by Physical Exercise: Role in Diabetes
- 4.5. Training Planning in Patients with Diabetes
  - 4.5.1. Definition and Specification of Customer Level
  - 4.5.2. Definition and Specification of Objectives
  - 4.5.3. Definition and Specification of Assessment Processes
  - 4.5.4. Definition and Specification of Operability with Respect to Spatial and Material Resources
- 4.6. Programming of Strength Training
  - 4.6.1. Objectives of Strength Training in Diabetes People
  - 4.6.2. Volume, Intensity and Recovery of Strength Training in Diabetes Individuals
  - 4.6.3. Selection of Exercises and Methods of Strength Training in Diabetes People
  - 4.6.4. Design of Strength Training Programs in Diabetes People
- 4.7. Programming Speed Training
  - 4.7.1. Objectives of Resistance Training in Diabetes People
  - 4.7.2. Volume and Intensity and Recovery from Resistance Training in Diabetes People
  - 4.7.3. Selection of Exercises and Methods of Resistance Training in Diabetes People
  - 4.7.4. Design of Resistance Training Programs for Diabetes People
- 4.8. Precautions and Contraindications
  - 4.8.1. Blood Glucose Values and Physical Exercise
  - 4.8.2. Contraindications to the Performance of Activity in Patients with Type I Diabetes Mellitus
  - 4.8.3. Care for Problems Related to Diabetes and Physical Exercise
  - 4.8.4. Safety and First Aid in Complications During Physical Exercise Programs with Diabetics



- 4.9. Nutrition and Lifestyle in Patients with Diabetes
  - 4.9.1. Nutritional Aspects of Diabetes
  - 4.9.2. Metabolic Control and Glycemic Index
  - 4.9.3. Nutritional Recommendations for Physical Exercise
- 4.10. Design of Training Programs for Patients with Diabetes
  - 4.10.1. Design of Diabetes Training Programs
  - 4.10.2. Design of Diabetes Training Sessions
  - 4.10.3. Design of Global Intervention Programs (inter-multidisciplinary) in diabetes
  - 4.10.4. Conclusions and Closing of Module 4

## Module 5. Metabolic Syndrome and Physical Exercise

- 5.1. Definition, Contextualization and epidemiology
  - 5.1.1. Definition of Metabolic Syndrome
  - 5.1.2. Epidemiology of Metabolic Syndrome
  - 5.1.3. The Patient with Syndrome, Considerations for Intervention
- 5.2. Pathophysiological Bases
  - 5.2.1. Definition of Metabolic Syndrome and Health Risks
  - 5.2.2. Pathophysiological Aspects of the Disease
- 5.3. Assessment and Diagnosis
  - 5.3.1. Metabolic Syndrome and its Assessment in the Clinical Setting
  - 5.3.2. Biomarkers, Clinical Indicators and Metabolic Syndrome
  - 5.3.3. Metabolic Syndrome and its Assessment and Monitoring by the Physical Exercise Specialist
  - 5.3.4. Diagnosis and Intervention Protocol in Metabolic Syndrome
- 5.4. Protocols and Treatments
  - 5.4.1. Lifestyle and its Relationship to Metabolic Syndrome
  - 5.4.2. Exercise: Role in the Metabolic Syndrome
  - 5.4.3. The Patient with Metabolic Syndrome and Pharmacologic Treatment: Considerations for the Exercise Professional
- 5.5. Training Planning in Patients with Metabolic Syndrome
  - 5.5.1. Definition and Specification of Customer Level
  - 5.5.2. Definition and Specification of Objectives
  - 5.5.3. Definition and Specification of Assessment Processes
  - 5.5.4. Definition and Specification of Operability with Respect to Spatial and Material Resources

- 5.6. Programming of Strength Training
  - 5.6.1. Objectives of Strength Training in Metabolic Syndrome
  - 5.6.2. Volume, Intensity and Recovery of Strength Training in Metabolic Syndrome
  - 5.6.3. Selection of Exercises and Methods of Strength Training in Metabolic Syndrome People
  - 5.6.4. Design of Strength Training Programs in Metabolic Syndrome People
- 5.7. Programming Speed Training
  - 5.7.1. Objectives of Resistance Training in Metabolic Syndrome
  - 5.7.2. Volume and Intensity and Recovery from Resistance Training in Metabolic Syndrome People
  - 5.7.3. Selection of Exercises and Methods of Resistance Training in Metabolic Syndrome People
  - 5.7.4. Design of Resistance Training Programs for Metabolic Syndrome People
- 5.8. Precautions and Contraindications
  - 5.8.1. Assessments for the Performance of Physical Exercise in a Population with Metabolic Syndrome
  - 5.8.2. Contraindications to the Development of Activity in Patients with Metabolic Syndrome
- 5.9. Nursing Nutrition and Lifestyle in Patients with Metabolic Syndrome
  - 5.9.1. Nutritional Aspects in the Metabolic Syndrome
  - 5.9.2. Examples of Nutritional Intervention in Metabolic Syndrome
  - 5.9.3. Nutritional Recommendations for the Practice of Physical Exercise
- 5.10. Training Program Design in Patients with Metabolic Syndrome
  - 5.10.1. Design of Training Programs in Metabolic Syndrome
  - 5.10.2. Design of Training Sessions in Metabolic Syndrome
  - 5.10.3. Design of Global Intervention Programs (inter-multidisciplinary) in Metabolic Syndrome
  - 5.10.4. Conclusions and Closing of Module 5

## Module 6. Cardiovascular Diseases

- 6.1. Definition, Contextualization and epidemiology
  - 6.1.1. Definition and Prevalence
  - 6.1.2. Etiology of the Disease and Identification of Cardiovascular Risk Factors
  - 6.1.3. Cardiac and Metabolic Pathologies
- 6.2. Pathophysiological Bases
  - 6.2.1. Cardiovascular System Physiology
  - 6.2.2. Atherosclerosis and Dyslipidemia
  - 6.2.3. Arterial Hypertension
  - 6.2.4. Cardiopathies, Valvulopathies and Arrhythmias
- 6.3. Assessment and Diagnosis
  - 6.3.1. Initial Risk Assessment in Heart Disease
  - 6.3.2. Risk Assessment in Post-Surgical Patients
- 6.4. Protocols and Treatments
  - 6.4.1. Risk Stratification for Physical Exercise: Primary, Secondary and Tertiary Prevention
  - 6.4.2. Risk Factor Reduction Intervention Objectives and Protocols
  - 6.4.3. Considerations in the Treatment of Associated Co-morbidities
- 6.5. Training Planning for Patients with Cardiovascular Diseases
  - 6.5.1. Definition and Specification of Customer Level
  - 6.5.2. Definition and Specification of Objectives
  - 6.5.3. Definition and Specification of Assessment Processes
  - 6.5.4. Definition and Specification of Operability with Respect to Spatial and Material Resources
- 6.6. Programming of Strength Training
  - 6.6.1. Objectives of Strength Training in cardiovascular pathologies People
  - 6.6.2. Volume, Intensity and Recovery of Strength Training in cardiovascular pathologies Individuals
  - 6.6.3. Selection of Exercises and Methods of Strength Training in cardiovascular pathologies People
  - 6.6.4. Design of Strength Training Programs in cardiovascular pathologies People

- 6.7. Programming Speed Training
  - 6.7.1. Objectives of Resistance Training in Cardiovascular Pathologies
  - 6.7.2. Volume and Intensity and Recovery from Resistance Training for Individuals with Cardiovascular Diseases
  - 6.7.3. Selection of Exercises and Methods of Resistance Training in Cardiovascular Pathologies
  - 6.7.4. Design of Resistance Training Programs for Cardiovascular Pathologies
- 6.8. Cardiac Rehabilitation
  - 6.8.1. Benefits of Exercise in Patients with Cardiac Pathology
  - 6.8.2. Exercise Modalities
  - 6.8.3. Cardiac Rehabilitation: Phase I, II, III
  - 6.8.4. Predictability and Long-Term adherence
  - 6.8.5. Drug- Exercise Interactions
- 6.9. Nutrition in Subjects with Cardiovascular Disease
  - 6.9.1. Nutritional Aspects in Subjects with Cardiovascular Disease
  - 6.9.2. Mediterranean Diet as a Tool for Prevention of Cardiovascular Disease
  - 6.9.3. Nutritional Recommendations for the Practice of Physical Exercise
- 6.10. Contraindications and Precautions
  - 6.10.1. Contraindications for the Beginning of the Practice of Physical Exercise
  - 6.10.2. Acting during an Emergency: Primary and Secondary Prevention
  - 6.10.3. RCP
  - 6.10.4. Regulations, Use and Management of Defibrillators in Sports Facilities
  - 6.10.5. Conclusions and Closing of Module 6

## Module 7. Osteoarticular Pathology and Non-Specific Low Back Pain

- 7.1. Definition, Contextualization and epidemiology
  - 7.1.1. Contextualization of Osteoarticular Pathologies and Nonspecific Low Back Pain
  - 7.1.2. Epidemiology
  - 7.1.3. Definition of the Different Pathologies Associated with the Osteoarticular System
  - 7.1.4. The Osteosarcopenic Subject
- 7.2. Pathophysiological Bases
  - 7.2.1. Pathophysiological Basis of Osteoporosis
  - 7.2.2. Pathophysiological Basis of Osteoarthritis
  - 7.2.3. Pathophysiological Bases of Nonspecific Low Back Pain
  - 7.2.4. Pathophysiological Basis of Rheumatoid Arthritis

- 7.3. Assessment and Diagnosis
    - 7.3.1. Functional Assessment in Low Back Pain
    - 7.3.2. Diagnostic Criteria in Osteoporosis and Predisposing Risk Factors for Fracture
    - 7.3.3. Diagnostic Criteria in Osteoarthritis and Coexisting Comorbidities
    - 7.3.4. Clinical Assessment of the Rheumatoid Arthritis Patient
  - 7.4. Protocols and Treatments
    - 7.4.1. Non-pharmacologic Treatment and Intervention Protocol for Nonspecific Low Back Pain
    - 7.4.2. Non-pharmacological Treatment and Intervention Protocol in Osteoporosis
    - 7.4.3. Non-pharmacologic Treatment and Intervention Protocol in Osteoarthritis
    - 7.4.4. Non-pharmacological Treatment and Intervention Protocol in Rheumatoid Arthritis
  - 7.5. Training Planning
    - 7.5.1. Definition and Specification of Objectives
    - 7.5.2. Definition and Specification of Assessment Processes
    - 7.5.3. Definition and Specification of Operability with Respect to Spatial and Material Resources
    - 7.5.4. Importance of the 1983 Team
  - 7.6. Programming of Strength Training
    - 7.6.1. Objectives of Strength Training in Osteoarticular Pathologies and Non-specific Lower Back Pain
    - 7.6.2. Volume, Intensity and Recovery of Strength Training in Non-specific Lower Back Pain
    - 7.6.3. Selection of Exercises and Methods of Strength Training in Non-specific Lower Back Pain
    - 7.6.4. Design of Strength Training Programs for Osteoarticular Pathologies and Non-specific Lower Back Pain
  - 7.7. Programming Speed Training
    - 7.7.1. Objectives of Resistance Training in Osteoarticular Pathologies and Non-specific Lower Back Pain
    - 7.7.2. Volume and intensity and recovery of resistance training in osteoarticular pathologies and low back pain
    - 7.7.3. Selection of exercises and resistance training methods for osteoarticular pathologies and low back pain
    - 7.7.4. Design of Resistance Training Programs for Back Pain
  - 7.8. The Importance of Photography as a Communication Tool
    - 7.8.1. Physical Exercise and its Implications for Bone Mass
    - 7.8.2. Functionality of the Lumbo-Pelvic Region
    - 7.8.3. The Importance of Postural Hygiene
    - 7.8.4. The Importance of Ergonomics in the Home and Workplace
  - 7.9. Physical, Psychological and Social Burden, and Recommendations for Improving Health and Quality of Life
    - 7.9.1. Key Considerations in the Postmenopausal Woman
    - 7.9.2. Understanding the Complex Interrelationship between Exercise and Pain
    - 7.9.3. Barriers to Participation in Physical Exercise Programs
    - 7.9.4. Strategies to Promote Adherence
  - 7.10. Design of Training Programs for Patients with Osteoarticular Pathologies and Nonspecific Low Back Pain
    - 7.10.1. Design of Osteoporosis Training Programs
    - 7.10.2. Design of Training Programs in Osteoarthritis
    - 7.10.3. Design of Training Programs for Nonspecific Low Back Pain
    - 7.10.4. Conclusions and Closing of Module 7
- Module 8. Respiratory Pathology and Physical Exercise**
- 8.1. Definition, Contextualization and epidemiology
    - 8.1.1. Definition the Respiratory Most Frequent Pathologies
    - 8.1.2. Description of the Characteristics of the Disease
    - 8.1.3. Epidemiology and Outreach
    - 8.1.4. Triggering Factors and Comorbidities
  - 8.2. Pathophysiological Bases
    - 8.2.1. Physiology and Anatomy of the Respiratory System
    - 8.2.2. Gas Exchange, Ventilation and Air Flow
    - 8.2.3. COPD
    - 8.2.4. Asthma
  - 8.3. Assessment and Diagnosis
    - 8.3.1. Assessment of Lung Function and Functional Capacity
    - 8.3.2. Functional Assessment of the COPD Patient
    - 8.3.3. Physical Tests and Practical Application

- 8.4. Protocols and Treatments
  - 8.4.1. Respiratory Rehabilitation Protocols for the COPD Patient
  - 8.4.2. Pharmacological Treatment and Interactions
  - 8.4.3. Non-pharmacological Treatment: Aerobic Fitness and Muscle Fitness Training
  - 8.4.4. Addressing Common Risk Factors and Comorbidities
- 8.5. Training Planning in Patients with COPD
  - 8.5.1. Definition and Specification of Customer Level
  - 8.5.2. Definition and Specification of Objectives
  - 8.5.3. Definition and Specification of Assessment Processes
  - 8.5.4. Definition and Specification of Operability with Respect to Spatial and Material Resources
- 8.6. Programming of Strength Training
  - 8.6.1. Objectives of Strength Training in Respiratory Pathology
  - 8.6.2. Volume, Intensity and Recovery of Strength Training in Respiratory Pathology
  - 8.6.3. Selection of Exercises and Methods of Strength Training in Respiratory Pathology
  - 8.6.4. Design of Strength Training Programs in Respiratory Pathology
- 8.7. Programming Speed Training
  - 8.7.1. Objectives of Resistance Training in Respiratory Pathology
  - 8.7.2. Volume and Intensity and Recovery from Resistance Training in Respiratory Pathology
  - 8.7.3. Selection of Exercises and Methods of Resistance Training in Respiratory Pathology
  - 8.7.4. Design of Resistance Training Programs for Respiratory Pathology
- 8.8. Sedentary Lifestyle Modification Recommendations in the Lifestyle
  - 8.8.1. Sedentary Behavior
  - 8.8.2. Physical Inactivity
  - 8.8.3. Smoking, Alcohol and Nutrition
- 8.9. Malnutrition in the COPD Patient and Consequences on Respiratory Function
  - 8.9.1. Assessment Nutritional Status
  - 8.9.2. Nutritional Support in COPD
  - 8.9.3. Nutritional Guidelines in the COPD Patient

- 8.10. Considerations in the Practice of Physical Activity and Exercise
  - 8.10.1. The Selection and Arrangement of Strength and Aerobic Exercises in Training
  - 8.10.2. The Use of Concurrent Training as a Tool for the COPD Patient
  - 8.10.3. Exercise Selection and Progression in the Population with Respiratory Pathology
  - 8.10.4. Specific Pharmacological Interactions
  - 8.10.5. Conclusions and Closing of Module 8

## Module 9. Physical Exercise and Pregnancy

- 9.1. Morphofunctional Changes in the Female Body during Pregnancy
  - 9.1.1. Concept of Pregnancy
  - 9.1.2. Fetal Growth
  - 9.1.3. Major Morphofunctional Modifications
    - 9.1.3.1. Changes in Body Composition with Weight Gain
    - 9.1.3.2. Cardiovascular System Modifications
    - 9.1.3.3. Modifications in the Urinary and Excretory system
    - 9.1.3.4. Nervous System Modifications
    - 9.1.3.5. Respiratory System Modifications
    - 9.1.3.6. Changes in Epithelial Tissue
- 9.2. Pathophysiologies Associated with Pregnancy
  - 9.2.1. Body Mass Modification
  - 9.2.2. Modification of the Center of Gravity and Relevant Postural Adaptations
  - 9.2.3. Cardiorespiratory Adaptations
  - 9.2.4. Hematological Adaptations
    - 9.2.4.1. Blood Volume
  - 9.2.5. Adaptations of the Locomotor System
  - 9.2.6. Supine Hypotensive Syndrome
  - 9.2.7. Gastrointestinal and Renal Modifications
    - 9.2.7.1. Gastrointestinal Motility
    - 9.2.7.2. The Kidneys
- 9.3. Kinefilaxia and Benefits of Physical Exercise in Pregnant Women
  - 9.3.1. Care to be Taken During Activities of Daily Living
  - 9.3.2. Preventive Physical Work
  - 9.3.3. Biological and Psycho-social Benefits of Physical Exercise



- 9.4. Risks and Contraindications in Physical Exercise in Pregnant Women
  - 9.4.1. Absolute Contraindications to Physical Exercise
  - 9.4.2. Relative Contraindications to Physical Exercise
  - 9.4.3. Precautions to be Taken During Pregnancy
- 9.5. Nutrition in Pregnant Women
  - 9.5.1. Body Mass Weight Gain with Pregnancy
  - 9.5.2. Energy Requirements Throughout Pregnancy
  - 9.5.3. Nutritional Recommendations for the Practice of Physical Exercise
- 9.6. Training Planning for Pregnant Women
  - 9.6.1. First Quarter Planning
  - 9.6.2. Second Quarter Planning
  - 9.6.3. Third Quarter Planning
- 9.7. Musculoskeletal Training Programming
  - 9.7.1. Motor Control
  - 9.7.2. Stretching and Muscle Relaxation
  - 9.7.3. Muscle Fitness Work
- 9.8. Programming Speed Training
  - 9.8.1. Modality of Low-impact Physical Work
  - 9.8.2. Weekly Workload
- 9.9. Postural and Preparatory Labor for Childbirth
  - 9.9.1. Pelvic Floor Exercises
  - 9.9.2. Postural Exercises
- 9.10. Return to Physical Activity after Delivery
  - 9.10.1. Medical Discharge and Recovery Period
  - 9.10.2. Care for the Beginning of Physical Activity
  - 9.10.3. Conclusions and Closing of Module 9

## Module 10. Physical Exercise in Children and Adolescents and Older Adults

- 10.1. Approach to Physical Exercise in Children and Young Adults
  - 10.1.1. Growth, Maturation and Development
  - 10.1.2. Development and Individuality: Chronological Age vs. Biological Age:
  - 10.1.3. Sensitive Phases
  - 10.1.4. Long-term Development (Long-term Athlete Development)
- 10.2. Assessment of Physical Fitness in Children and Adolescents
  - 10.2.1. Main Evaluation Batteries
  - 10.2.2. Assessment of Coordinative Capacities
  - 10.2.3. Assessment of Conditional Capacities
  - 10.2.4. Morphological Assessment s
- 10.3. Physical Exercise Programming for Children and Adolescents
  - 10.3.1. Muscle Strength Training
  - 10.3.2. Aerobic Fitness Training
  - 10.3.3. Speed Training
  - 10.3.4. Flexibility Training
- 10.4. Neurosciences and Child and Adolescent Development
  - 10.4.1. Neurolearning in Childhood
  - 10.4.2. Motor Skills. Basis of Intelligence
  - 10.4.3. Attention and Emotion. Early Learning
  - 10.4.4. Neurobiology and Epigenetic Theory in Learning
- 10.5. Approach to Physical Exercise in the Older Adult
  - 10.5.1. Aging Process
  - 10.5.2. Morphofunctional Changes in the Older Adult
  - 10.5.3. Objectives of Physical Exercise in the Elderly
  - 10.5.4. Benefits of Physical Exercise in the Elderly
- 10.6. Comprehensive Gerontological Assessment
  - 10.6.1. Coordination Skills Test
  - 10.6.2. Katz Index of Independence in Activities of Daily Living
  - 10.6.3. Test of Conditioning Capacities
  - 10.6.4. Fragility and Vulnerability in Older Adults

- 10.7. Instability Syndrome
  - 10.7.1. Epidemiology of Elderly Woman Obesity
  - 10.7.2. Detection of Patients at Risk without a Previous Fall
  - 10.7.3. Risk Factors for Falls in the Elderly
  - 10.7.4. Post Fall Syndrome
- 10.8. Nutrition in Children and Adolescents and Older Adults
  - 10.8.1. Nutritional Requirements for each Stage of Life
  - 10.8.2. Increased Prevalence of Childhood Obesity and Type 2 Diabetes in Children
  - 10.8.3. Association of Degenerative Diseases with Saturated Fat Consumption
  - 10.8.4. Nutritional Recommendations for the Practice of Physical Exercise
- 10.9. Neurosciences and Older Adults
  - 10.9.1. Neurogenesis and Learning
  - 10.9.2. Cognitive Reserve in Older Adults
  - 10.9.3. We Can Always Learn
  - 10.9.4. Aging is not Synonymous with Disease
  - 10.9.5. Alzheimer's and Parkinson's Disease, the Value of Physical Activity
- 10.10. Physical Exercise Programming for Children and Older Adults
  - 10.10.1. Muscle Strength and Power Training
  - 10.10.2. Aerobic Fitness Training
  - 10.10.3. Cognitive Training
  - 10.10.4. Training of Coordinative Capacities
  - 10.10.5. Conclusions and Closing of Module 10

## Module 11. Personal Training

- 11.1. Personal Training
- 11.2. Flexibility Training
- 11.3. Endurance and Cardiorespiratory Training
- 11.4. Core Training
  - 11.4.1. Core Musculature
  - 11.4.2. The Training of Stabilization Systems
  - 11.4.3. Core Science and Training
  - 11.4.4. Core Training Guidelines
  - 11.4.5. Core Training Program Design

- 11.5. Balance Training
- 11.6. Plyometric Training
  - 11.6.1. Principles of Plyometric Training
  - 11.6.2. Designing a Plyometric Training Program
- 11.7. Speed and Agility Training
- 11.8. Strength Training
- 11.9. Integrated Program Design for optimal performance
- 11.10. Exercise Modalities

## Module 12. Preventive Work for Sports Practice

- 12.1. Risk Factors in Sports
- 12.2. Working with Mat Exercises
- 12.3. Reformer and Cadillac
- 12.4. Wunda Chair
- 12.5. Active GlobalStretching and Global Postural Re-education
- 12.6. Fitball
- 12.7. TRX
- 12.8. Body Pump
- 12.9. Medicine Ball y Kettlebells
- 12.10. Thera Band
  - 12.10.1. Advantages and Properties
  - 12.10.2. Individual Exercises
  - 12.10.3. Exercises in Pairs
  - 12.10.4. Respiratory muscles

### Module 13. Structure of the Locomotor System

- 13.1. Anatomical Position, Axes and Planes
- 13.2. Bone
- 13.3. Joints
  - 13.3.1. Etiology
  - 13.3.2. Synarthrosis
  - 13.3.3. Amphiarthrosis
  - 13.3.4. Diarthrosis
- 13.4. Cartilage
- 13.5. Tendons and Ligaments
- 13.6. Skeletal Muscle
- 13.7. Development of the Musculoskeletal System
- 13.8. Components of the Musculoskeletal System
- 13.9. Nervous Control of Skeletal Muscles
- 13.10. Muscle Contraction
  - 13.10.1. Functioning of Muscle Contraction
  - 13.10.2. Type of Muscle Contraction
  - 13.10.3. Muscle Bioenergetics

### Module 14. Fitness, Functional and Biomechanical Assessment

- 14.1. Anatomy and Kinesiology
- 14.2. Human Movement Science
- 14.3. Applied Biomechanics:
- 14.4. Initial Customer Inquiry
- 14.5. Physical Fitness Testing Protocols and Standards
- 14.6. Functional Movement Assessment
  - 14.6.1. Motion Detection, Testing and Assessment
  - 14.6.2. Pantalla de Movimiento Funcional (FMS)
  - 14.6.3. Selective Assessment of Functional Movement
  - 14.6.4. Specific Functional Performance Tests
- 14.7. Nutritional Assessment, Genetic Evaluation, Biochemistry and Quality of Life

- 14.8. Biomechanics
  - 14.8.1. Biomechanical Fundamentals
  - 14.8.2. Biomechanics of Human Movement
  - 14.8.3. Muscular Control of Movement
  - 14.8.4. Biomechanics of Resistance Exercise
- 14.9. Evaluation of Physical Fitness
- 14.10. Risk Detection and Stratification

### Module 15. Frequent Injuries in Athletes

- 15.1. Shoulder Injuries in Sports
  - 15.1.1. Relevant Aspects of the Shoulder
  - 15.1.2. Injuries and Disorders Related to Acute and Chronic Shoulder Instability
  - 15.1.3. Clavicular Injuries
  - 15.1.4. Nerve Injuries in the Shoulder Region
  - 15.1.5. Brachial Plexus Injuries
- 15.2. Upper Arm Injuries
- 15.3. Elbow Injuries in Sports
- 15.4. Forearm, Wrist and Hand Injuries in Sports
- 15.5. Head and Facial Injuries in Sports
- 15.6. Throat, Chest and Abdominal Injuries in Sports
- 15.7. Back/Spine Injuries in Sport
  - 15.7.1. Aspects Relevant to the Back and Spine
  - 15.7.2. Diagnosis of Back Pain
  - 15.7.3. Neck and cervical Injuries
  - 15.7.4. Injuries of the Thoracic and Lumbar Area
- 15.8. Hip Joint, Pelvic and Groin Injuries in Sports
- 15.9. Thigh, Knee and Leg Injuries in Sport
- 15.10. Ankle and Foot Injuries in Sport

## Module 16. Exercise for the Readaptation of Sports Injuries

- 16.1. Physical Activity and Physical Exercise for Health Improvement
- 16.2. Classification and Selection Criteria for Exercises and Movements
- 16.3. Principles of Sports Training
  - 16.3.1. Biological Principles
    - 16.3.1.1. Functional Unit
    - 16.3.1.2. Multilaterality
    - 16.3.1.3. Specificity
    - 16.3.1.4. Overload
    - 16.3.1.5. Supercompensation
    - 16.3.1.6. Individualization
    - 16.3.1.7. Continuity
    - 16.3.1.8. Progression
  - 16.3.2. Pedagogical Principles
    - 16.3.2.1. Transfer
    - 16.3.2.2. Efficacy
    - 16.3.2.3. Voluntary Stimulation
    - 16.3.2.4. Accessibility
    - 16.3.2.5. Periodization
- 16.4. Techniques Applied to the Treatment of Sports Injuries
- 16.5. Specific Action Protocols
- 16.6. Phases of the Process of Organic Recovery and Functional Recovery
- 16.7. Design of Preventive Exercises
- 16.8. Specific Physical Exercises by Muscle Groups
- 16.9. Proprioceptive Reeducation
  - 16.9.1. Bases of Proprioceptive and Kinesthetic Training
  - 16.9.2. Proprioceptive Consequences of Injury
  - 16.9.3. Development of Sport Proprioception
  - 16.9.4. Materials for Proprioception Work
  - 16.9.5. Phases of Proprioceptive Re-education
- 16.10. Sports Practice and Activity During the Recovery Process

## Module 17. Frequent Pathologies of the Locomotor System

- 17.1. Cervical pain, Dorsalgia and Lumbalgia
- 17.2. Scoliosis
- 17.3. Herniated Disc
- 17.4. Shoulder Tendinitis
- 17.5. Epicondylitis
  - 17.5.1. Epidemiology
  - 17.5.2. Pathologic Anatomy
  - 17.5.3. Clinical Symptoms
  - 17.5.4. Diagnosis
  - 17.5.5. Treatment
- 17.6. Hip Osteoarthritis
- 17.7. Gonarthrosis
- 17.8. Plantar Fasciitis
  - 17.8.1. Conceptualization
  - 17.8.2. Risk Factors
  - 17.8.3. Symptoms
  - 17.8.4. Applied
- 17.9. Hallux Valgus and Flat Feet
- 17.10. Sprained Ankle

## Module 18. Exercise for Functional Recovery

- 18.1. Functional Training and Advanced Rehabilitation
  - 18.1.1. Function and Functional Rehabilitation
  - 18.1.2. Proprioception, Receptors and Neuromuscular Control
  - 18.1.3. Central Nervous System: Integration of Motor Control
  - 18.1.4. Principles for the Prescription of Therapeutic Exercise
  - 18.1.5. Restoration of Proprioception and Neuromuscular Control
  - 18.1.6. The 3-Phase Rehabilitation Model
- 18.2. The Science of Pilates for Rehabilitation
- 18.3. Principles of Pilates
- 18.4. Integration of Pilates in Rehabilitation

- 18.5. Methodology and Equipment Necessary for Effective Practice
- 18.6. Cervical and Thoracic Spine
- 18.7. The Lumbar Spine
- 18.8. Shoulder and Hip
- 18.9. Knee
- 18.10. Foot and Ankle

## Module 19. Nutrition for Functional Recovery and Rehabilitation

- 19.1. Integral Nutrition as a Key Element in Injury Prevention and Recovery
- 19.2. Carbohydrates
- 19.3. Proteins
- 19.4. Fats
  - 19.4.1. Saturation
  - 19.4.2. Unsaturated
    - 19.4.2.1. Monounsaturated
    - 19.4.2.2. Polyunsaturated
- 19.5. Vitamins
  - 19.5.1. Water soluble
  - 19.5.2. Fat soluble
- 19.6. Minerals
  - 19.6.1. Macrominerals
  - 19.6.2. Microminerals
- 19.7. Fibre
- 19.8. Water:
- 19.9. Phytochemicals
  - 19.9.1. Phenols
  - 19.9.2. Tioles
  - 19.9.3. Terpenes
- 19.10. Food Supplements for Prevention and Functional Recovery

## Module 20. Coaching and Personal Trainer Business

- 20.1. The Beginning of the Personal Trainer
- 20.2. Coaching for the Personal Trainer
- 20.3. The Personal Trainer as a Promoter of Exercise and the Effects on Health and Performance
  - 20.3.1. Basic Fundamentals of Physical Exercise
  - 20.3.2. Acute Exercise Responses
  - 20.3.3. Health Effects of Exercise
    - 20.3.3.1. Resistance
    - 20.3.3.2. Strength and Power
    - 20.3.3.3. Balance
  - 20.3.4. Health Effects of Exercise
    - 20.3.4.1. Physical Health
    - 20.3.4.2. Mental Health
- 20.4. Need for Behavioral Changes
- 20.5. The Personal Trainer and the Relationship with the Client
- 20.6. Motivational Tools
  - 20.6.1. Appreciative Exploration
  - 20.6.2. Motivational Interview
  - 20.6.3. Building Positive Experiences
- 20.7. Psychology for the Personal Trainer
- 20.8. Personal Trainer's Career Path
- 20.9. Design and Maintenance and Material Installations
- 20.10. Legal Aspects of Personal Training



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.



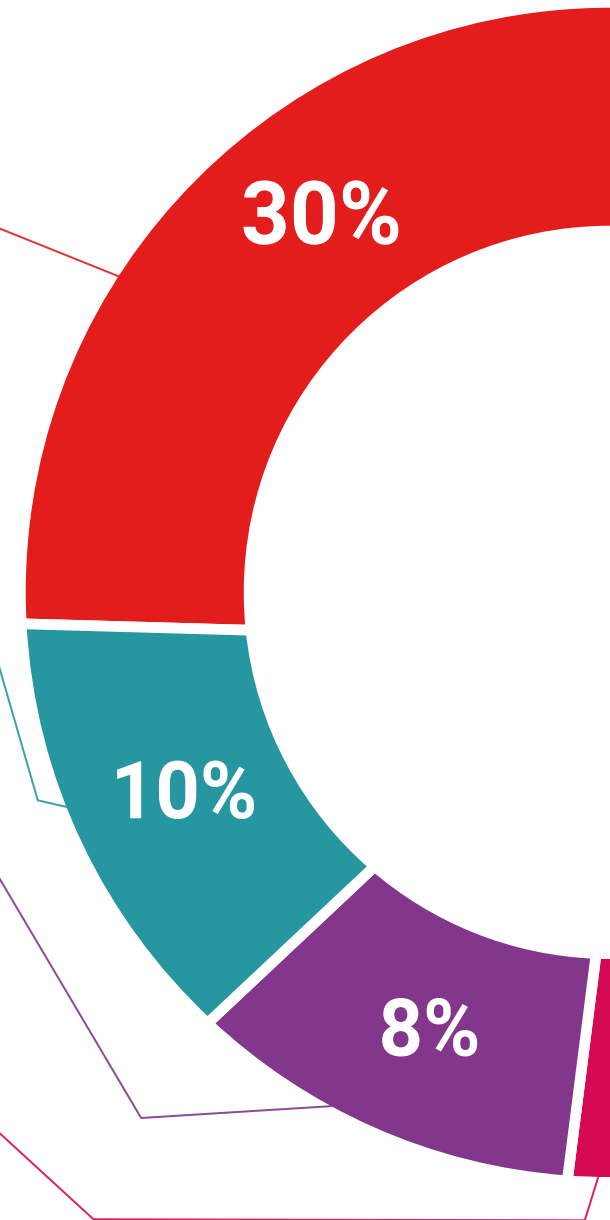
### Practising Skills and Abilities

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

Advanced Master's Degree in Therapeutic Personal Training and Sports Rehabilitation guarantees students, in addition to the most rigorous and up-to-date education, access to an Advanced Master's Degree issued by TECH University of Technology.





“

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

This **Advanced Master's Degree in Therapeutic Personal Training and Sports Rehabilitation** contains the most complete and up-to-date scientific on the market.

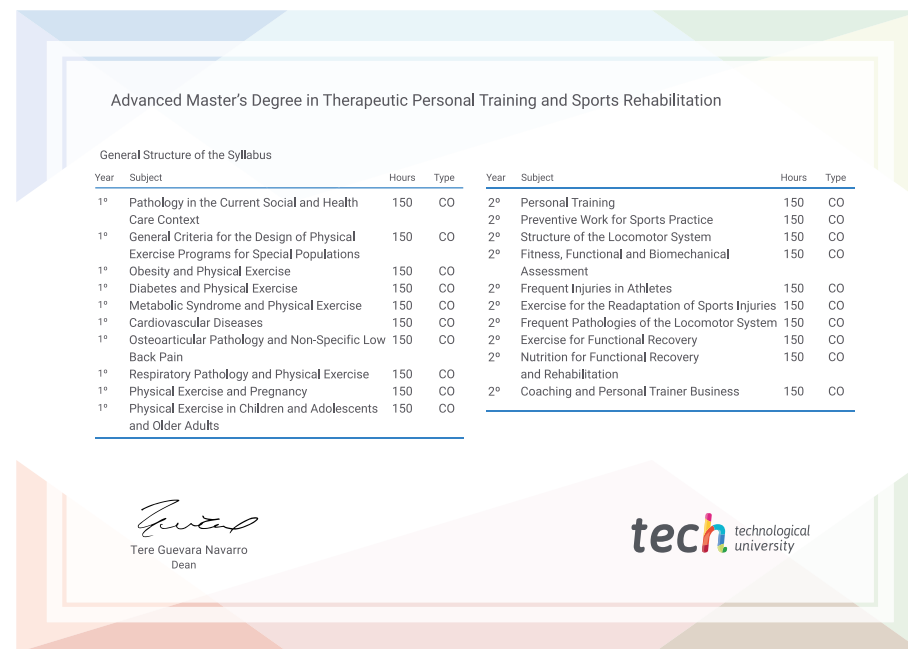
After the student has passed the assessments, they will receive their corresponding **Advanced Master's Degree** issued by **TECH Technological University** via tracked delivery\*.

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 Therapeutic Personal Training and Sports Rehabilitation**

Official N° of Hours: **3,000 h.**

**Endorsed by the NBA**



\*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.



future  
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education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present quality  
online training  
development languages  
virtual classroom



Advanced Master's  
Degree  
Therapeutic Personal Training  
and Sports Rehabilitation

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

# Advanced Master's Degree Therapeutic Personal Training and Sports Rehabilitation

Endorsed by the NBA:

