

# Advanced Master's Degree Comprehensive Sports Nutrition

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## Advanced Master's Degree Comprehensive Sports Nutrition

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

Website: [www.techtute.com/us/nutrition/advanced-master-degree/advanced-master-degree-comprehensive-sports-nutrition](http://www.techtute.com/us/nutrition/advanced-master-degree/advanced-master-degree-comprehensive-sports-nutrition)

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# 01

# Introduction

Eating a proper diet is important for the entire population, but for athletes, especially those who perform intense physical activity, it is essential, since food is an essential source of energy for exercise. For this reason, many people seek the advice of specialized nutritionists to adapt their diets to their physical condition, so that they can achieve the best possible performance. Based on this premise, TECH has devised this complete program on Comprehensive Sports Nutrition, in which nutritionists will be able to acquire up-to-date information on the latest issues in this field, so that they can improve their understanding and, therefore, their advice to athletes.





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*Proper nutrition is essential when performing intense physical activity, which is why many athletes seek the services of nutritionists for better advice”*

Changes in society have encouraged the practice of sports in practically all age groups. Therefore, it is not surprising that more and more people decide to seek nutritional advice from professionals to improve their physical condition and avoid any possible risks when exercising. As a result, it is no longer only elite athletes who are concerned about following a proper diet to improve their performance, but people of all ages: young people, adults and even seniors, feel the need to turn to specialized nutritionists to guide them in the nutritional field, taking into account their physical condition and the exercise they do.

Therefore, nutritionists have found a new job opportunity in the sports field upon which to focus their knowledge, not only at the level of professional athletes, but also at an amateur level, having to obtain a higher level of qualification in order to deal with specific populations who have found physical exercise to be a good way to improve their health. For this reason, this Advanced Master's Degree at TECH offers nutritionists the most complete information on the subject, enabling them to obtain a superior specialization that will allow them to work with a large proportion of the population who are looking for specialists in this sector to help them improve their physical conditions.

Accordingly, the program provides a global vision of sports nutrition, while focusing on the most important and innovative aspects such as invisible training or proper diet for athletes, and nutrition before, during and after exercise. Additionally, it includes information related to professionals with different personal situations and who practice different sporting activities, specifying in each case the best dietary recommendations, with the objective that the nutritionist has comprehensive knowledge that allows them to adapt to each individual during their daily practice.

For this purpose, TECH proposes an innovative study method, in which practice is the key to effective learning. So, with this completely original methodology, professionals will have the opportunity to combine theoretical study with practical cases, in such a way that learning will be much more effective and efficient. And all this is in a 100% online format, which will allow students to study from anywhere in the world, without having to physically make unnecessary trips to a classroom, allowing them to self-manage their study time as they wish. A unique opportunity that will be indispensable for your professional development.

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

- ◆ The latest technology in online teaching software
- ◆ A highly visual teaching system, supported by graphic and schematic contents that are easy to assimilate and understand
- ◆ Practical case studies presented by practising experts
- ◆ State-of-the-art interactive video systems
- ◆ Teaching supported by remote education
- ◆ Continuous updating and retraining systems
- ◆ Autonomous learning: full compatibility with other occupations
- ◆ Practical exercises for self-evaluation and learning verification
- ◆ Support groups and educational synergies: questions to the expert, debate and knowledge forums
- ◆ 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



*Immerse yourself in the study of the latest concepts in sports nutrition and develop the ability to effectively advise your clients"*

“ *This program will enable you to acquire new skills and knowledge in a smooth and efficient manner*”

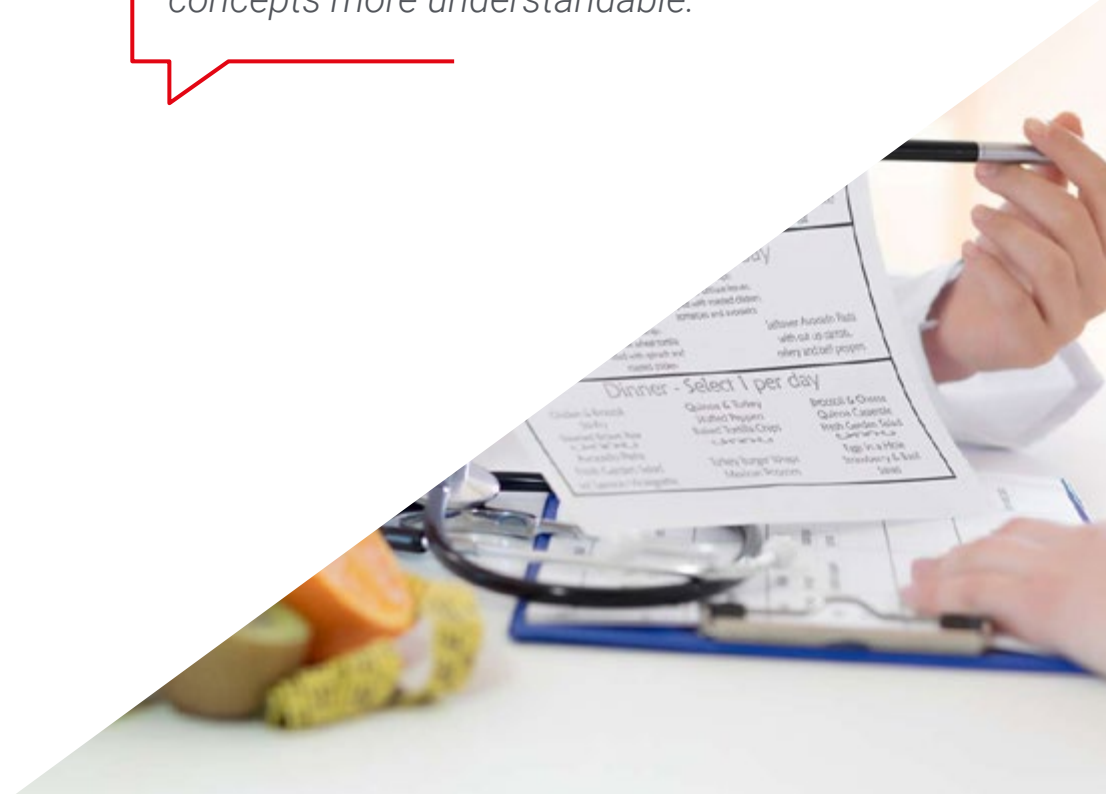
The teaching staff for this program is composed of practising professionals. This way, TECH can fulfill the objective of academic updating that it has set for itself. A multidisciplinary staff of experienced professionals from a variety of environments, who will develop theoretical knowledge in an efficient manner, but above all, will provide students with practical knowledge derived from their own experience.

This command of the subject is complemented by the effectiveness of the methodological design of this Advanced Master's Degree. As such, it was developed by a multidisciplinary team of e-learning experts and integrates the latest advances in educational technology, allowing students to study with a range of convenient and versatile multimedia tools that will give them the operational skills they need for their profession.

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, TECH will use telepractice. With the help of an innovative interactive video system and Learning from an Expert, students will be able to acquire the knowledge as if they were facing the scenario they are currently learning about. A concept that will allow students to integrate and memorize what they have learnt in a more realistic and permanent way.

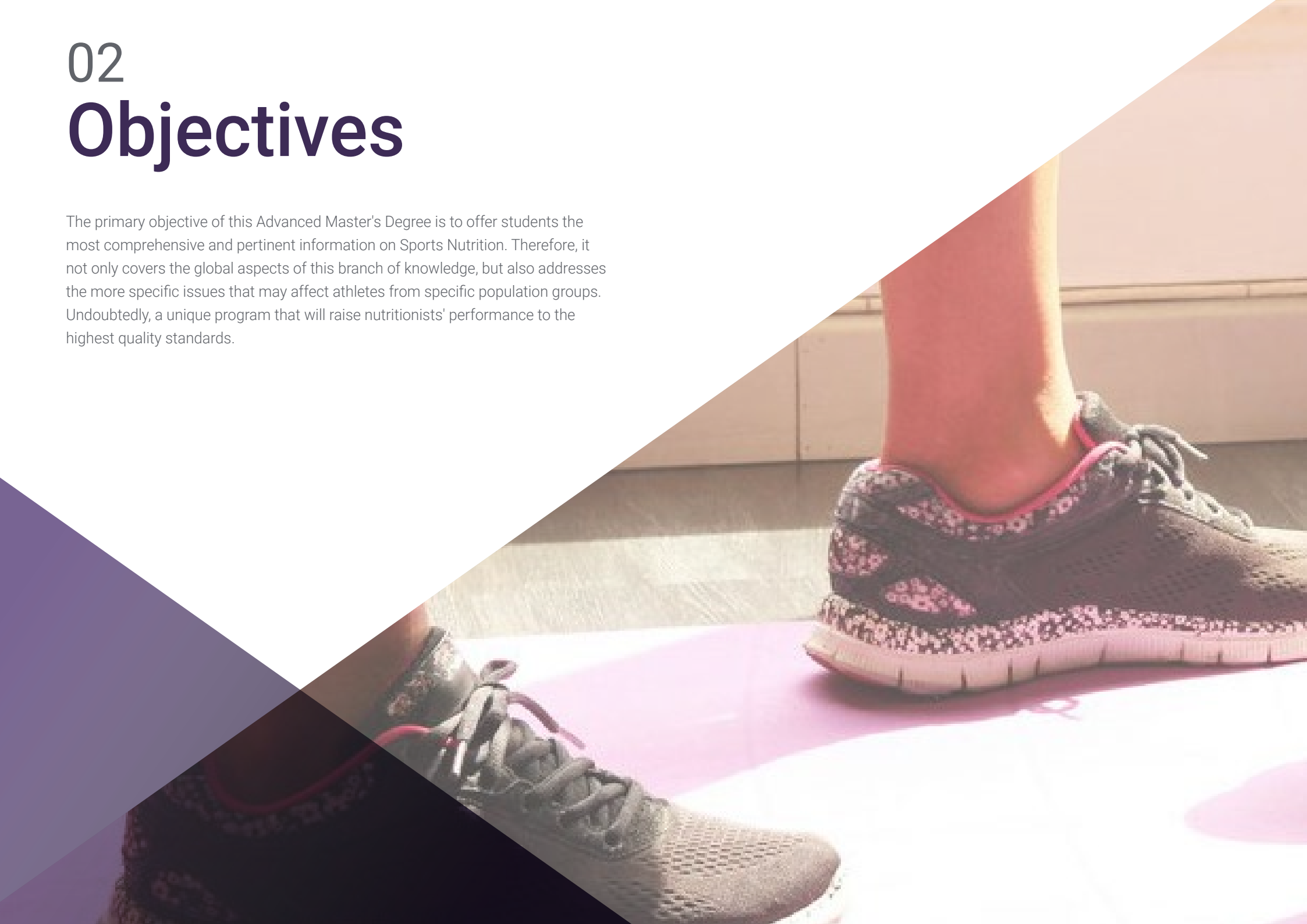
*This 100% online Advanced Master's Degree will allow you to combine your studies with your professional work while increasing your knowledge in this field.*

*TECH offers you the best teaching methodology and a variety of case studies that will make the theoretical concepts more understandable.*



# 02 Objectives

The primary objective of this Advanced Master's Degree is to offer students the most comprehensive and pertinent information on Sports Nutrition. Therefore, it not only covers the global aspects of this branch of knowledge, but also addresses the more specific issues that may affect athletes from specific population groups. Undoubtedly, a unique program that will raise nutritionists' performance to the highest quality standards.







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*If your goal is to improve your daily practice in the field of sports nutrition, this Advanced Master's Degree offers you everything you need”*



## General objectives

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- ◆ Update the professional's knowledge of new trends in human nutrition
- ◆ Promote work strategies based on the practical knowledge of the new trends in nutrition and their application to athletes
- ◆ Encourage the acquisition of technical skills and abilities, through a powerful audiovisual system, and the possibility of development through online simulation workshops and/or specific training
- ◆ Encourage professional stimulation through continuous education and research
- ◆ Educate the professional for research into patients with nutritional problems
- ◆ Handle advanced knowledge on nutritional planning in professional and non-professional athletes for the healthy performance of physical exercise
- ◆ Manage and consolidate the initiative and entrepreneurial spirit needed to launch projects related to nutrition in physical activity and sport
- ◆ 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
- ◆ Know how to incorporate the different scientific advances into one's own professional field
- ◆ Integrate the ability to work in a multidisciplinary environment
- ◆ Gain advanced understanding of the context in which their area of expertise is being 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 studying and learning in the field of sports nutrition, both through the contacts established with professors and professionals in the Advanced Master's Degree, as well as in an autonomous way
- ◆ Specialize in the structure of muscle tissue and its role in sports
- ◆ Know 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



## Specific objectives

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### Block 1. Nutrition in Physical Activity and Sport

- ◆ Analyze the different methods for assessing nutritional status
- ◆ Interpret and integrate anthropometric, clinical, biochemical, hematological, immunological, and pharmacological data in the patient's nutritional assessment and dietary-nutritional treatment
- ◆ Ensure early detection and evaluation of quantitative and qualitative deviations from the nutritional balance due to excess or deficiency
- ◆ Describe the composition and utilities of new foods
- ◆ Explain the different techniques and products of basic and advanced nutritional support related to the athlete's nutrition
- ◆ Explain the correct use of ergogenic aids
- ◆ Explain the current anti-doping regulations
- ◆ Identify psychological disorders related to the practice of sport and nutrition

### Block 2. Nutrition for Special Populations in Physical Activity and Sport

- ◆ Gain an in-depth understanding of the structure of skeletal muscle
- ◆ Understand in depth the functioning of skeletal muscle
- ◆ Deepen understanding of the most important changes that occur in athletes
- ◆ Delve into the mechanisms of energy production based on the type of exercise performed

- ◆ Further understanding of the interaction between the different energy systems that make up the muscle energy metabolism
- ◆ Interpret biochemical factors to detect nutritional deficits or overtraining states
- ◆ Interpret the different types of body composition in order to optimize the appropriate weight and fat percentage for the sport being practised
- ◆ Monitor the athlete throughout the season
- ◆ Plan seasonal schedules according to individual requirements
- ◆ Deepen understanding of the most important characteristics of the principal watersports
- ◆ Understand the demands and requirements associated with sports activities in aquatic environments
- ◆ Distinguish between the nutritional needs of different watersports
- ◆ Differentiate between the main performance limiting factors caused by climate
- ◆ Develop an acclimatization plan appropriate to the situation given
- ◆ Deepen understanding of the physiological changes caused by high altitude
- ◆ Establish the correct individual hydration guidelines according to the climate
- ◆ 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

- ◆ Establish the physiological and biochemical mechanism of diabetes both at rest and during exercise
  - ◆ Deepen 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
  - ◆ 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 performance enhancing drugs
  - ◆ 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
  - ◆ 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
  - ◆ 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



*Acquire advanced knowledge of nutrition, and apply the most appropriate diets for each athlete"*

# 03 Skills

Once all the contents have been studied and the objectives of the Advanced Master's Degree in Comprehensive Sports Nutrition have been achieved, the professional will have acquired the skills required to develop successfully in a sector that is in constant growth, since the popularization of practicing physical exercise in recent times has led more and more people to place their trust in professionals to adjust their diet to their sports practice. This program will undoubtedly represent a turning point in nutritionists' education.





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*Achieving excellence in any profession requires effort and perseverance. That is why TECH makes all its academic resources available to students to help them improve their competitiveness”*



## General skills

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- ◆ Apply new trends in nutrition in physical activity and sport to their patients
- ◆ Apply new trends in nutrition according to the individual's characteristics
- ◆ Investigate the nutritional problems of your patients

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*A highly comprehensive program that will help you to grow professionally in a sector that is increasingly in demand"*







## Specific skills

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### Block 1. Nutrition in Physical Activity and Sport

- ◆ Assess the athlete's nutritional status
- ◆ Identify users' nutritional problems and apply the most accurate treatments and diets in each case
- ◆ Know food compositions, identify their utilities and add them to diets.
- ◆ Know the anti-doping rules
- ◆ Seek help for patients with psychological disorders related to nutrition and the practice of sports
- ◆ Get up to date on food safety and be aware of potential food hazards
- ◆ Identify the benefits of the Mediterranean diet
- ◆ Identify athletes' energy needs and provide them with appropriate diets

### Block 2. Nutrition for Special Populations in Physical Activity and Sport

- ◆ Manage and consolidate the initiative and entrepreneurial spirit needed to launch 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
- ◆ Know 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 teaching staff of this Advanced Master's Degree in Comprehensive Sports Nutrition is made up of a team of professionals with extensive experience in research, teaching and consulting. People who have dedicated a considerable part of their lives to improving their knowledge and skills in this professional field, and who now bring together all their knowledge to help students grow in a sector that is increasingly in demand, so that the higher qualification will make the difference that will help them succeed in this field.



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*A high-level teaching team to help you improve your knowledge and skills in this field"*

## Management



### **Dr. Marhuenda Hernández, Javier**

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



### **Dr. Pérez de Ayala, Enrique**

- ♦ Head of the Sports Medicine Department at Policlínica Gipuzkoa
- ♦ Degree in Medicine from the Autonomous University of Barcelona
- ♦ Specialist in Physical Education and Sports Medicine
- ♦ Honorary Member of the AEMEF
- ♦ Former head of the Sports Medicine Department of the Real Sociedad de Fútbol

## Professors

### Ms. Aldalur Mancisidor, Ane

- ◆ Part of the dietetics office and the Basque Health Service
- ◆ Degree in Nursing
- ◆ Degree in Dietetics
- ◆ Expert in Eating Disorders and Sports Nutrition

### Ms. Ramírez Munuera, Marta

- ◆ Degree in Human Nutrition and Dietetics
- ◆ Professional Master's Degree in Nutrition in Physical Activity and Sport
- ◆ Anthropometrist ISAK level 1
- ◆ Extensive professional experience, both in the clinical and sports fields, where she works with athletes in triathlon, athletics, bodybuilding, CrossFit, powerlifting, among others, specializing in strength sports
- ◆ Experience as a instructor and speaker giving seminars, courses, workshops and conferences on Sports Nutrition for Dietitians-Nutritionists, Students of Health Sciences and the general population, in addition to a continuing education in nutrition and sport in international congresses, courses and conferences

### Ms. Montoya Castaño, Johana

- ◆ Nutritionist and Dietician from the University of Antioquia
- ◆ Master's Degree in Nutrition in Physical Activity and Sports from UCAM
- ◆ Sports Nutrition from the University of Barcelona
- ◆ Member of the DBSS Network, G-SE Y Research and Associates of the Exercise and Sport Nutrition Laboratory of the Health and Kinesiology, Texas A&M University

### Mr. Arcusa Saura, Raúl

- ◆ Degree in Human Nutrition and Dietetics
- ◆ Master's Degree in Nutrition in Physical Activity and Sport
- ◆ Anthropometrist ISAK level 1
- ◆ Currently a Doctoral student in the Department of Pharmacy of the UCAM, researching Nutrition and Oxidative Stress, in addition to his work as a Nutritionist in the Youth Team of C.D. Castellón
- ◆ Has experience of working with different soccer teams in the Valencian community, as well as extensive experience in face to face clinical consultation



*Experienced teachers have joined forces to enhance your expertise in this field"*

05

# Structure and Content

The structure and contents of this Advanced Master's Degree in Comprehensive Sports Nutrition have been designed taking into account the academic needs of nutrition professionals who are encountering more and more athletes in their practices who decide to consume diets adapted to their physical condition. For this reason, TECH has designed a comprehensive academic program, which shows the specific aspects of each type of athlete, including those with special characteristics.





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*Acquire advanced knowledge in sports nutrition thanks to this comprehensive program"*

## Block 1. Nutrition in Physical Activity and Sport

### Module 1. New Developments in Food

- 1.1. Molecular Foundations of Nutrition
- 1.2. Update on Food Composition
- 1.3. Food Composition Tables and Nutritional Databases
- 1.4. Phytochemicals and Non-Nutritive Compounds
- 1.5. New Food
  - 1.5.1. Functional Nutrients and Bioactive Compounds
  - 1.5.2. Probiotics, Prebiotics, and Synbiotics
  - 1.5.3. Quality and Design
- 1.6. Organic food
- 1.7. Transgenic Foods
- 1.8. Water as a Nutrient
- 1.9. Food Safety
  - 1.9.1. Physical Hazards
  - 1.9.2. Chemical Hazards
  - 1.9.3. Microbiological Hazards
- 1.10. New labeling and consumer information
- 1.11. Phytotherapy Applied to Nutritional Pathologies

### Module 2. Current Trends in Nutrition

- 2.1. Nutrigenetics
- 2.2. Nutrigenomics
  - 2.2.1. Fundamentals
  - 2.2.2. Methods
- 2.3. Immunonutrition
  - 2.3.1. Nutrition-Immunity Interactions
  - 2.3.2. Antioxidants and Immune Function
- 2.4. Physiological Regulation of Feeding. Appetite and Satiety
- 2.5. Psychology and Nutrition
- 2.6. Nutrition and Sleep
- 2.7. Update on Nutritional Objectives and Recommended Intakes
- 2.8. New Evidence on the Mediterranean Diet





**Module 3. Assessment of Nutritional Status and Diet. Practical Application**

- 3.1. Bioenergy and Nutrition
  - 3.1.1. Energy Needs
  - 3.1.2. Methods of Assessing Energy Expenditure
- 3.2. Assessment of Nutritional Status
  - 3.2.1. Body Composition Analysis
  - 3.2.2. Clinical Diagnosis. Symptoms and Signs
  - 3.2.3. Biochemical, Hematological and Immunological Methods
- 3.3. Intake Assessment
  - 3.3.1. Methods for Analyzing Food and Nutrient Intake
  - 3.3.2. Direct and Indirect Methods
- 3.4. Update on Nutritional Requirements and Recommended Intakes
- 3.5. Nutrition in a Healthy Adult. Objectives and Guidelines. Mediterranean Diet
- 3.6. Nutrition in Menopause
- 3.7. Nutrition in the Elderly

**Module 4. Sports Nutrition**

- 4.1. Physiology of Exercise
- 4.2. Physiological Adaptation to Different Types of Exercise
- 4.3. Metabolic Adaptation to Exercise. Regulation and Control
- 4.4. Assessing Athletes' Energy Needs and Nutritional Status
- 4.5. Assessing Athletes' Physical Ability
- 4.6. Nutrition in the Different Phases of Sports Practice
  - 4.6.1. Pre-Competition
  - 4.6.2. During
  - 4.6.3. Post-Competition
- 4.7. Hydration
  - 4.7.1. Regulation and Needs
  - 4.7.2. Types of Beverages
- 4.8. Dietary Planning Adapted to Different Sports
- 4.9. Ergogenic Aids and Current Anti-Doping Regulations
  - 4.9.1. AMA and AEPSAD Recommendations
- 4.10. Nutrition in Sports Injury Recovery

- 4.11. Psychological Disorders Related to Practising Sport
  - 4.11.1. Eating Disorders: Bigorexia, Orthorexia, Anorexia
  - 4.11.2. Fatigue Caused by Overtraining
  - 4.11.3. The Female Athlete Triad
- 4.12. The Role of the Coach in Sports Performance

**Block 2. Nutrition for Special Populations in Physical Activity and Sport****Module 5. Muscle and Metabolic Physiology Associated with Exercise**

- 5.1. Cardiovascular Adaptations Related to Exercise
  - 5.1.1. Increased Systolic Volume
  - 5.1.2. Decreased Heart Rate
- 5.2. Ventilatory Adaptations Related to Exercise
  - 5.2.1. Changes in the Ventilatory Volume
  - 5.2.2. Changes in Oxygen Consumption
- 5.3. Hormonal Adaptations Related to Exercise
  - 5.3.1. Cortisol
  - 5.3.2. Testosterone
- 5.4. Muscle Structure and Types of Muscle Fibers
  - 5.4.1. Muscle Fiber
  - 5.4.2. Type I Muscle Fibers
  - 5.4.3. Type II Muscle Fibers
- 5.5. The Concept of Lactic Threshold
- 5.6. ATP and Phosphagen Metabolism
  - 5.6.1. Metabolic Pathways for ATP Resynthesis during Exercise
  - 5.6.2. Phosphagen Metabolism
- 5.7. Carbohydrate Metabolism
  - 5.7.1. Carbohydrate Mobilization during Exercise
  - 5.7.2. Types of Glycolysis
- 5.8. Lipid Metabolism
  - 5.8.1. Lipolysis
  - 5.8.2. Fat Oxidation during Exercise
  - 5.8.3. Ketone Bodies

- 5.9. Protein Metabolism
  - 5.9.1. Ammonium Metabolism
  - 5.9.2. Amino Acid Oxidation
- 5.10. Mixed Bioenergetics of Muscle Fibers
  - 5.10.1. Energy Sources and their Relation to Exercise
  - 5.10.2. Factors Determining the Use of One or Another Energy Source during Exercise

### **Module 6. The Evaluation of the Athlete at Different Moments of the Season**

- 6.1. Biochemical Evaluation
  - 6.1.1. Blood count:
  - 6.1.2. Overtraining Markers
- 6.2. Anthropometric Evaluation
  - 6.2.1. Body Composition
  - 6.2.2. ISAK Profile
- 6.3. Preseason
  - 6.3.1. High Workload
  - 6.3.2. Assuring Caloric and Protein Intake
- 6.4. Competitive Season
  - 6.4.1. Sports Performance
  - 6.4.2. Recovery between Games
- 6.5. Transition Period
  - 6.5.1. Vacation Period
  - 6.5.2. Changes in Body Composition
- 6.6. Travel
  - 6.6.1. Tournaments during the Season
  - 6.6.2. Off-season Tournaments (World Cups, European Cups and The Olympic Games)
- 6.7. Athlete Monitoring
  - 6.7.1. Basal Athlete Status
  - 6.7.2. Evolution during the Season
- 6.8. Sweat Rate Calculation
  - 6.8.1. Hydric losses
  - 6.8.2. Calculation Protocol

- 6.9. Multidisciplinary Work
  - 6.9.1. The Role of the Nutritionist in the Athlete's Environment
  - 6.9.2. Communication with the Rest of the Areas
- 6.10. Doping
  - 6.10.1. WADA List
  - 6.10.2. Anti-doping Tests

### **Module 7. Watersports**

- 7.1. History of Watersports
  - 7.1.1. Olympics and Major Tournaments
  - 7.1.2. Watersports Today
- 7.2. Performance Limitations
  - 7.2.1. Aquatic Sports in the Water (Swimming, Water Polo, etc.)
  - 7.2.2. Aquatic Sports on the Water (Surfing, Sailing, Canoeing, etc.)
- 7.3. The Basic Characteristics of Water Sports
  - 7.3.1. Aquatic Sports in the Water (Swimming, Water polo, etc.)
  - 7.3.2. Aquatic Sports on the Water (Surfing, Sailing, Canoeing, etc.)-
- 7.4. Aquatic Sports Physiology
  - 7.4.1. Energy Metabolism
  - 7.4.2. Athlete Biotype
- 7.5. Training
  - 7.5.1. Strength
  - 7.5.2. Resistance
- 7.6. Body Composition
  - 7.6.1. Swimming
  - 7.6.2. Water Polo
- 7.7. Precompetition
  - 7.7.1. 3 Hours Before
  - 7.7.2. 1 Hour Before
- 7.8. Post-Competition
  - 7.8.1. Carbohydrates
  - 7.8.2. Hydration

- 7.9. Post-Competition
  - 7.9.1. Hydration
  - 7.9.2. Protein
- 7.10. Ergogenic Aids
  - 7.10.1. Creatine
  - 7.10.2. Caffeine

## Module 8. Adverse Conditions

- 8.1. The History of Sport in Extreme Conditions
  - 8.1.1. Winter Competitions throughout History
  - 8.1.2. Competitions in Hot Environments Today
- 8.2. Performance Limitations in Hot Climates
  - 8.2.1. Dehydration
  - 8.2.2. Fatigue
- 8.3. Basic Characteristics in Hot Climates
  - 8.3.1. High Temperature and Humidity
  - 8.3.2. Acclimatization
- 8.4. Nutrition and Hydration in Hot Climates
  - 8.4.1. Hydration and Electrolytes
  - 8.4.2. Carbohydrates
- 8.5. Performance Limitations in Cold Climates
  - 8.5.1. Fatigue
  - 8.5.2. Bulky Clothing
- 8.6. Basic Characteristics in Cold Climates
  - 8.6.1. Extreme Cold
  - 8.6.2. Reduced VO<sub>max</sub>
- 8.7. Nutrition and Hydration in Cold Climates
  - 8.7.1. Hydration
  - 8.7.2. Carbohydrates

## Module 9. Vegetarianism and Veganism

- 9.1. Vegetarianism and Veganism in the History of Sport
  - 9.1.1. The Beginnings of Veganism in Sport
  - 9.1.2. Vegetarian Athletes Today
- 9.2. Different Types of Vegan Food
  - 9.2.1. The Vegan Athlete
  - 9.2.2. The Vegetarian Athlete
- 9.3. Common Errors in the Vegan Athlete
  - 9.3.1. Energy Balance
  - 9.3.2. Protein Consumption
- 9.4. Vitamin B12
  - 9.4.1. B12 Supplementation
  - 9.4.2. Bioavailability of Spirulina Algae
- 9.5. Protein Sources in the Vegan/Vegetarian Diet
  - 9.5.1. Protein Quality
  - 9.5.2. Environmental Sustainability
- 9.6. Other Key Nutrients in Vegans
  - 9.6.1. Conversion of ALA to EPA/DHA
  - 9.6.2. Fe, Ca, Vitamin D and Zn
- 9.7. Biochemical Assessment/Nutritional Deficiencies
  - 9.7.1. Anaemia
  - 9.7.2. Sarcopenia
- 9.8. Vegan Diet vs. Omnivorous Diet
  - 9.8.1. Evolutionary Food
  - 9.8.2. Current Food
- 9.9. Ergogenic Aids
  - 9.9.1. Creatine
  - 9.9.2. Vegetable Protein
- 9.10. Factors that Decrease Nutrient Absorption
  - 9.10.1. High Fiber Intake
  - 9.10.2. Oxalates

## Module 10. The Type 1 Diabetic Athlete

- 10.1. Knowing about Diabetes and its Pathology
  - 10.1.1. The Incidence of Diabetes
  - 10.1.2. Pathophysiology of Diabetes
  - 10.1.3. The Consequences of Diabetes
- 10.2. Exercise Physiology in People with Diabetes
  - 10.2.1. Maximal, Submaximal Exercise and Muscle Metabolism during Exercise
  - 10.2.2. Differences in the Metabolic Level during Exercise in People with Diabetes
- 10.3. Exercise in People with Type 1 Diabetes
  - 10.3.1. Exercise in People with Type 1 Diabetes
  - 10.3.2. Exercise Duration and Carbohydrate Intake
- 10.4. Exercise in People with Type 2 Diabetes. Blood Sugar Control
  - 10.4.1. Risks of Physical Activity in People with Type 2 Diabetes
  - 10.4.2. Benefits of Exercise in People with Type 2 Diabetes
- 10.5. Exercise in Children and Adolescents with Diabetes
  - 10.5.1. Metabolic Effects of Exercise
  - 10.5.2. Precautions during Exercise
- 10.6. Insulin Therapy and Exercise
  - 10.6.1. Insulin Infusion Pump
  - 10.6.2. Types of Insulins
- 10.7. Nutritional Strategies during Sport and Exercise in Type 1 Diabetes
  - 10.7.1. From Theory to Practice
  - 10.7.2. Carbohydrate Intake Before, During and After Physical Exercise
  - 10.7.3. Hydration Before, During and After Physical Exercise
- 10.8. Nutritional Planning in Endurance Sports
  - 10.8.1. Marathon
  - 10.8.2. Cycling
- 10.9. Nutritional Planning in Team Sports
  - 10.9.1. Soccer
  - 10.9.2. Rugby
- 10.10. Sports Supplements and Diabetes
  - 10.10.1. Potentially Beneficial Supplements for Athletes with Diabetes

## Module 11. Para-Athletes

- 11.1. Classification and Categories in Para-Athletes
  - 11.1.1. What is a Para Athlete?
  - 11.1.2. How are Para Athletes Classified?
- 11.2. Sports Science in Para Athletes
  - 11.2.1. Metabolism and Physiology
  - 11.2.2. Biomechanics
  - 11.2.3. Psychology
- 11.3. Energy Requirements and Hydration in Para-Athletes
  - 11.3.1. Optimal Energy Demands for Training
  - 11.3.2. Hydration Planning before, during and after Training and Competitions
- 11.4. Nutritional Problems in the Different Categories of Para Athletes According to Pathology or Anomaly
  - 11.4.1. Spinal Cord Injuries
  - 11.4.2. Cerebral Palsy and Acquired Brain Injuries
  - 11.4.3. Amputees
  - 11.4.4. Vision and Hearing Impairment
  - 11.4.5. Intellectual Impairments
- 11.5. Nutritional Planning in Para Athletes with Spinal Cord Injury and Cerebral Palsy and Acquired Brain Injuries
  - 11.5.1. Nutritional Requirements (Macro and Micronutrients)
  - 11.5.2. Sweating and Fluid Replacement during Exercise
- 11.6. Nutritional Planning in Amputee Para Athletes
  - 11.6.1. Energy Requirements
  - 11.6.2. Macronutrients
  - 11.6.3. Thermoregulation and Hydration
  - 11.6.4. Nutritional Issues Related to Prosthetics
- 11.7. Planning and Nutritional Problems in Para Athletes with Vision-Hearing Impairment and Intellectual Impairment
  - 11.7.1. Sports Nutrition Problems with Visual Impairment: Retinitis Pigmentosa, Diabetic Retinopathy, Albinism, Stargardt's Disease and Hearing Pathologies
  - 11.7.2. Sports Nutrition Problems in Para-Athletes with Intellectual Deficiencies: Down Syndrome, Autism and Asperger's and Phenylketonuria

- 11.8. Body Composition in Para Athletes
  - 11.8.1. Measurement Techniques
  - 11.8.2. Factors Influencing the Reliability of Different Measurement Methods
- 11.9. Pharmacology and Nutrient Interactions
  - 11.9.1. Different Types of Drugs Taken by Para Athletes
  - 11.9.2. Micronutrient Deficiencies in Para Athletes
- 11.10. Ergogenic Aids
  - 11.10.1. Potentially Beneficial Supplements for Para Athletes
  - 11.10.2. Adverse Effects on Health and Contamination and Doping Problems Due to the Intake of Performance Enhancing drugs

## Module 12. Sports by Weight Category

- 12.1. Characteristics of the Main Sports by Weight Category
  - 12.1.1. Regulation
  - 12.1.2. Categories
- 12.2. Programming of the Season
  - 12.2.1. Competitions
  - 12.2.2. Macrocycle
- 12.3. Body composition
  - 12.3.1. Combat Sports
  - 12.3.2. Weightlifting
- 12.4. Stages of Muscle Mass Gain
  - 12.4.1. % Body Fat
  - 12.4.2. Programming
- 12.5. Definition Stages
  - 12.5.1. Carbohydrates
  - 12.5.2. Protein
- 12.6. Precompetition
  - 12.6.1. Peak Week
  - 12.6.2. Before Weighing
- 12.7. Precompetition
  - 12.7.1. Practical Applications
  - 12.7.2. Timing

- 12.8. Post-Competition
  - 12.8.1. Hydration
  - 12.8.2. Protein
- 12.9. Ergogenic Aids
  - 12.9.1. Creatine
  - 12.9.2. Whey Protein

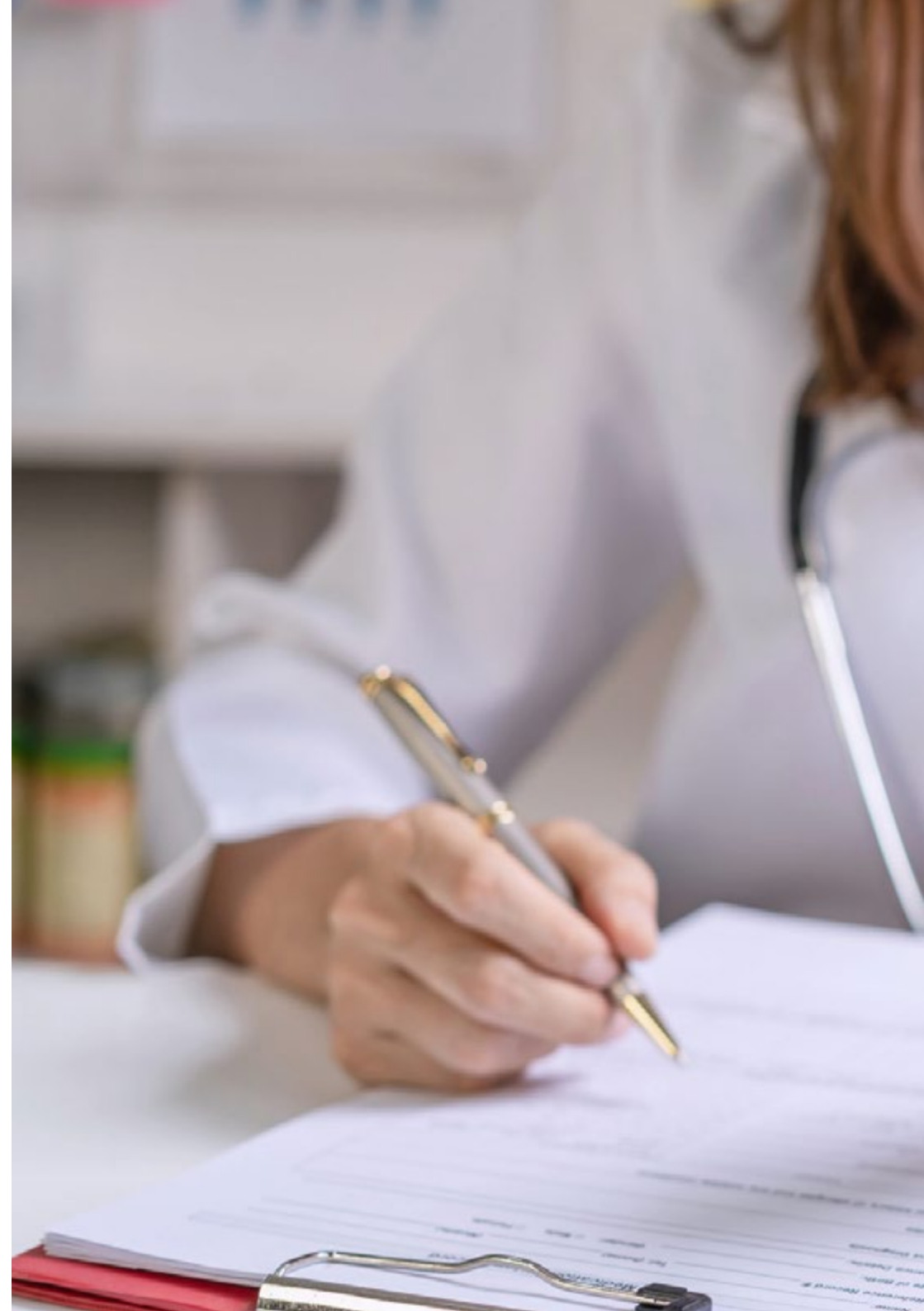
## Module 13. Different Stages or Specific Population Groups

- 13.1. Nutrition in the Female Athlete
  - 13.1.1. Limiting Factors
  - 13.1.2. Requirements
- 13.2. Menstrual Cycle
  - 13.2.1. The Luteal Phase
  - 13.2.2. Follicular Phase
- 13.3. Triad
  - 13.3.1. Amenorrhea
  - 13.3.2. Osteoporosis
- 13.4. Nutrition in the Pregnant Female Athlete
  - 13.4.1. Energy Requirements
  - 13.4.2. Micronutrients
- 13.5. The Effects of Physical Exercise on the Child Athlete
  - 13.5.1. Strength Training
  - 13.5.2. Endurance Training
- 13.6. Nutritional Education in the Child Athlete
  - 13.6.1. Sugar
  - 13.6.2. Eating Disorders
- 13.7. Nutritional Requirements in the Child Athlete
  - 13.7.1. Carbohydrates
  - 13.7.2. Proteins
- 13.8. Changes Associated with Aging
  - 13.8.1. % Body Fat
  - 13.8.2. Muscle Mass

- 13.9. Main Problems in the Older Athlete
  - 13.9.1. Joints
  - 13.9.2. Cardiovascular Health
- 13.10. Interesting Supplements for Older Athletes
  - 13.10.1. Whey Protein
  - 13.10.2. Creatine

## Module 14. The Injury Period

- 14.1. Introduction
- 14.2. Prevention of Injuries in Athletes
  - 14.2.1. Relative Energy Availability in Sport
  - 14.2.2. Oral Health and Injury Implications
  - 14.2.3. Fatigue, Nutrition and Injuries
  - 14.2.4. Sleep, Nutrition and Injuries
- 14.3. Phases of Injury
  - 14.3.1. Immobilization Phase. Inflammation and Changes Occurring during this Phase
  - 14.3.2. Return of Activity Phase
- 14.4. Energy Intake during the Period of Injury
- 14.5. Macronutrient Intake during the Period of Injury
  - 14.5.1. Carbohydrate Intake
  - 14.5.2. Fat Intake
  - 14.5.3. Protein Intake
- 14.6. Intake of Micronutrients of Special Interest during Injury
- 14.7. Sports Supplements with Evidence during the Period of Injury
  - 14.7.1. Creatine
  - 14.7.2. Omega 3
  - 14.7.3. Others
- 14.8. Tendon and Ligament Injuries
  - 14.8.1. Introduction to Tendon and Ligament Injuries. Tendon Structure
  - 14.8.2. Collagen, Gelatin and Vitamin C. Can they Help?
  - 14.8.3. Other Nutrients Involved in Collagen Synthesis
- 14.9. The Return to Competition
  - 14.9.1. Nutritional Considerations in the Return to Competition
- 14.10. Interesting Case Studies in Scientific Injury Literature





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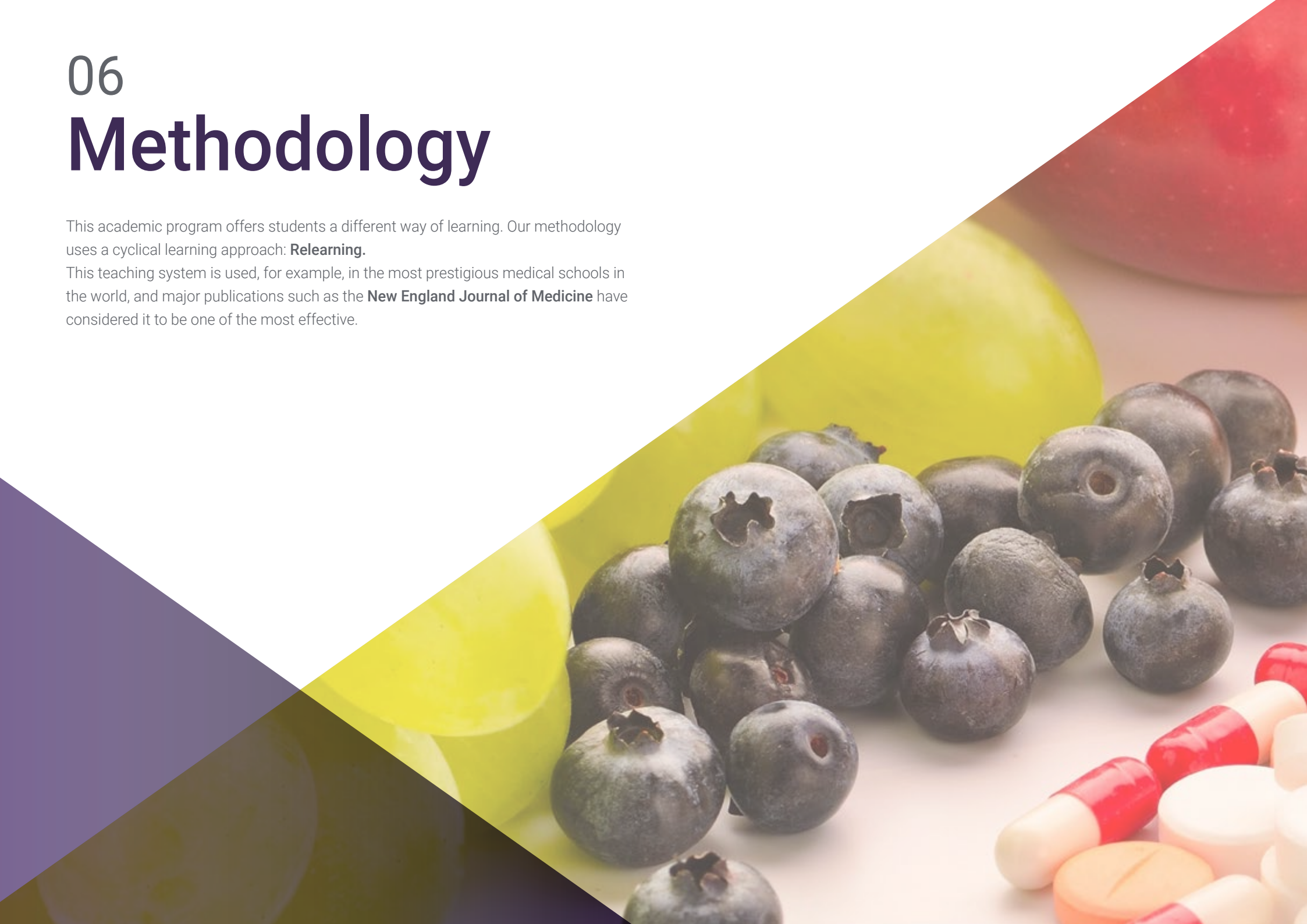
*An academic journey through the latest concepts in sports nutrition”*

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"*

## At TECH we use the Case Method

In a given situation, what should a professional do? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH, nutritionists 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 power 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 nutritional 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. Nutritionists who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity through exercises to evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the nutritionist to better integrate knowledge into clinical practice.
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 case method with the best 100% online teaching methodology available: Relearning.

This 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, a real revolution with respect to the mere study and analysis of cases.

*The nutritionist 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, more than 45,000 nutritionists have been trained with unprecedented success in all clinical specialties regardless of the surgical load. 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.*

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.

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



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.



#### Nutrition Techniques and Procedures on Video

TECH brings students closer to the latest techniques, the latest educational advances and to the forefront of current nutritional counselling techniques and procedures. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.



#### 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".



#### 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.





**Expert-Led Case Studies and Case Analysis**

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



**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.



**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.



**Quick Action Guides**

TECH offers 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

The Advanced Master's Degree in Comprehensive Sports Nutrition guarantees, in addition to the most rigorous and up-to-date education, access to a Advanced Master's Degree issued by TECH Technological University.





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*Successfully complete this program and receive your university diploma without travel or laborious paperwork”*

This **Advanced Master's Degree in Comprehensive Sports Nutrition** contains the most complete and up-to-date scientific program on the market.

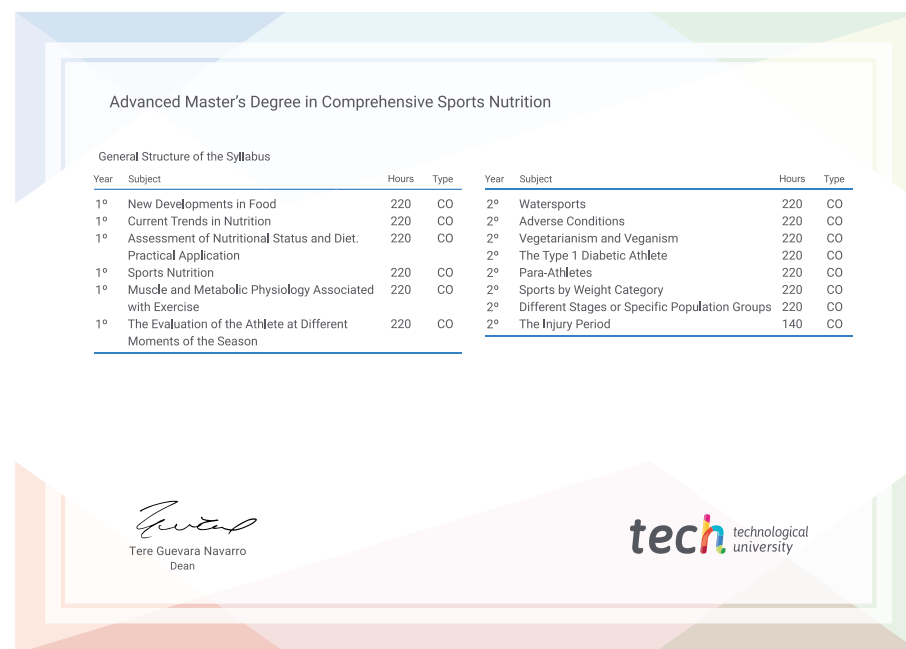
After the student has passed the assessments, they will receive their corresponding **Advanced Master's Degree** issued by **TECH Technological University** via tracked delivery\*.

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

Title: **Advanced Master's Degree in Comprehensive Sports Nutrition**

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

health confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

personalized service innovation

knowledge present quality

online training

development languages

virtual classroom

**tech** technological  
university

## Advanced Master's Degree

Comprehensive  
Sports Nutrition

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

# Advanced Master's Degree Comprehensive Sports Nutrition

Endorsed by the NBA



**tech** technological  
university