

# Master's Degree

## Sports Nutrition in Special Populations

Endorsed by the NBA





## Master's Degree Sports Nutrition in Special Populations

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

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

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# 01

# Introduction

In the field of sports, one of the most fundamental aspects is nutrition, especially for those who perform frequent or high intensity physical activities. Its importance is such that many professionals with specific and advanced knowledge in this area are required to help maximize sports performance and proper recovery of athletes. This is the reason why TECH has developed a program that seeks to provide students with complete knowledge and precise skills on muscle and metabolic physiology, extreme conditions or nutrition in para-sportsmen. All this, in a 100% online mode that gives students total freedom to combine their studies with their other day-to-day work.



A close-up photograph of a hand holding a red straw in a clear plastic cup filled with a green smoothie. The background is a bright, outdoor setting with a blurred horizon. The image is partially obscured by a large blue and white geometric overlay on the right side of the page.

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*Thanks to this complete Master's Degree in Sports Nutrition in Special Populations you will be able to acquire specific and advanced knowledge in Nutrition in specific populations"*



A physiotherapist must know in depth the characteristics of food and the appropriate nutrition for each type of effort. In addition, athletes with special situations can be neglected, in many cases due to lack of knowledge on the part of the professional who attends them. This reality provokes the need for experts in Sports Nutrition for special groups with deep, up-to-date and precise skills in the field.

This is the reason why TECH has designed a Master's Degree in Sports Nutrition in Special Populations with which it seeks to provide students with skills with which to address their work in this field with maximum efficiency and with the best possible result for these athletes with special situations. And this, through a syllabus that delves into topics such as mixed bioenergetics of muscle fibers, monitoring of the athlete, performance limiting factors, diabetic athletes or para-athletes, among others.

All this, in a comfortable 100% online mode that gives total freedom to the student to organize their studies and schedules, without interfering with their other activities and obligations of the day to day. In addition, with the total availability of didactic materials that represent a unique opportunity to access complete, up-to-date and accurate content from any device with an Internet connection.

This **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 include:

- ♦ The development of case studies presented by experts in Sports Nutrition in Special Populations
- ♦ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ♦ Practical exercises where self-assessment can be used to improve learning
- ♦ Its special emphasis on innovative methodologies
- ♦ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ♦ Content that is accessible from any fixed or portable device with an Internet connection



*Enhance your profile and gain access to a prestigious position in the labor market, improving your competences in Nutrition of the female athlete"*

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*Deepen your knowledge of the needs of Special Populations and become an expert in Nutrition in this area”*

The program's teaching staff includes professionals from the field who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

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

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

*Acquire new skills in energy requirements and hydration for athletes.*

*It stands out in a sector of the Nutrition in complete boom and with a great professional projection.*



# 02 Objectives

The objective of this Master's Degree in Sports Nutrition in Special Populations is to provide students with advanced skills and competencies with which to carry out their work in this field with the maximum possible efficiency and knowing how to face any type of situation or difficulty. All this, thanks to complete and innovative theoretical and practical contents.





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*TECH's goal is to give you the tools you need to succeed in your profession"*



## General Objectives

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- ♦ Handle advanced knowledge on nutritional planning in professional and non-professional athletes for the healthy performance of physical exercise
- ♦ Manage advanced knowledge on nutritional planning in professional athletes of various fields in order to achieve maximum sports performance
- ♦ Learn advanced knowledge about nutritional planning in professional athletes from team sports to achieve the highest sports performance
- ♦ Manage and consolidate the initiative, 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
- ♦ Acquire the skills to work in a multidisciplinary environment
- ♦ Gain an advanced understanding of the context in which the area of their specialty is developed
- ♦ Manage advanced skills in the detection of possible signs of nutritional changes associated with sports activities
- ♦ Manage the necessary skills through the teaching-learning process that will allow them to continue training and learning in the field of Nutrition in sport, 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 role in sports
- ♦ Gain knowledge about the energetic and nutritional needs of athletes in different pathophysiological situations
- ♦ Specialize in the energetic and nutritional needs of athletes in the different situations specific to age and gender
- ♦ Become a specialist in the dietary strategies for the prevention and treatment of injured athletes
- ♦ Specialize in the energetic and nutritional needs of child athletes
- ♦ Specialize in the energetic and nutritional needs of Paralympic athletes



*You will achieve your goals thanks to the best tools and the latest advances in Sports Nutrition"*



## Specific Objectives

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### **Module 1. Muscle and Metabolic Physiology Associated with Exercise**

- ◆ Gain an in-depth understanding of the structure of skeletal muscle
- ◆ Understand in depth the functioning of skeletal muscle
- ◆ Delve into the understanding of the most important changes that occur in athletes
- ◆ Delve into the mechanisms of energy production according to the type of exercise undertaken
- ◆ Further understanding of the interaction between the different energy systems that make up the muscle energy metabolism

### **Module 2. Evaluation of the Athlete at Different Times of the Season**

- ◆ Perform biochemical interpretation to detect nutritional deficits or overtraining states
- ◆ Perform the interpretation of the different methods of body composition, to optimize the weight and fat percentage appropriate to the sport practiced
- ◆ Monitor the athlete throughout the season
- ◆ Plan the periods of the season according to their requirements

### **Module 3. Watersports**

- ◆ Delve into the most important characteristics of the main water sports
- ◆ Understand the demands and requirements associated with sports activities in aquatic environments
- ◆ Distinguish between the nutritional needs of different watersports



#### Module 4. Adverse Conditions

- ♦ Differentiate between the main performance limiting factors caused by climate
- ♦ Develop an acclimatization plan appropriate to the situation given
- ♦ Delve into the physiological adaptations due to altitude
- ♦ Establish the correct individual hydration guidelines according to the climate

#### Module 5. Vegetarianism and Veganism

- ♦ Differentiate between the different types of vegetarian athletes
- ♦ Gain an in-depth understanding of the main mistakes made
- ♦ Treat the notable nutritional deficiencies of sportsmen and sportswomen
- ♦ Manage skills to provide the athlete with the most effective tools to combine foods

#### Module 6. The Type 1 Diabetic Athlete

- ♦ Establish the physiological and biochemical mechanism of diabetes both at rest and during exercise
- ♦ Deepen the understanding of how the different insulins or medications used by diabetics work
- ♦ Assess the nutritional requirements for people with diabetes both in their daily life and in exercise, to improve their health
- ♦ Deepen the knowledge necessary to plan nutrition for athletes of different disciplines with diabetes, in order to improve their health and performance
- ♦ Establish the current state of evidence on Performance Enhancing Drugs in diabetics

#### Module 7. Parathletes

- ♦ Deepen understanding of the differences between the different categories of para-athletes and their physiological-metabolic limitations
- ♦ Determine the nutritional requirements of the different para-sportsmen in order to establish a specific nutritional plan





- ◆ Further the knowledge necessary to establish interactions between the ingestion of pharmaceuticals in these athletes and nutrients, to avoid nutrient deficits
- ◆ Understand the body composition of para-athletes 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 sports by weight category
- ◆ Understand in depth the different nutritional strategies for preparing the athlete for competition
- ◆ Optimize the improvement of body composition through nutritional approach

#### **Module 9. Different Stages or Specific Population Groups**

- ◆ Explain the specific physiological characteristics to be taken into account in the nutritional approach of different groups
- ◆ Understand in depth the external and internal factors that influence the nutritional approach to these groups

#### **Module 10. The Injury Period**

- ◆ Determine the different phases of the injury
- ◆ Help in the prevention of injuries
- ◆ Improve the prognosis of the injury
- ◆ Develop a nutritional strategy to meet the changing nutritional requirements during the injury period



# 03 Skills

This Study Plan has been designed in such a way that the professional to whom it is addressed will be able to identify and solve the problems related to their area of specialization, with the highest quality in their work. In this way, through this Master's Degree in Sports Nutrition in Special Populations, the student will be able to face a promising future in this sector, with the support of the best experts in Nutrition.



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*After completing this Master's Degree in Sports Nutrition in Special Populations you will be positioned in an outstanding way in the labor market"*



## General Skills

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- Apply to their patients the new trends in Sports Nutrition in Special Groups
- Apply new trends in nutrition according to adult pathologies
- Investigate the nutritional problems of your patients

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*Improve your skills in Sports Nutrition, quickly and in a 100% online modality”*





## Specific Skills

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- ◆ Manage and consolidate the initiative, entrepreneurial spirit to implement projects related to nutrition in physical activity and sport
- ◆ Manage advanced skills in the detection of possible signs of nutritional changes associated with sports activities
- ◆ Specialize in the structure of muscle tissue and its role in sports
- ◆ Gain knowledge about the energetic and nutritional needs of athletes in different pathophysiological situations
- ◆ Specialize in the energetic and nutritional needs of child athletes
- ◆ Specialize in the energetic and nutritional needs of Paralympic athletes



04

# Course Management

The management and teaching staff of this Master's Degree in Sports Nutrition in Special Populations is made up of outstanding professionals who are part of TECH's team of experts. They have poured their experience and their most specialized knowledge into the syllabus, to give shape to a complete program that represents a unique opportunity in the academic market.







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*Succeed in the field of Sports Nutrition, hand in hand with the best and acquiring the knowledge of an expert in the field"*

## International Guest Director

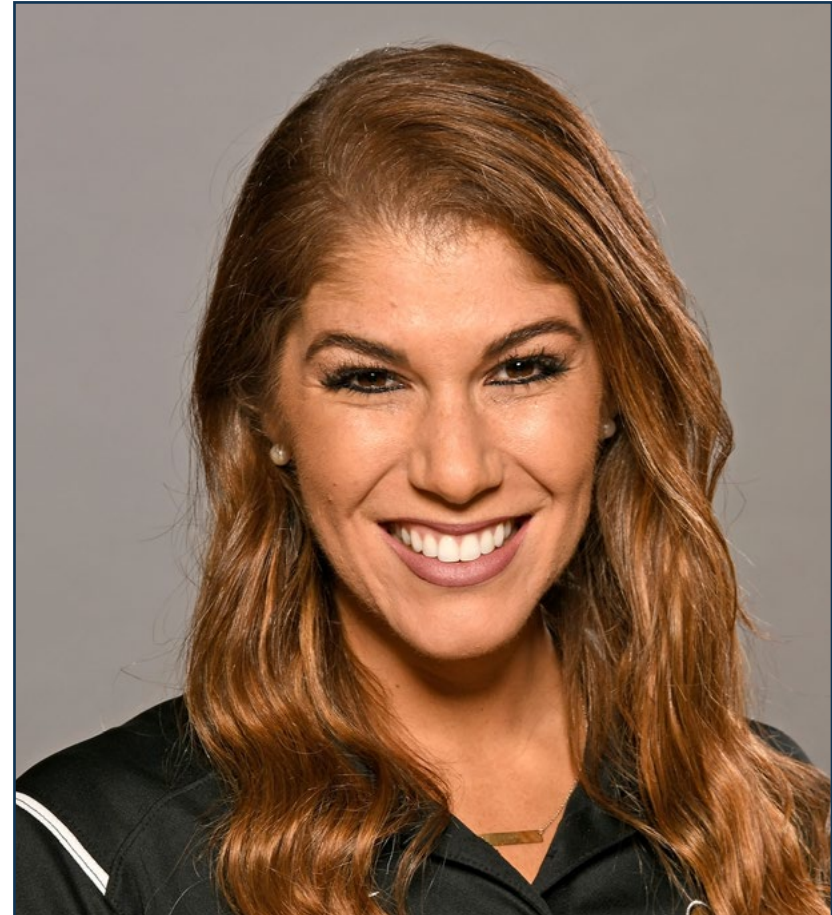
Jamie Meeks has proven throughout her career her dedication to Sports Nutrition. After graduating from Louisiana State University with a degree in Sports Nutrition, he quickly rose to prominence. Her talent and commitment were recognized when she received the prestigious Young Dietitian of the Year award 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. In this regard, she is also a member of the Academy of Nutrition and Dietetics and the Association of Collegiate and Professional Sports Dietitians.



## Dr. 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 world"*

## Management



### Dr. Marhuenda Hernández, Javier

- ♦ Nutritionist in Professional Football Clubs
- ♦ Responsible for the Sports Nutrition Area. Albacete Balompié Club SAD
- ♦ Responsible for the Sports Nutrition Area. Catholic University of Murcia, UCAM Murcia Football Club
- ♦ Scientific Advisor. Nutrium
- ♦ Nutritional Advisor. Impulse Center
- ♦ Professor and Coordinator of Postgraduate Studies
- ♦ PhD in Nutrition and Food Safety. San Antonio Catholic University of Murcia
- ♦ Graduate in Human Nutrition and Dietetics. San Antonio Catholic University of Murcia
- ♦ Master's Degree in Clinical Nutrition. San Antonio Catholic University of Murcia
- ♦ Academic Spanish Academy of Nutrition and Dietetics (AEND)

## Professors

### Dr. Ramírez Munuera, Marta

- ♦ Sports Nutritionist expert in Strength Sports
- ♦ Nutritionist. M10 Health and Fitness. Health and Sports Center
- ♦ Nutritionist. Mario Ortiz Nutrition
- ♦ Trainer in courses and workshops on Sports Nutrition
- ♦ Speaker at conferences and seminars on Sports Nutrition
- ♦ Degree in Human Nutrition and Dietetics. San Antonio Catholic University of Murcia
- ♦ Master in Nutrition in Physical Activity and Sport. San Antonio Catholic University of Murcia

### Dr. Arcusa Saura, Raúl

- ♦ Nutritionist. Castellón Sports Club
- ♦ Nutritionist in several semi-professional clubs in Castellón
- ♦ Researcher. San Antonio Catholic University of Murcia
- ♦ Undergraduate and Graduate Teaching
- ♦ Graduate in Human Nutrition and Dietetics
- ♦ Master's Degree in Nutrition in Physical Activity and Sport





**Dr. Martínez Noguera, Francisco Javier**

- ◆ Sports nutritionist at CIARD-UCAM
- ◆ Sports nutritionist at Jorge Lledó Physiotherapy Clinic
- ◆ Research assistant at CIARD-UCAM
- ◆ Sports nutritionist at UCAM Murcia Soccer Club
- ◆ Nutritionist at SANO Center
- ◆ Sports nutritionist at UCAM Murcia Basketball Club
- ◆ PhD in Sports Science from the Catholic University San Antonio de Murcia
- ◆ Graduate in Human Nutrition and Dietetics from the Catholic University San Antonio of Murcia
- ◆ Master's Degree in Nutrition and Food Safety from the Catholic University San Antonio of Murcia

**Dr. Montoya Castaño, Johana**

- ◆ Sports Nutritionist
- ◆ Nutritionist. Ministry of Sports of Colombia (Mindeportes)
- ◆ Scientific Advisor. Bionutrition, Medellín
- ◆ Undergraduate Professor of Sports Nutrition
- ◆ Nutritionist Dietician. University of Antioquia
- ◆ Master in Nutrition in Physical Activity and Sport. San Antonio Catholic University of Murcia



05

# Structure and Content

The structure and content of this Master's Degree in Nutrition Special Populations in have been designed by The working Stand out professionals, who are part of the team of experts in Sports Nutrition of TECH. They have created unique teaching materials that live up to the highest expectations to shape a comprehensive, up-to-date and practical program. All this, based on the most efficient pedagogical methodology, TECH's Relearning.





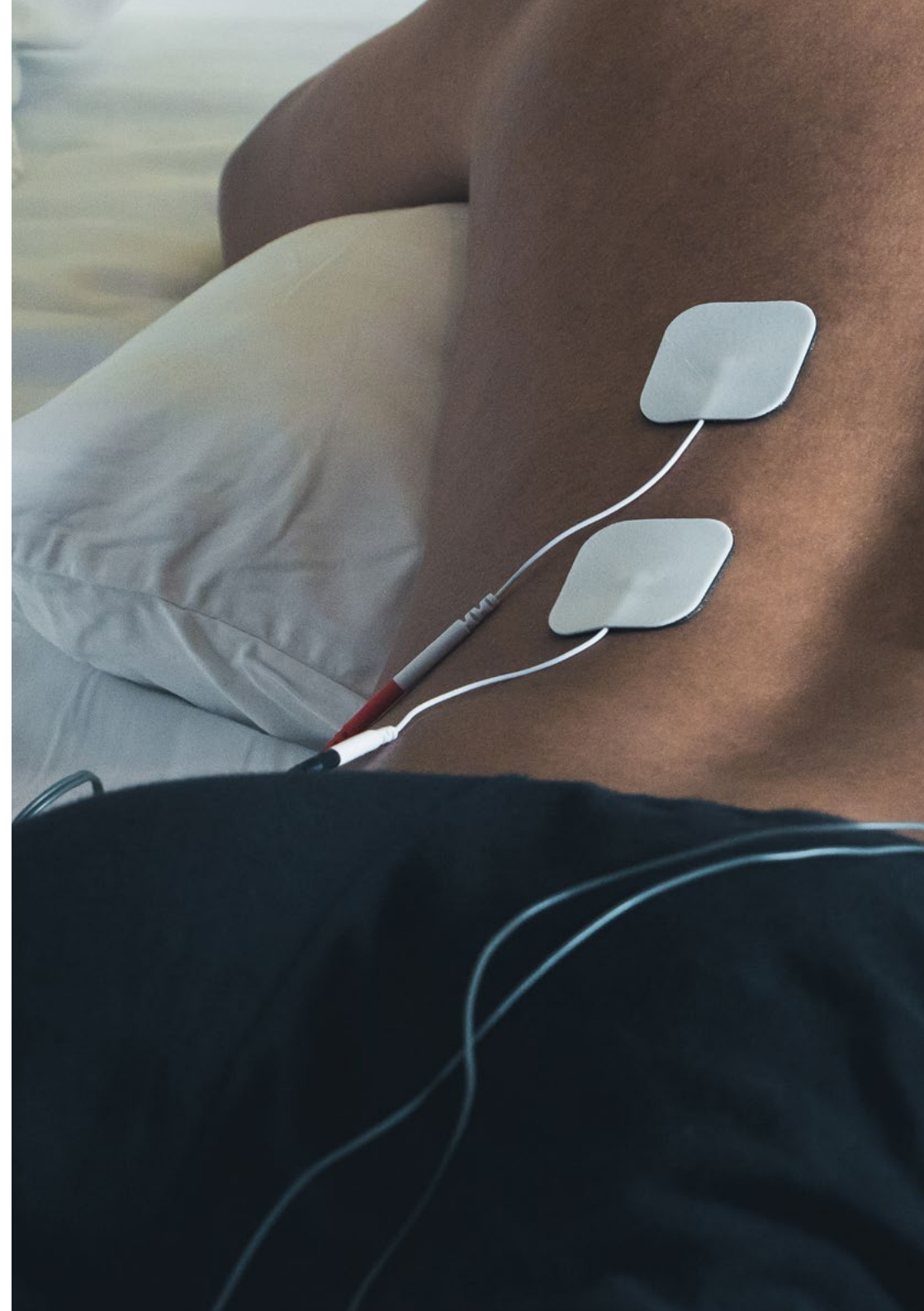
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*A study plan based on the most efficient pedagogical methodology, Relearning, which guarantees assimilate the natural and progressive of essential concepts”*



## Module 1. Muscle and Metabolic Physiology Associated with Exercise

- 1.1. Cardiovascular Adaptations Related to Exercise
  - 1.1.1. Increased Systolic Volume
  - 1.1.2. Decreased Heart Rate
- 1.2. Ventilatory Adaptations Related to Exercise
  - 1.2.1. Changes in the Ventilatory Volume
  - 1.2.2. Changes in Oxygen Consumption
- 1.3. Hormonal Adaptations Related to Exercise
  - 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 Fiber
  - 1.4.3. Type II Muscle Fibers
- 1.5. The 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 Determining the Use of One or Another Energy Source during Exercise





## Module 2. Evaluation of the Athlete 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. Assuring 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, European Cups and The Olympic Games)
- 2.7. Athlete Monitoring
  - 2.7.1. Basal Athlete Status
  - 2.7.2. Evolution during the Season
- 2.8. Sweat Rate Calculation
  - 2.8.1. Hydric Losses
  - 2.8.2. Calculation Protocol
- 2.9. Multidisciplinary Work
  - 2.9.1. The 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. Watersports

- 3.1. History of Watersports
  - 3.1.1. Olympics and Major Tournaments
  - 3.1.2. Watersports Today
- 3.2. Performance Limitations
  - 3.2.1. Aquatic Sports in the Water (Swimming, Water Polo, etc.)
  - Aquatic Sports on the Water (Surfing, Sailing, Canoeing, etc.)
- 3.3. The Basic Characteristics of Water Sports
  - 3.3.1. Aquatic Sports in the Water (Swimming, Water polo, etc.)
  - 3.3.2. Aquatic Sports on the Water (Surfing, Sailing, Canoeing, etc.)
- 3.4. Physiology from Aquatic Sports
  - 3.4.1. Energy Metabolism
  - 3.4.2. Athlete Biotype
- 3.5. Education
  - 3.5.1. Strength
  - 3.5.2. Resistance
- 3.6. Body composition
  - 3.6.1. Swimming
  - 3.6.2. Water polo
- 3.7. Precompetition
  - 3.7.1. 3 Hours Before
  - 3.7.2. 1 Hour Before
- 3.8. Per 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. The History of Sport in Extreme Conditions
  - 4.1.1. Winter Competitions throughout 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. Bulky Clothing
- 4.6. Basic Characteristics in Cold Climates
  - 4.6.1. Extreme Cold
  - 4.6.2. Reduced VO2 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 the History of Sport
  - 5.1.1. The Beginnings of Veganism in Sport
  - 5.1.2. Vegetarian Athletes Today
- 5.2. Different Types of Vegan Food
  - 5.2.1. The Vegan Athlete
  - 5.2.2. The Vegetarian Athlete
- 5.3. Common Errors in the Vegan Athlete
  - 5.3.1. Energy Balance
  - 5.3.2. Protein Consumption



- 5.4. Vitamin B12
  - 5.4.1. B12 Supplementation
  - 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. Omnivorous Diet
  - 5.8.1. Evolutionary Food
  - 5.8.2. Current Food
- 5.9. Ergogenic Aids
  - 5.9.1. Creatine
  - 5.9.2. Vegetable Protein
- 5.10. Factors that Decrease Nutrient Absorption
  - 5.10.1. High Fiber Intake
  - 5.10.2. Oxalates
- 6.4. Exercise in People with Type 2 Diabetes. Blood Sugar Control
  - 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 Insulins
- 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. Soccer
  - 6.9.2. Rugby
- 6.10. Sports Supplements and Diabetes
  - 6.10.1. Potentially Beneficial Supplements for Athletes with Diabetes

## Module 6. The Type 1 Diabetic Athlete

- 6.1. Knowing about Diabetes and its Pathology
  - 6.1.1. The Incidence of Diabetes
  - 6.1.2. Pathophysiology of Diabetes
  - 6.1.3. The 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. Differences in the Metabolic Level during Exercise in People with Diabetes
- 6.3. Exercise in People with Type 1 Diabetes
  - 6.3.1. Exercise in People with Type 1 Diabetes
  - 6.3.2. Exercise Duration and Carbohydrate Intake

## Module 7. Parathletes

- 7.1. Classification and Categories in Parathletes
  - 7.1.1. What is a Parathlete?
  - 7.1.2. How are Parathletes Classified?
- 7.2. Sports 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 Para Athletes According to 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 Para Athletes with Spinal Cord Injury and 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 Amputee Parathletes
  - 7.6.1. Energy Requirements
  - 7.6.2. Macronutrients
  - 7.6.3. Thermoregulation and Hydration
  - 7.6.4. Nutritional Issues Related to Prosthetics
- 7.7. Planning and Nutritional Problems in Para Athletes with Vision-Hearing Impairment and Intellectual Impairment
  - 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 and Phenylketonuria
- 7.8. Body Composition in Parathletes
  - 7.8.1. Measurement Techniques
  - 7.8.2. Factors Influencing the Reliability of Different Measurement Methods
- 7.9. Pharmacology and Nutrient Interactions
  - 7.9.1. Different Types of Drugs Taken by Parathletes
  - 7.9.2. Micronutrient Deficiencies in Parathletes
- 7.10. Ergogenic Aids
  - 7.10.1. Potentially Beneficial Supplements for Parathletes
  - 7.10.2. Adverse Effects on Health and 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. Regulation
  - 8.1.2. Categories
- 8.2. Programming of the Season
  - 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 from Mass Gain
  - 8.4.1. Body Fat Percentage
  - 8.4.2. Programming
- 8.5. Definition Stages
  - 8.5.1. Carbohydrates
  - 8.5.2. Protein
- 8.6. Precompetition
  - 8.6.1. Peak Week
  - 8.6.2. Before Weighing
- 8.7. Per 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 Population Groups**

- 9.1. Nutrition in the Female Athlete
  - 9.1.1. Limiting Factors
  - 9.1.2. Requirements
- 9.2. 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 the Pregnant Female Athlete
  - 9.4.1. Energy Requirements
  - 9.4.2. Micronutrients
- 9.5. The Effects of Physical Exercise on the Child Athlete
  - 9.5.1. Strength Training
  - 9.5.2. Endurance Training
- 9.6. Nutritional Education in the Child Athlete
  - 9.6.1. Sugar
  - 9.6.2. Eating Disorders
- 9.7. Nutritional Requirements in the Child Athlete
  - 9.7.1. Carbohydrates
  - 9.7.2. Proteins
- 9.8. Changes Associated with Aging
  - 9.8.1. Body Fat Percentage
  - 9.8.2. Muscle Mass
- 9.9. Main Problems in Older Athletes
  - 9.9.1. Joints
  - 9.9.2. Cardiovascular Health
- 9.10. Interesting Supplements for Older Athletes
  - 9.10.1. Whey Protein
  - 9.10.2. Creatine

**Module 10. The 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 Occurring during this Phase
  - 10.3.2. Return of Activity Phase
- 10.4. Energy Intake during the Period of Injury
- 10.5. Macronutrient Intake during the Period of Injury
  - 10.5.1. Carbohydrate Intake
  - 10.5.2. Fat Intake
  - 10.5.3. Protein Intake
- 10.6. Intake of Micronutrients of Special Interest during Injury
- 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. Tendon Structure
  - 10.8.2. Collagen, Gelatin and Vitamin C. Can they Help?
  - 10.8.3. Other Nutrients Involved in Collagen Synthesis
- 10.9. The Return to Competition
  - 10.9.1. Nutritional Considerations in the Return to Competition
- 10.10. Interesting Case Studies in Scientific Injury Literature

06

# Methodology

This specialization provides you with a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**

This teaching system is used 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.







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*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".*

## At TECH we use the Case Method

In a given clinical situation, what should a professional do? Throughout the program, they will be presented with multiple simulated clinical cases based on real patients, where they will have to investigate, establish hypotheses and, finally, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Physiotherapists/kinesiologists learn better, faster, and more sustainably over time.

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



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching potential or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions of professional physiotherapy practice.

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*Did you know that this method was developed in 1912 at Harvard for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method.*

The effectiveness of the method is justified by four fundamental achievements:

1. Physiotherapists/kinesiologists who follow this method not only grasp concepts, but also develop their mental capacity by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on practical skills that allow the physiotherapist/kinesiologist to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



## Relearning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Relearning.

Our University is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, which represent a real revolution with respect to simply studying and analyzing cases.



*The physiotherapist/kinesiologist will learn through real cases and by solving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.*



At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology we trained more than 65,000 physiotherapists/kinesiologists with unprecedented success, in all clinical specialties regardless of the workload. 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 education, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.*

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

The overall score obtained by our learning system is 8.01, according to the highest international standards.



In this program you will have access to the best educational material, prepared with you 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 really specific and precise.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



#### Physiotherapy Techniques and Procedures on Video

We introduce students to the latest techniques, the latest educational advances, and the forefront of physiotherapy and kinesiology procedures and techniques. All of this, first hand, and explained and detailed with precision to contribute to assimilation and a better understanding. And best of all, students can watch them as many times as they want.



#### Interactive Summaries

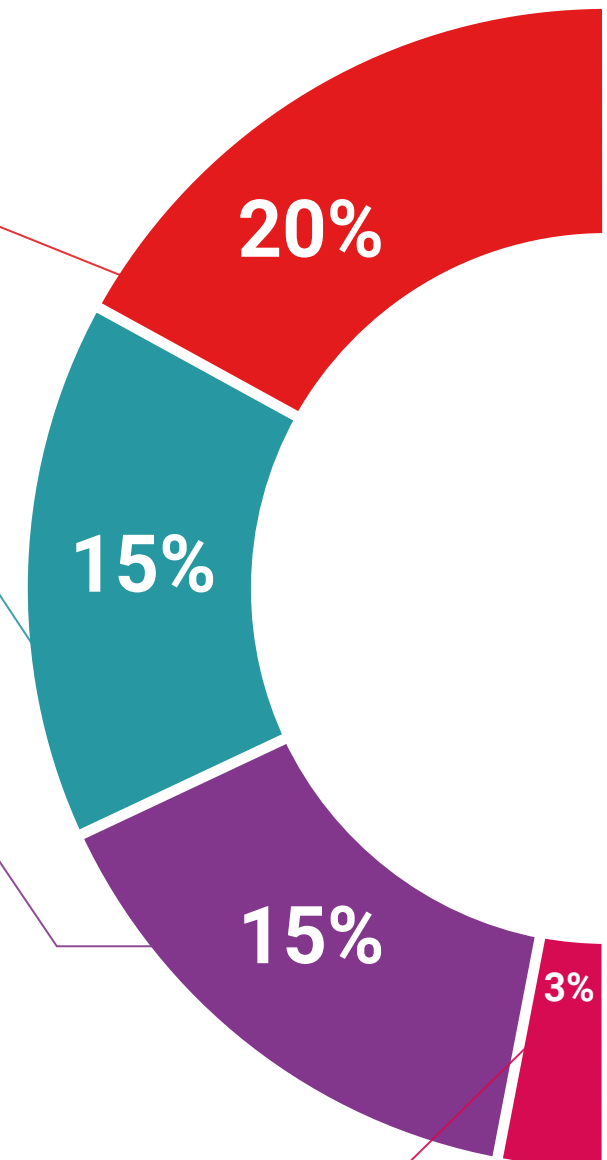
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

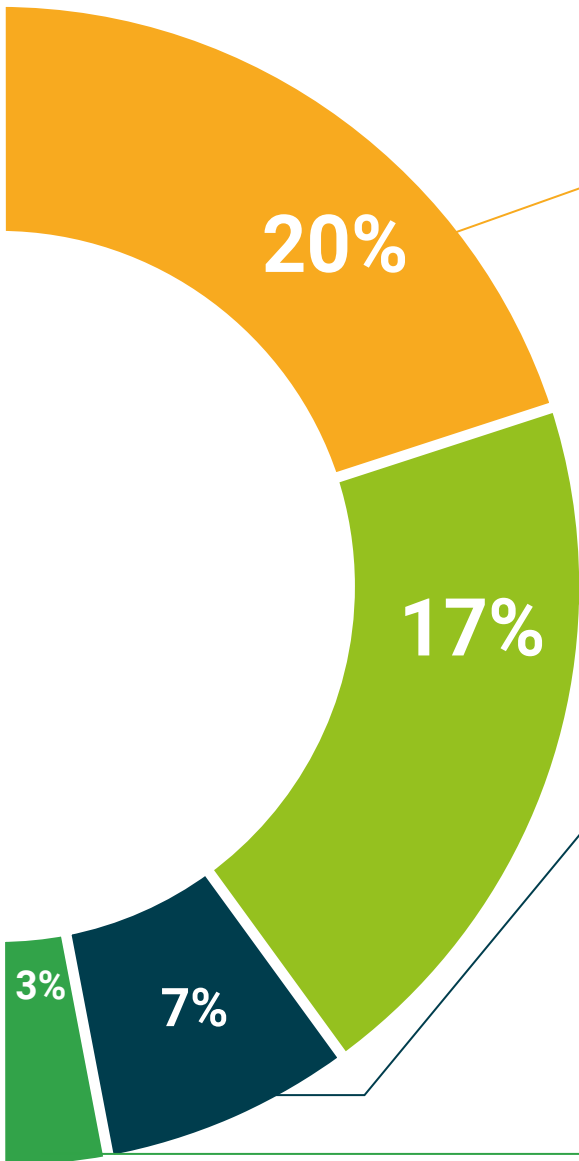
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### Additional Reading

Recent articles, consensus documents, international guides... in our virtual library, students will have access to everything they need to complete their course.





#### Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, we will present students with real case developments in which the expert will guide them through focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



#### Testing & Retesting

We periodically assess and re-assess your knowledge throughout the program, through assessment and self-assessment activities and exercises: so that you can see how you are achieving your goals.



#### 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 our future difficult decisions.



#### Quick Action Guides

We offer students the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.





# 07 Certificate

This Master's Degree in Sports Nutrition in Special Populations guarantees students, in addition to the most rigorous and up-to-date education, access to a Master's Degree issued by TECH Global University.





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

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

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

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

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

Modality: **online**

Duration: **12 months**

Accreditation: **60 ECTS**

**tech** global university

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

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

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

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

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana  
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: AFWOR0235 techtitle.com/certificates

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

Subject type	ECTS
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
1º	Muscle and Metabolic Physiology Associated with Exercise	6	CO
1º	Evaluation of the Athlete at Different Times of the Season	6	CO
1º	Watersports	6	CO
1º	Adverse Conditions	6	CO
1º	Vegetarianism and Veganism	6	CO
1º	The Type 1 Diabetic Athlete	6	CO
1º	Parathletes	6	CO
1º	Sports by Weight Category	6	CO
1º	Different Stages or Specific Population Groups	6	CO
1º	The Injury Period	6	CO

Dr. Pedro Navarro Illana  
Rector

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



## Master's Degree Sports Nutrition in Special Populations

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



# Master's Degree

## Sports Nutrition in Special Populations

Endorsed by the NBA

