

# Professional Master's Degree Sports Nutrition in Special Populations

Endorsed by the NBA





## Professional Master's Degree Sports Nutrition in Special Populations

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/sports-science/professional-master-degree/master-sports-nutrition-special-populations](http://www.techtute.com/us/sports-science/professional-master-degree/master-sports-nutrition-special-populations)

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# 01

# Introduction

This program trains the student in the design of nutritional programs and the monitoring of athletes with special needs, all of which are adapted to the different sports disciplines in order to obtain maximum sports performance. The aim is to provide comprehensive training that covers different situations that we can find in an athlete, with a high scientific-technical quality and a very large practical component that stands out from the rest of the available degrees.

Food and sport must go hand in hand, as it is essential that athletes follow a proper diet to help them improve their performance.



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Immerse yourself in this comprehensive Professional Master's Degree and improve your skills in nutritional counseling for athletes”

This Professional Master's Degree focuses on the less studied aspects during the university career, making it possible to expand the knowledge necessary to cover a wide spectrum of potential athletes, as well as to meet their nutritional needs. Within this Professional Master's Degree we find a teaching staff of the highest level, made up of professionals closely related to sports nutrition, outstanding in their field and leading lines of research and field work, as well as recognized specialists from leading societies and prestigious universities. The teachers of this Professional Master's Degree are professionals who seek excellence in their teaching and work, teaching in university centers and working with athletes to maximize their performance.

The Professional Master's Degree has multimedia content that helps to acquire the knowledge taught, developed with the latest educational technology. At the same time, it will provide the student with situated and contextual learning, within a simulated environment that provides training focused on solving real problems.

Thanks to its online training, you can organize your time and pace of learning, adapting it to your schedules in addition to being able to access the contents from any computer or mobile device. You will have the opportunity to follow a program that brings together the most advanced and in-depth knowledge, where a group of highly regarded professors with extensive international experience provides you with the most complete and up-to-date information.

This Professional Master's Degree in Sports Nutrition in Special Populations contains the most complete and up-to-date scientific program on the market. The most important features of the program include:

- ◆ The graphic, schematic, and eminently practical contents with which they are created contain information that is indispensable for professional
- ◆ It contains exercises where the self-assessment process can be carried out to improve learning
- ◆ Algorithm-based interactive learning system for decision-making for patients with feeding problems
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection work
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



Learn the most suitable diets for each type of athlete and you will be able to give more personalized advice”

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This Professional Master's Degree may be the best investment you can make when choosing a refresher program for two reasons: in addition to expanding your knowledge in Sports Nutrition in Special Populations, you will obtain a Professional Master's Degree from TECH Technological University”

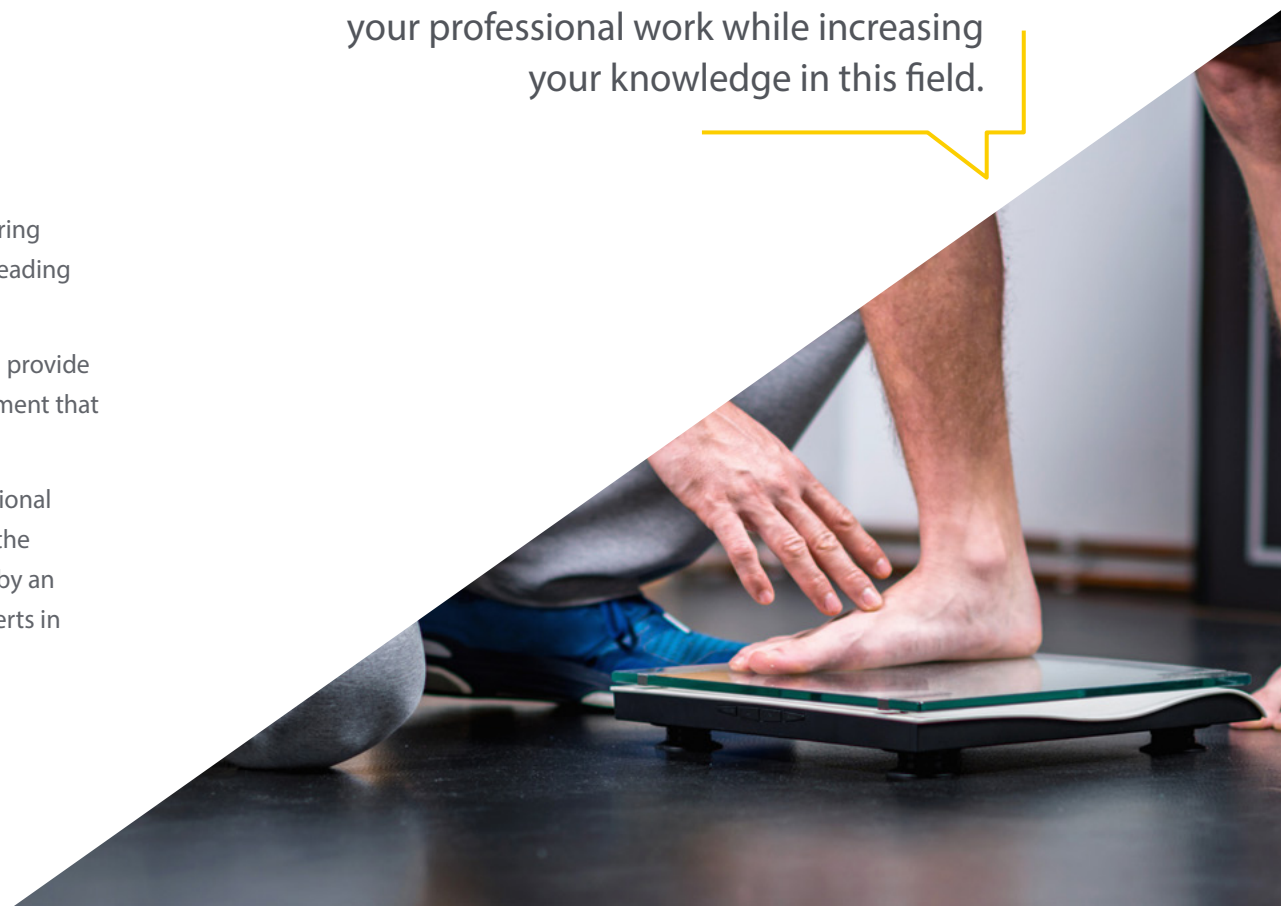
The teaching staff includes professionals from the field of sports science, who bring their experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training programmed to train in real situations.

This program is designed around Problem Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the Professional Master's Degree. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts in sports nutrition with extensive experience.

The Professional Master's Degree program offers training in simulated environments, which provides an immersive learning experience designed to train for real-life situations.

This 100% online master's degree will allow you to combine your studies with your professional work while increasing your knowledge in this field.



02

# Objectives

The program's primary objective is focused on theoretical and practical learning, so that the Sports Science professional is able to master, in both a practical and rigorous manner, the study of Sports Nutrition in Special Populations.







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This refresher program will provide you with a sense of confidence in your daily work, which will help you grow both personally and professionally”



## General Objectives

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- ◆ Acquire advanced knowledge about nutritional planning in professional and non-professional athletes for the healthy performance of physical exercise
- ◆ Acquire advanced knowledge about nutritional planning in professional athletes from different disciplines to achieve the highest sports performance
- ◆ Acquire advanced knowledge about nutritional planning in professional athletes from team sports to achieve the highest sports performance
- ◆ Manage and consolidate initiative and entrepreneurial spirit to implement projects related to nutrition in physical activity and sport
- ◆ Know how to incorporate the different scientific advances into one's own professional field
- ◆ Possess the ability to work in a multidisciplinary environment
- ◆ Advanced understanding of the context in which their field of expertise is developed
- ◆ Manage advanced skills to detect the possible signs of nutritional alteration associated with sports practice
- ◆ Master the necessary skills through the teaching-learning process that will allow them to continue preparing and learning in the field of sports nutrition, both through the contacts established with professors and professionals of the master's degree, as well as in an autonomous way
- ◆ Specialize in the structure of muscle tissue and its implication in sport
- ◆ Learn about the energy and nutritional needs of athletes in different pathophysiological situations





- ◆ Specialize in the energy and nutritional needs of athletes in different age- and gender-specific situations
- ◆ Specialize in dietary strategies for the prevention and treatment of injured athletes
- ◆ Specialize in the energy and nutritional needs of child athletes
- ◆ Specialize in the energy and nutritional needs of paralympic athletes

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Our goal is to achieve academic excellence and to help you achieve it too”



## Specific objectives

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### Module 1. Muscle and metabolic physiology related to exercise

- ◆ Gain in-depth knowledge of the structure of skeletal muscle
- ◆ Gain in-depth understanding of skeletal muscle function
- ◆ To delve into the most important adaptations that occur in athletes
- ◆ To delve into the mechanisms of energy production based on the type of exercise performed
- ◆ To delve into the integration of the different energy systems that make up muscle energy metabolism

### Module 2. Athlete assessment at different times of the season

- ◆ Interpretation of biochemical factors to detect nutritional deficits or overtraining states
- ◆ Interpret the different methods of body composition, to optimize the weight and fat percentage appropriate to the sport they practice
- ◆ Monitor the athlete throughout the season
- ◆ Planning seasonal periods according to their requirements

### Module 3. Water sports

- ◆ Delve into the most important characteristics of the main water sports
- ◆ Understand the demands and requirements of sporting activity in an aquatic environment
- ◆ Differentiate the nutritional needs of different water sports

### Module 4. Extreme conditions



- ◆ Differentiate the main performance-limiting factors caused by climate
- ◆ Develop an acclimatization plan according to the given situation
- ◆ To delve into the physiological adaptations due to altitude
- ◆ Establish correct individual hydration guidelines depending on the climate

#### Module 5. Vegetarianism and veganism

- ◆ Differentiate between the different types of vegetarian athletes
- ◆ Have in-depth knowledge of the main mistakes made
- ◆ Address the significant nutritional deficiencies of sportsmen and sportswomen
- ◆ Mastering skills to provide the athlete with the best tools to combine foods

#### Module 6. Athlete with Type 1 Diabetes

- ◆ Establish the physiological and biochemical mechanism of diabetes both at rest and during exercise
- ◆ To delve into how the different insulins or medications that diabetics use work
- ◆ Assess the nutritional requirements for people with diabetes in both daily life and exercise to improve their health
- ◆ To delve into the necessary knowledge to be able to plan the nutrition of athletes with diabetes in order to improve their health and performance
- ◆ Establish the current state of evidence on ergogenic aids in diabetic patients

#### Module 7. Nutrition in parathletes

- ◆ To delve into the differences between the various categories of parathletes and their physiological-metabolic limitations
- ◆ Determine the nutritional needs of the different para-sportsmen and women in order to establish a precise nutritional plan

- ◆ Delve into the knowledge necessary to establish interactions between drug intake and nutrients in these athletes, in order to avoid nutrient deficits
- ◆ Understand the body composition of parathletes in different sport categories
- ◆ Apply current scientific evidence on nutritional ergogenic aids

#### Module 8. Sports by weight category

- ◆ Establish the different characteristics and needs within the sports by weight category
- ◆ To gain in-depth knowledge on the nutritional strategies in the athlete's preparation in preparation for competition
- ◆ Optimize the improvement of body composition through a nutritional approach

#### Module 9. Different stages or specific populations

- ◆ Explain the particular physiological characteristics to be taken into account in the nutritional approach of different groups of people
- ◆ To gain in-depth understanding on the external and internal factors that influence the nutritional approach to these groups

#### Module 10 Injury period

- ◆ Establish the different phases of the injury
- ◆ Help with the prevention of injuries
- ◆ Improve an injury's prognosis
- ◆ Establish a nutritional strategy according to the new nutritional requirements that appear during the injury period

# 03 Skills

After passing the assessments on the Professional Master's Degree in Sports Nutrition in Special Populations, the professional will have acquired the necessary skills for a quality and up-to-date practice based on the most innovative teaching methodology.





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This program will help you acquire the skills you need to excel in your daily work"

After completing this training, the professional will be able to:



### General Skills

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- ◆ Apply new trends in Sport Nutrition with their patients
- ◆ Apply new trends in nutrition according to adult and child pathologies
- ◆ Investigate their patients' nutritional problems







## Specific Skills

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- ◆ Manage and consolidate the initiative, the entrepreneurial spirit to implement projects related to nutrition in physical activity and sport
- ◆ Manage advanced skills to detect the possible signs of nutritional alteration associated with sports practice
- ◆ Specialize in the structure of muscle tissue and its implication in sport
- ◆ Learn about the energy and nutritional needs of athletes in different pathophysiological situations
- ◆ Specialize in the energy and nutritional needs of child athletes
- ◆ Specialize in the energy and nutritional needs of paralympic athletes

04

# Course Management

Our teachers, made up of experts in Sports Nutrition, are well known in the profession and are professionals with years of teaching experience who have come together to help you boost your career. To this end, they have developed this Professional Master's Degree with the latest developments in the field that will allow you to train and increase your skills in this sector.





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

## International Guest Director

Jamie Meeks has proven throughout her career her dedication to Sports Nutrition. After graduating from Louisiana State University with a degree in Sports Nutrition, she quickly rose to prominence. Her talent and commitment were recognized when she received the prestigious Young Dietitian of the Year award from the Louisiana Dietetic Association, an achievement that marked the beginning of a successful career.

After completing her bachelor's degree, Jamie Meeks continued her education at the University of Arkansas, where she completed her internship in Dietetics. She then went on to obtain a Master's Degree in Kinesiology with a specialization in Exercise Physiology from Louisiana State University. Her passion for helping athletes reach their full potential and her tireless commitment to excellence make her a leading figure in the sports and nutrition community.

Her deep knowledge in this area led her to become the first Director of Sports Nutrition in the history of Louisiana State University's athletic department. There, she developed innovative programs to meet the dietary needs of athletes and educate them on the importance of proper nutrition for optimal performance.

Subsequently, she has held the position of Director of Sports Nutrition for the NFL's New Orleans Saints. In this role, she is dedicated to ensuring that professional players receive the best nutritional care possible, working closely with coaches, trainers, physical trainers and medical staff to optimize individual performance and health.

As such, Jamie Meeks is considered a true leader in her field, being an active member of several professional associations and participating in the advancement of Sports Nutrition on a national level.



## Dra. Meeks, Jamie

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- ♦ Director of Sports Nutrition for the New Orleans Saints of the NFL, Louisiana, United States
- ♦ Coordinator of Sports Nutrition at Louisiana State University
- ♦ Registered Dietitian by the Academy of Nutrition and Dietetics
- ♦ Certified Specialist in Sports Dietetics
- ♦ Master's Degree in Kinesiology with a specialization in Exercise Physiology from Louisiana State University
- ♦ Graduate in Dietetics from Louisiana State University
- ♦ Member of: Louisiana Dietetic Association, Association of Collegiate and Professional Sports Dietitians, Cardiovascular and Wellness Sports Nutrition Dietetic Practice Group



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

## Management



Dr. Marhuenda Hernández, Javier

- ♦ Full Member of the Spanish Academy of Human Nutrition and Dietetics.
- ♦ Professor and researcher at the UCAM
- ♦ Doctor in Nutrition
- ♦ Master's Degree in Clinical Nutrition
- ♦ Degree in Nutrition

## Professors

### Arcusa, Raúl

- ◆ Degree in Human Nutrition and Dietetics
- ◆ Master's Degree in Nutrition in Physical Activity and Sport
- ◆ ISAK Anthropometrist level 1
- ◆ He is currently a doctoral student at the Department of Pharmacy of the UCAM, in the research line of Nutrition and Oxidative Stress, activity that he combines with his work as a nutritionist in the youth team of C.D. Castellón
- ◆ He has experience in different soccer teams in the Valencian community, as well as extensive experience in consultation in a face-to-face clinic

### Mata, Fernando

- ◆ Degree in Dietetics and Nutrition
- ◆ Master's Degree in Sports and Clinical Nutrition
- ◆ Master's Degree in Integrative Physiology (ongoing)
- ◆ Certified and member of the International Society of Sports Nutrition.
- ◆ Scientific Advisor of the field of Nutrition for Cádiz Club de Fútbol.
- ◆ Nutritionist for elite athletes
- ◆ General Manager of NutriScience Spain
- ◆ Trainer in several masters and postgraduate courses on a national and international level
- ◆ Author of two books on sports nutrition and more than 50 articles and book

chapters on the subject

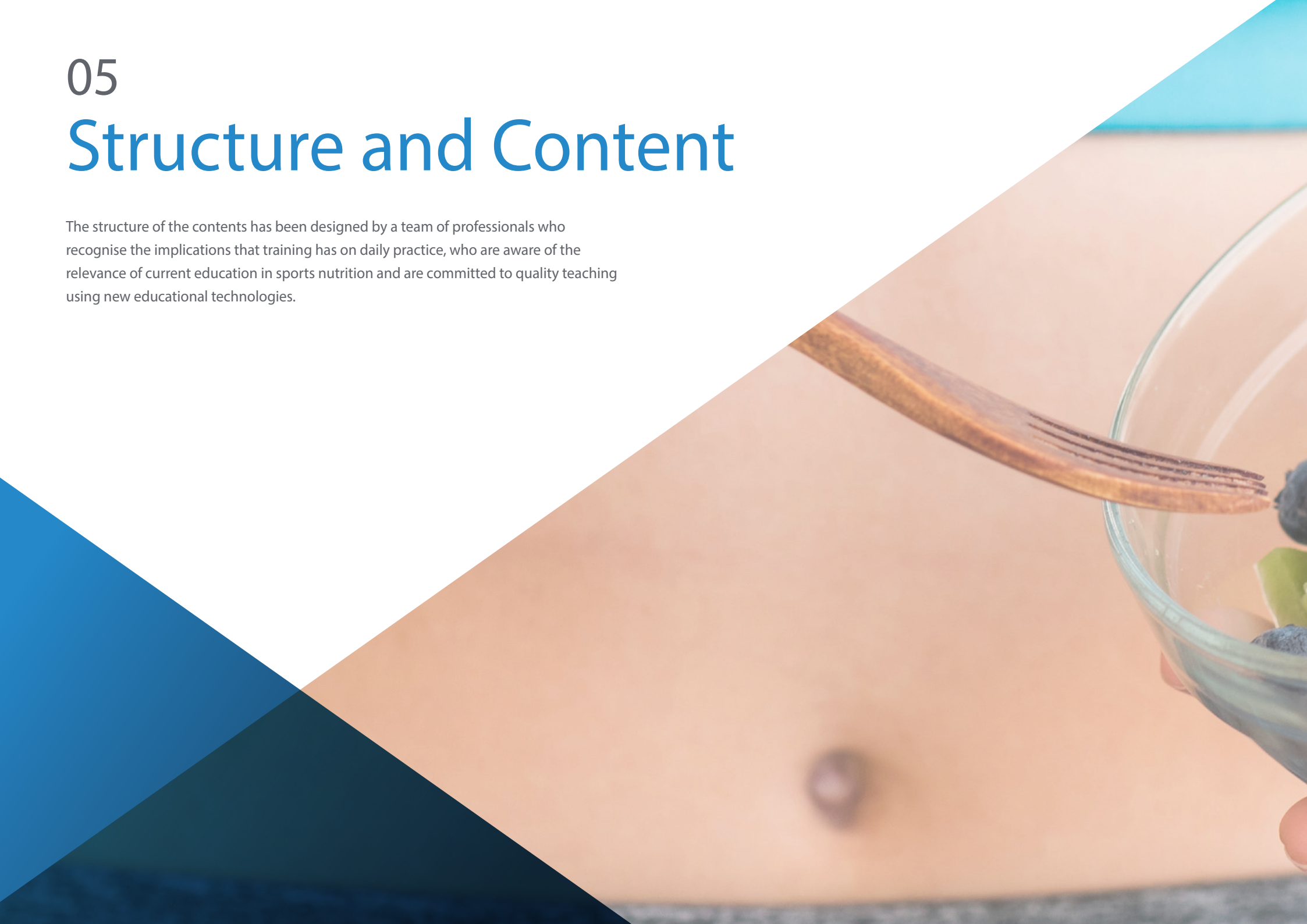
### Dña. Ramírez, Marta

- ◆ Degree in Human Nutrition and Dietetics
- ◆ Master's Degree in Nutrition in Physical Activity and Sport
- ◆ ISAK Anthropometrist level 1
- ◆ Extensive professional experience, both in the clinical and sports fields, where she works with athletes in sports such as triathlons, athletics, bodybuilding, CrossFit, powerlifting, among others, specializing in strength sports
- ◆ Experience as a trainer and speaker giving seminars, courses, workshops and conferences on sports nutrition for dietitians-nutritionists, health science students and the general population, as well as continuous training in nutrition and sport at international congresses, courses and conferences

05

# Structure and Content

The structure of the contents has been designed by a team of professionals who recognise the implications that training has on daily practice, who are aware of the relevance of current education in sports nutrition and are committed to quality teaching using new educational technologies.







“

This Professional Master's Degree in Sports Nutrition in Special Populations contains the most complete and updated scientific program on the market”

## Module 1. Muscle and Metabolic Physiology Related to Exercise

- 1.1. Cardiovascular Adaptations Related to Exercise
  - 1.1.1. Systolic Volume Enhancement
  - 1.1.2. Decreased Heart Rate
- 1.2. Exercise-Related Ventilatory Adaptations
  - 1.2.1. Changes in Ventilatory Volume
  - 1.2.2. Changes in Oxygen Consumption
- 1.3. Exercise-Related Hormonal Adaptations
  - 1.3.1. Cortisol
  - 1.3.2. Testosterone
- 1.4. Muscle Structure and Types of Muscle Fibers
  - 1.4.1. Muscle Fiber
  - 1.4.2. Type I Muscle Fibers
  - 1.4.3. Type II Muscle Fibers
- 1.5. Concept of Lactic Threshold
- 1.6. ATP and Phosphagen Metabolism
  - 1.6.1. Metabolic Pathways for ATP Resynthesis During Exercise
  - 1.6.2. Phosphagen Metabolism
- 1.7. Carbohydrate Metabolism
  - 1.7.1. Carbohydrate Mobilization During Exercise
  - 1.7.2. Types of Glycolysis
- 1.8. Lipid Metabolism
  - 1.8.1. Lipolysis
  - 1.8.2. Fat Oxidation During Exercise
  - 1.8.3. Ketone Bodies
- 1.9. Protein Metabolism
  - 1.9.1. Ammonium Metabolism
  - 1.9.2. Amino Acid Oxidation
- 1.10. Mixed Bioenergetics of Muscle Fibers
  - 1.10.1. Energy Sources and Their Relation to Exercise
  - 1.10.2. Factors That Determine the Use of One or Another Source of Energy During Exercise



## Module 2. Athlete Assessment at Different Times of the Season

- 2.1. Biochemical Evaluation
  - 2.1.1. Blood count:
  - 2.1.2. Overtraining Markers
- 2.2. Anthropometric Assessment
  - 2.2.1. Body Composition.
  - 2.2.2. ISAK Profile
- 2.3. Preseason
  - 2.3.1. High Workload
  - 2.3.2. Ensure Caloric and Protein Intake
- 2.4. Competitive Season
  - 2.4.1. Sports Performance
  - 2.4.2. Recovery Between Games
- 2.5. Transition Period
  - 2.5.1. Vacation Period
  - 2.5.2. Changes in Body Composition
- 2.6. Travel
  - 2.6.1. Tournaments During the Season
  - 2.6.2. Off-Season Tournaments (World Cups, Europeans and Olympic Games)
- 2.7. Athlete Monitoring
  - 2.7.1. Baseline Athlete Status
  - 2.7.2. Evolution During the Season
- 2.8. Sweat Rate Calculation
  - 2.8.1. Water Losses
  - 2.8.2. Calculation Protocol
- 2.9. Multidisciplinary Work
  - 2.9.1. Role of the Nutritionist in the Athlete's Environment
  - 2.9.2. Communication With the Rest of the Areas
- 2.10. Doping
  - 2.10.1. WADA List
  - 2.10.2. Anti-Doping Tests

## Module 3. Water sports

- 3.1. History of Water Sports
  - 3.1.1. Olympics and Major Tournaments
  - 3.1.2. Water Sports Today
- 3.2. Performance Limitations
  - 3.2.1. Water Sports in the Water (Swimming, Water Polo...)
  - 3.2.2. Water Sports on the Water (Surfing, Sailing, Canoeing, Canoeing...)
- 3.3. Basic Characteristics of Water Sports
  - 3.3.1. Water Sports in the Water (Swimming, Water Polo...)
  - 3.3.2. Water Sports on the Water (Surfing, Sailing, Canoeing, Canoeing...)
- 3.4. Physiology in Aquatic Sports
  - 3.4.1. Energetic Metabolism
  - 3.4.2. Athlete Biotype
- 3.5. Training
  - 3.5.1. Strength
  - 3.5.2. Resistance
- 3.6. Body Composition
  - 3.6.1. Swimming
  - 3.6.2. Water Polo
- 3.7. Pre-Competition
  - 3.7.1. 3 Hours Before
  - 3.7.2. 1 Hour Before
- 3.8. Pre-Competition
  - 3.8.1. Carbohydrates
  - 3.8.2. Hydration
- 3.9. Post-Competition
  - 3.9.1. Hydration
  - 3.9.2. Protein
- 3.10. Ergogenic Aids
  - 3.10.1. Creatine
  - 3.10.2. Caffeine

## Module 4. Adverse Conditions

- 4.1. Sport History in Extreme Conditions
  - 4.1.1. Winter Competitions in History
  - 4.1.2. Competitions in Hot Environments Today
- 4.2. Performance Limitations in Hot Climates
  - 4.2.1. Dehydration
  - 4.2.2. Fatigue
- 4.3. Basic Characteristics in Hot Climates
  - 4.3.1. High Temperature and Humidity
  - 4.3.2. Acclimatization
- 4.4. Nutrition and Hydration in Hot Climates
  - 4.4.1. Hydration and Electrolytes
  - 4.4.2. Carbohydrates
- 4.5. Performance Limitations in Cold Climates
  - 4.5.1. Fatigue
  - 4.5.2. Applique Clothing
- 4.6. Basic Characteristics in Cold Climates
  - 4.6.1. Extreme Cold
  - 4.6.2. Reduced VO<sub>2</sub> Max.
- 4.7. Nutrition and Hydration in Cold Climates
  - 4.7.1. Hydration
  - 4.7.2. Carbohydrates

## Module 5. Vegetarianism and veganism

- 5.1. Vegetarianism and Veganism in Sports History
  - 5.1.1. Beginnings of Veganism in Sport
  - 5.1.2. Vegetarian Athletes Today
- 5.2. Different Types of Vegan Food
  - 5.2.1. Vegan Athlete
  - 5.2.2. Vegetarian Athlete

- 5.3. Common Mistakes With Vegan Athletes
  - 5.3.1. Energy Balance
  - 5.3.2. Protein Consumption
- 5.4. Vitamin B12
  - 5.4.1. Supplementation of B12
  - 5.4.2. Bioavailability of Spirulina Algae
- 5.5. Protein Sources in the Vegan/Vegetarian Diet
  - 5.5.1. Protein Quality
  - 5.5.2. Environmental Sustainability
- 5.6. Other Key Nutrients in Vegans
  - 5.6.1. Conversion of ALA to EPA/DHA
  - 5.6.2. Fe, Ca, Vit-D and Zn
- 5.7. Biochemical Evaluation/Nutritional Shortcomings
  - 5.7.1. Anaemia
  - 5.7.2. Sarcopenia
- 5.8. Vegan Diet vs Omnivore Diet
  - 5.8.1. Evolutionary Diet
  - 5.8.2. Current Diet
- 5.9. Ergogenic Aids
  - 5.9.1. Creatine
  - 5.9.2. Vegetable Protein
- 5.10. Factors Affecting Nutrient Absorption
  - 5.10.1. High Consumption of Fiber
  - 5.10.2. Oxalates

## Module 6. Type 1 diabetic athlete

- 6.1. Knowing Diabetes and its Pathology
  - 6.1.1. Incidence of Diabetes
  - 6.1.2. Pathophysiology of Diabetes
  - 6.1.3. Consequences of Diabetes

- 6.2. Exercise Physiology in People With Diabetes
    - 6.2.1. Maximal, Submaximal Exercise and Muscle Metabolism During Exercise
    - 6.2.2. Metabolic Level Differences During Exercise in People With Diabetes
  - 6.3. Exercise in People With Type 1 Diabetes
    - 6.3.1. Hypoglycemia, Hyperglycemia and Adjustment of Nutritional Treatment
    - 6.3.2. Exercise Time and Carbohydrate Intake
  - 6.4. Exercise in People With Type 2 Diabetes Control of Glucose
    - 6.4.1. Risks of Physical Activity in People With Type 2 Diabetes
    - 6.4.2. Benefits of Exercise in People With Type 2 Diabetes
  - 6.5. Exercise in Children and Adolescents with Diabetes
    - 6.5.1. Metabolic Effects of Exercise
    - 6.5.2. Precautions During Exercise
  - 6.6. Insulin Therapy and Exercise
    - 6.6.1. Insulin Infusion Pump
    - 6.6.2. Types of Insulin
  - 6.7. Nutritional Strategies During Sport and Exercise in Type 1 Diabetes
    - 6.7.1. From Theory to Practice
    - 6.7.2. Carbohydrate Intake Before, During and After Physical Exercise
    - 6.7.3. Hydration Before, During and After Physical Exercise
  - 6.8. Nutritional Planning in Endurance Sports
    - 6.8.1. Marathon
    - 6.8.2. Cycling
  - 6.9. Nutritional Planning in Team Sports
    - 6.9.1. Football
    - 6.9.2. Rugby
  - 6.10. Sports Supplementation and Diabetes
    - 6.10.1. Potentially Beneficial Supplements for Athletes With Diabetes
- Module 7. Parathletes**
- 7.1. Classification and Categories of Parathletes
    - 7.1.1. What is a Parathlete?
    - 7.1.2. How Are Parathletes Classified?
  - 7.2. Sport Science in Parathletes
    - 7.2.1. Metabolism and Physiology
    - 7.2.2. Biomechanics
    - 7.2.3. Psychology
  - 7.3. Energy Requirements and Hydration in Parathletes
    - 7.3.1. Optimal Energy Demands for Training
    - 7.3.2. Hydration Planning Before, During and After Training and Competitions
  - 7.4. Nutritional Problems in the Different Categories of Parathletes According to Their Pathology or Anomaly
    - 7.4.1. Spinal Cord Injuries
    - 7.4.2. Cerebral Palsy and Acquired Brain Injuries
    - 7.4.3. Amputees
    - 7.4.4. Vision and Hearing Impairment
    - 7.4.5. Intellectual Impairments
  - 7.5. Nutritional Planning in Parathletes With Spinal Cord Injury, Cerebral Palsy and Acquired Brain Injuries
    - 7.5.1. Nutritional Requirements (Macro and Micronutrients)
    - 7.5.2. Sweating and Fluid Replacement During Exercise
  - 7.6. Nutritional Planning in Parathletes With Amputations
    - 7.6.1. Energy Requirements
    - 7.6.2. Macronutrients
    - 7.6.3. Thermoregulation and Hydration
    - 7.6.4. Nutritional Issues Related to Prostheses
  - 7.7. Planning and Nutritional Problems in Parathletes With Vision-Hearing Impairment and Intellectual Deficiencies
    - 7.7.1. Sports Nutrition Problems With Vision Impairment: Retinitis Pigmentosa, Diabetic Retinopathy, Albinism, Stargardt's Disease and Hearing Pathologies
    - 7.7.2. Sports Nutrition Problems With Intellectual Deficiencies: Down Syndrome, Autism and Asperger's, Phenylketonuria
  - 7.8. Body Composition in Parathletes
    - 7.8.1. Measurement Techniques
    - 7.8.2. Factors that Affect the Reliability of the Different Measurement Methods
  - 7.9. Pharmacology and Nutrient Interactions

- 7.9.1. Different Types of Drugs Ingested by Parathletes
- 7.9.2. Micronutrient Deficiencies in Parathletes
- 7.10. Ergogenic Aids
  - 7.10.1. Potentially Beneficial Supplements for Parathletes
  - 7.10.2. Negative Health Consequences, Contamination and Doping Problems Due To the Intake of Ergogenic Aids

## Module 8. Sports by Weight Category

- 8.1. Characteristics of the Main Sports by Weight Category
  - 8.1.1. Rules
  - 8.1.2. Categories
- 8.2. Season Programming
  - 8.2.1. Competitions
  - 8.2.2. Macrocycle
- 8.3. Body Composition
  - 8.3.1. Combat Sports
  - 8.3.2. Weightlifting
- 8.4. Stages of Muscle Mass Gain
  - 8.4.1. Body Fat %
  - 8.4.2. Programming
- 8.5. Muscle Definition Stages
  - 8.5.1. Carbohydrates
  - 8.5.2. Protein
- 8.6. Pre-Competition
  - 8.6.1. Peak Weak
  - 8.6.2. Before Weighing
- 8.7. Pre-Competition
  - 8.7.1. Practical Applications
  - 8.7.2. Timing
- 8.8. Post-Competition

- 8.8.1. Hydration
- 8.8.2. Protein
- 8.9. Ergogenic Aids
  - 8.9.1. Creatine
  - 8.9.2. Whey Protein

## Module 9. Different Stages or Specific Populations

- 9.1. Nutrition in Female Athletes
  - 9.1.1. Limiting Factors
  - 9.1.2. Requirements
- 9.2. The Menstrual Cycle
  - 9.2.1. Luteal Phase
  - 9.2.2. Follicular Phase
- 9.3. Triad
  - 9.3.1. Amenorrhea
  - 9.3.2. Osteoporosis
- 9.4. Nutrition in Pregnant Female Athletes
  - 9.4.1. Energy Requirements
  - 9.4.2. Micronutrients
- 9.5. Effects of Physical Exercise on Child Athletes
  - 9.5.1. Strength Training
  - 9.5.2. Endurance Training
- 9.6. Nutritional Education in Child Athletes
  - 9.6.1. Sugar
  - 9.6.2. TCA
- 9.7. Nutritional Requirements in Child Athletes
  - 9.7.1. Carbohydrates
  - 9.7.2. Proteins
- 9.8. Changes Associated With Ageing
  - 9.8.1. Body Fat %
  - 9.8.2. Muscle Mass
- 9.9. Main Problems in Senior Athletes

- 9.9.1. Joints
- 9.9.2. Cardiovascular Health
- 9.10. Interesting Supplementation in Senior Athletes
  - 9.10.1. Whey Protein
  - 9.10.2. Creatine

## Module 10. Injury Period

- 10.1. Introduction
- 10.2. Prevention of Injuries in Athletes
  - 10.2.1. Relative Energy Availability in Sport
  - 10.2.2. Oral Health and Injury Implications
  - 10.2.3. Fatigue, Nutrition and Injuries
  - 10.2.4. Sleep, Nutrition and Injuries
- 10.3. Phases of Injury
  - 10.3.1. Immobilization Phase Inflammation and Changes That Occur During This Phase
  - 10.3.2. Return to Activity Phase
- 10.4. Energy Intake During the Period of Injury
- 10.5. Macronutrient Intake During the Injury Period
  - 10.5.1. Carbohydrate Intake
  - 10.5.2. Fat Intake
  - 10.5.3. Protein Intake
- 10.6. Intake of Micronutrients of Special Interest During Injuries
- 10.7. Sports Supplements With Evidence During the Period of Injury
  - 10.7.1. Creatine
  - 10.7.2. Omega 3
  - 10.7.3. Others
- 10.8. Tendon and Ligament Injuries
  - 10.8.1. Introduction to Tendon and Ligament Injuries Structure of the Tendon
  - 10.8.2. Collagen, Gelatin and Vitamin C. Can They Help?
  - 10.8.3. Other Nutrients Involved in Collagen Synthesis
- 10.9. Return to Competition
  - 10.9.1. Nutritional Considerations in the Return to Competition
- 10.10. Interesting Case Studies in the Scientific Literature on Injuries



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

06

# Methodology

This training program provides you with a different way of learning. Our methodology uses a cyclical learning approach: Re-learning.

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 Re-learning, 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”

## At TECH we use the Case Method

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.

“

With TECH you can experience a way of learning that is shaking the foundations of traditional universities around the world”



Our University is the first in the world to combine Harvard Business School case studies with a 100%-online learning system based on repetition.



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

### A learning method that is different and innovative.

This intensive Sports Science program at TECH Technological University prepares you to face all the challenges in this field, both nationally and internationally. We are committed to promoting your personal and professional growth, the best way to strive for success, that is why at TECH you will use Harvard case studies, with which we have a strategic agreement that allows us to provide our students with material from the best university the world.



We are the only online university that offers Harvard materials as teaching materials on its courses”

The case method is the most widely used learning system by 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.

When faced with a certain situation, what should a professional do? This is the question that we are presented with in the case method, an action-oriented learning method. Throughout the program, students will be presented with multiple real cases. They will have to combine all their knowledge, and research, argue, and defend their ideas and decisions.

## Re-learning Methodology

Our University is the first in the world to combine Harvard University case studies with a 100%-online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance Harvard case studies with the best 100% online teaching method: Re-learning.

In 2019 we obtained the best learning results of all Spanish-language 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 Re-learning.

Our University is the only one in Spanish-speaking countries licensed to incorporate 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 Spanish online university indicators.



In our program learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, each of these elements are combined 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 of this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Re-learning 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 to success.

Based on the latest evidence in neuroscience, not only do we know how to organize information, ideas, images, memories, but we also know that the place and context where we have learned something is crucial for us to be able to remember it and store it in the hippocampus, and 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, specifically prepared for professionals:



#### Study Material

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

These contents are then applied to the audio-visual format to create the online work method of TECH. All with the newest techniques that offer items of great quality in all the materials made available to the students.



#### 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

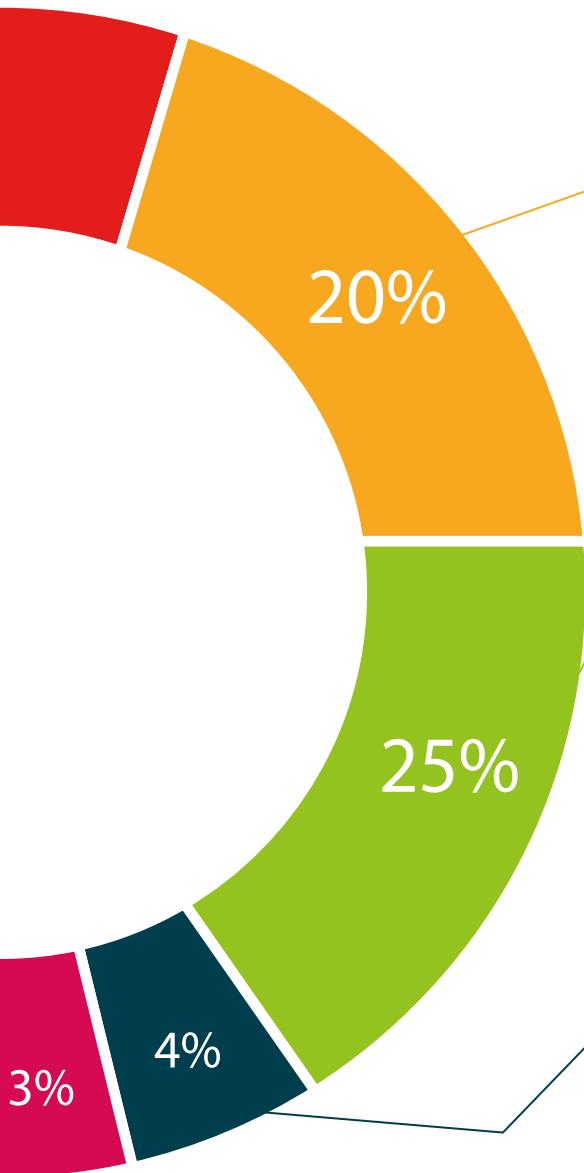
You will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization we live in.



#### Additional Reading

Recent articles, consensus documents, international guides. in the virtual library of TECH, students will have access to everything you need to complete your training.





#### Case Studies

You will complete a selection of the best case studies in the field used at Harvard. Cases that are presented, analyzed, and supervised by the best senior management specialists in Latin America.



#### Interactive Summaries

The team of TECH 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 multimedia educational content presentation system was awarded by Microsoft as a "European Success Story".



#### Testing & Retesting

Students' knowledge is periodically evaluated and re-evaluated throughout the program, through assessment and self-assessment activities and exercises: so that, this way, students can see how they are achieving their goals.



07

# Certificate

The Professional Master's Degree in Sports Nutrition in Special Populations guarantees, in addition to the most rigorous and updated training, access to a Professional Master's Degree issued by TECH Technological University.







“

Successfully complete this training and receive your university degree without travel or laborious paperwork”

This Professional Master's Degree in Sports Nutrition in Special Populations contains the most complete and updated scientific program on the market.

After passing all the assessments in this course, the student will receive their corresponding Professional Master's Degree from TECH Technological University.

This degree contributes to the academic development of the professional and adds a high university level value to their training, and is 100% valid in all competitive examinations, labor exchanges and professional career evaluation committees.

Title: Professional Master's Degree in Sports Nutrition in Special Populations

ECTS: 60

Official Number of Hours: 1,500 hours.

Endorsed by the NBA



**tech** technological university

Awards the following  
**DIPLOMA**  
to

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

**PROFESSIONAL MASTER'S DEGREE**  
in  
**Sports Nutrition in Special Populations**

This is a qualification awarded by this University, with 60 ECTS credits and equivalent to 1,500 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

*Tere Guevara*  
Tere Guevara Navarro  
Dean

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWOR235 techtute.com/certificates

Professional Master's Degree in Sports Nutrition in Special Populations

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

General Structure of the Syllabus

Year	Subject	ECTS	Type
1	Muscle and Metabolic Physiology Related to Exercise	5	CO
1	Athlete Assessment at Different Times of the Season	5	CO
1	Water sports	5	CO
1	Adverse Conditions	5	CO
1	Vegetarianism and veganism	5	CO
1	Type 1 diabetic athlete	5	CO
1	Parathletes	5	CO
1	Sports by Weight Category	5	CO
1	Different Stages or Specific Populations	5	CO
1	Injury Period	5	CO

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Dean

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



**Professional Master's  
Degree**  
**Sports Nutrition  
in Special Populations**

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

# Professional Master's Degree Sports Nutrition in Special Populations

Endorsed by the NBA

