

# Professional Master's Degree

## Hyperbaric Medicine in Physical Activity and Sport

Endorsed by the NBA





## Professional Master's Degree Hyperbaric Medicine in Physical Activity and Sport

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

Website: [www.techtitute.com/us/sports-science/professional-master-degree/master-hyperbaric-medicine-physical-activity-sport](http://www.techtitute.com/us/sports-science/professional-master-degree/master-hyperbaric-medicine-physical-activity-sport)

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# 01

# Introduction

Athletes, and Sports Medicine by extension, have found in hyperbaric treatment a form of therapeutic intervention that combines efficiency and simplicity, resulting in highly successful results. In addition, more and more athletes are finding Hyperbaric Medicine treatment a coadjuvant factor in the healing of their physical injuries, so the training of Sports Science professionals in this field is crucial, as it will allow them to provide quality care through the benefits provided by this medical practice. In this sense, this program will make a deep approach to the use of Hyperbaric Medicine as a means to solve injuries caused by physical activity and sport. Thus, the professional of this branch will be much more prepared to make use of it and, therefore, will be much more competent within the sector.





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*A program of the highest educational level  
that will allow you to act with confidence and  
skill as an expert in this field”*

Although Hyperbaric Medicine is more than 200 years old, its multiple applications and indications are not known by many professionals of different specialties. The Professional Master's Degree in Hyperbaric Medicine in Physical Activity and Sport will allow the professional to deepen in the use of hyperbaric chambers as a means to heal injuries caused by sports activity. Likewise, this training will provide you with the skills to handle Hyperbaric Medicine chambers directly applied to any type of pathology that has its origin in physical exercise. The program develops a solid and up-to-date training in hyperbaric oxygen therapy, which will allow the sports professional to develop the competencies and skills necessary to identify and adequately solve different cases of pathologies or therapeutic practices for which hyperbaric oxygenation can be effective and efficient.

Its broad approach from different medical specialties allows the sports professional to consider the incorporation of this therapeutic tool in different applications and to optimize the treatments offered based on the fundamentals and effects of HBOT.

Modern concepts of Hyperbaric Medicine are developed through the experience of the different teachers in HBOT, all the while considering the current reality of the specialty. The applications and limitations of the hyperbaric chambers for lower treatment pressures are presented in this course, as well as the concepts of traditional Hyperbaric Medicine and the basic concepts of underwater pathologies. All this, correctly adapted and prepared so that the sports professional can apply it in his daily practice.

The expansion of HBOT using lower treatment pressures has wider applications, can be implemented by any Sports Science professional with the appropriate training and is adapted to the use of hyperbaric chambers with greater accessibility and safety for the patient and chamber technician.

The online presentation of this subject, with theoretical content, online videos on specific topics, interactive classes, presentation of clinical cases and tutored self-assessment questionnaires make this Professional Master's Degree unique within the sports specialty.

The objective is for the sports science professional to recognize the benefits of hyperbaric chamber treatment for pathologies of diverse origin, to know the limitations and applications of the different chambers existing in the current market, to detect the contraindications of this treatment and to be able to evaluate the response to it based on the effects reported in the literature. In addition, knowledge of the rationale and therapeutic effects in depth will allow the practitioner to develop clinical studies or case studies to define and discover new future applications of HBOT. Thus, the specialist will have the capabilities to actively participate in the use and expansion of the specialty in the field of Sports Sciences.

This **Professional Master's Degree in Hyperbaric Medicine in Physical Activity and Sport** 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 Hyperbaric Medicine in Physical Activity and Sport
- ◆ The graphic, schematic, and eminently practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ◆ New developments in Hyperbaric Medicine in Physical Activity and Sport
- ◆ Practical exercises where the self-assessment process can be carried out to improve learning
- ◆ Its special emphasis on innovative methodologies in Hyperbaric Medicine in Physical Activity and Sport
- ◆ 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



*A highly interesting occasion for the professional that will propel you to the highest level of competitiveness"*





*This Professional Master's Degree is the best investment you can make, as it will allow you to grow within the profession while continuing with the rest of your daily activities"*

Its teaching staff includes professionals belonging to the field of Hyperbaric Medicine in Physical Activity and Sport, who bring to this training the experience of their work, as well as recognized specialists from prestigious reference societies and 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 specialist must try to solve the different professional practice situations that arise during the academic year. For this purpose, the professional will be assisted by an innovative interactive video system developed by renowned experts with extensive experience in Hyperbaric Medicine in Physical Activity and Sport.

*This training comes with the best didactic material, providing you with a contextual approach that will facilitate your learning.*

*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 Professional Master's Degree in Hyperbaric Medicine in Physical Activity and Sport is oriented to train in the fundamentals and applications of hyperbaric oxygenation treatment especially for those cases where the injury or pathology has its origin in physical activity. Thus, knowing in depth its application and methodology, the sports professional will be able to apply this type of treatment in his daily praxis, improving considerably his competences and skills in this area.







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*Our goal is to provide you with the best training so that you can grow within the profession"*



## General Objectives

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- ◆ Promote the usefulness of hyperbaric oxygenation treatment in different medical specialties
- ◆ Train health professionals in the fundamentals, mechanism of action, indications, contraindications and applications of hyperbaric oxygen
- ◆ Disseminate the degree of evidence published and the recommendations and indications of the different scientific societies related to Hyperbaric Medicine in Physical Activity and Sport
- ◆ Recognise the potential applications of hyperbaric oxygen in different clinical cases and the benefits that can be achieved with the treatment, as well as performing the indication and detection of the contraindications





## Specific Objectives

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- ◆ Introduce the world history of Hyperbaric Medicine, the operation and differences in the types of hyperbaric chambers that exist today
- ◆ Describe the current state of new indications and applications based on the development of evidence, the evolution of the different models and types of hyperbaric chambers, and the origin of scientific societies related to the specialty
- ◆ Develop the concept of oxygen toxicity, contraindications and adverse effects related to the discoveries of its mechanism of action (e.g. Bert effect)
- ◆ Present the new concept of Hyperbaric Medicine in Physical Activity and Sport that includes treatment with lower pressures, its indications, limitations and potential future applications
- ◆ Training on the basis of Hyperbaric Oxygenation Treatment (HBOT) and mechanisms used to achieve hyperoxia
- ◆ Present the intervening physical laws and the Krogh mathematical model which substantiates the effect of the treatment at different pressures
- ◆ Describe the differences between the volumetric and solumetric effect of HBOT and its limitations in the treatment of different diseases
- ◆ Present the types of hypoxia described and the scenarios of hypoxia-related disorders in different pathologies
- ◆ Training on the effects of hyperoxia on a mitochondrial level and the physiological benefits it triggers
- ◆ Describe the importance of mitochondrial reactivation with HBOT and its potential effect on different related pathologies with mitochondrial dysfunction

- ◆ Present the physiological effects that are triggered with HBOT and the production of reactive oxygen species
- ◆ Relate these physiological effects with different indications of HBOT
- ◆ Training in the analysis of different clinical cases which can benefit from the therapeutic effects of HBOT
- ◆ Present the scientific evidence of HBOT on different types of complex wounds and burns
- ◆ Training in the role of HBOT in wound healing process
- ◆ Up-to-date information on the evidence of the physiological therapeutic effects of HBOT on wound healing and medium pressure
- ◆ Demonstrate the experience in these applications with a presentation of clinical cases
- ◆ Describe the effect and scientific evidence of HBOT on altitude sickness
- ◆ Demonstrate the mechanism of hyperbaric oxygen on analgesia and experimental evidence
- ◆ Training on the application of HBOT in rheumatic diseases and neurosensitive syndromes
- ◆ Discuss the possible application in the prevention of metabolic pathologies, with an inflammatory component or ischemia-reperfusion injury
- ◆ Present the experience of HBOT in clinical cases of chronic pain, intoxications and clinical medicine
- ◆ Present the scientific evidence on the neurological indications of HBOT
- ◆ Describe the effect of HBOT on physical rehabilitation
- ◆ Training on the indications of HBOT in sporting injuries and trauma pathologies
- ◆ Describe the effect of HBOT on recovery and performance in sport
- ◆ Discuss the role of hypoxia in the development of neurodegenerative diseases and present the evidence of HBOT on Parkinsons and Alzheimers
- ◆ Present the experience of clinical cases treated with HBOT
- ◆ Describe the applications and experience in cases of clinical oncology
- ◆ Present the scientific evidence on the use of HBOT as a coadjuvant of oncological treatment
- ◆ Describe the effects of HBOT on the different radiotoxicities
- ◆ Training in the oncological safety of HBOT (angiogenesis and tumor growth)
- ◆ Present the experimental evidence of the safety and efficiency of HBOT in oncologic pathology
- ◆ Present the evidence and the application of HBOT in intoxication from gases
- ◆ Discuss the indication of HBOT in pressures lower than those described in the literature, considering the importance of speed in establishing HBOT in the case of carbon monoxide poisoning
- ◆ Present evidence on intoxication and injuries from venomous animal bites (Loxoscelism, snake bites)





- ◆ Present the scientific evidence on decompression sickness in divers
- ◆ Introduce the concept of dysbaric pathologies and Underwater Medicine
- ◆ Discuss the need for the volumetric effect of HBOT and the use of high-pressure chambers
- ◆ Describe the evidence of the effect of HBOT in iatrogenic embolism
- ◆ Introduce the concepts of work safety with high pressure chambers
- ◆ Present the requirements and regulations for the installation of the different hyperbaric chambers
- ◆ Training on the valid indications of HBOT for the different societies of Hyperbaric Medicine in Physical Activity and Sport and the emerging indications based on the physiological therapeutic effects of HBOT
- ◆ Describe the adverse events that are expected from HBOT with different treatment pressures
- ◆ Present the contraindications of HBOT
- ◆ Discuss different clinical cases based on the integration of validated applications and the potential future applications of HBOT



# 03 Skills

After passing the assessments on the Professional Master's Degree in Hyperbaric Medicine in Physical Activity and Sport, the professional will have acquired the necessary skills for a quality up-to-date practice based on the most innovative teaching methodology. All this will allow you to apply hyperbaric oxygen therapy successfully and to know all the benefits that it can provide in the treatment of specific cases where the pathology and/or injury have been caused by physical activity or sport. Thus, after completing the Professional Master's Degree, the professional will be an expert in the field, prepared to work successfully in different scenarios.



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*At the end of the program, you will have the necessary skills to decide the cases in which the use of Hyperbaric Medicine is correctly indicated and, therefore, become a much more sought-after Sports Science professional"*



## General Skills

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- ◆ Identify and resolve cases of pathologies caused by sports in which hyperbaric oxygenation treatments can reduce mortality and morbidity, or considerably improve the patient's quality of life
- ◆ Recognize the benefits of hyperbaric chamber treatment for pathologies of sports origin
- ◆ Actively participate in the use and expansion of the specialty in the field of sports



*Take the step and join one of the largest online universities in the world"*





## Specific Skills

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- ◆ Recognise the different hyperbaric chambers which have existed throughout history
- ◆ Identify the origin of the scientific societies of this speciality
- ◆ Recognise the adverse effects of the treatments and know how to deal with them
- ◆ Know how to apply Hyperbaric Oxygenation Treatment (HBOT)
- ◆ Identify the disorders associated with hypoxia and know how to deal with them
- ◆ Know in detail the physiological therapeutic effects caused by the generation of hyperoxia
- ◆ Develop the critical sense to understand the mechanisms of action in different proven and potential clinical applications
- ◆ Be able to identify the effects of HBOT that intervene in wound healing
- ◆ Know the new treatment alternatives in the different types of wounds
- ◆ Know the fundamentals of the driving mechanism of hyperbaric oxygen in pain
- ◆ Know how to apply hyperbaric oxygen in different pathologies which come with chronic pain and thus improve the patient's quality of life
- ◆ Know the basis of the contribution of hyperbaric oxygen in the improvement of neuroplasticity in different cases of neurological rehabilitation
- ◆ Be capable of using hyperbaric oxygen for injury recovery and for improving performance in sport, following the optimal conditions for establishing the treatment
- ◆ Know the evidence, experience and future indications of the application of HBOT in clinical oncology
- ◆ Understand the role of HBOT in improving the oncology patient's quality of life and in managing radio induced lesions
- ◆ Know how to apply the driving mechanism of hyperbaric oxygen in the intoxication of gases
- ◆ Know the treatment options currently available on the market and their applications and limitations in the rapid onset of acute intoxication
- ◆ Use hyperbaric oxygen for the recovery of neurological lesions post intoxication
- ◆ Know in depth about Underwater Medicine and the need for high pressure chamber treatment in dysbaric pathologies
- ◆ Understand work safety in hyperbaric chamber procedures
- ◆ Know the legal requirements necessary for the implementation of hyperbaric chambers
- ◆ Integrate the concepts related to Hyperbaric Medicine in Physical Activity and Sport
- ◆ Know in detail the respective approved indications
- ◆ Be capable of applying the concepts of the physiological effects of HBOT on different pathologies
- ◆ Perform indications in different clinical cases, evaluate the contraindications and make decisions in response to the different adverse effects that can occur during treatment



# 04

# Course Management

The program includes in its teaching staff reference experts in Hyperbaric Medicine, who pour into this training the experience of their work with the aim of learning to use hyperbaric therapy as a means to provide solutions to pathologies and injuries arising from sport and physical activity. Additionally, other recognized specialists participate in its design and preparation, which means that the program is developed in an interdisciplinary manner. All this will enable you to acquire the ideal transversal knowledge to be able to apply this type of treatment in different scenarios.





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*A unique opportunity to learn from the best professionals in Hyperbaric Medicine and expand your skills as a sports professional"*

## Management



### **Dr. Cannellotto, Mariana**

- ◆ Specialist in Clinical Medicine. 2006
- ◆ Specialist in Hyperbaric Medicine, School of Medicine. 2009
- ◆ Vice President of AAMHEI
- ◆ Medical Director of the network of Hyperbaric Medicine centers BioBarica Argentina.



### **Dr. Jordá Vargas, Liliana**

- ◆ Degree in Biochemistry. National University of Córdoba, Argentina. (1992-1997)
- ◆ Microbiology Specialist
- ◆ Head of Microbiology, CRAI North, Cucaiba, Argentina
- ◆ Scientific Director of the Argentine-Spanish Association of Hyperbaric Medicine and Research (AAMHEI and AEMHEI) (Since 2018).
- ◆ Scientific Director-BioBarica Clinical Research. International Network of BioBaric Hyperbaric Medicine Centers. (Since 2017)

## Professors

### Dr. Fraga Emilia, Pilar María

- ◆ FINES Teacher
- ◆ AAMHEI Pedagogical Assistant

### Dr. López Jiménez, Elías

- ◆ President of AEMHEI (Spanish Association of Hyperbaric Medicine and Research).
- ◆ Radiation Oncologist and specialist in Hyperbaric Medicine
- ◆ Degree in Medicine, Complutense University of Madrid (1993-1999)
- ◆ Specialist in Radiotherapeutic Oncology via RMI, La Princesa Hospital, Madrid (2000- 2004)
- ◆ Specialized Training in Hyperbaric and Underwater Medicine by the University of Cadiz (2019)
- ◆ Head Physician, Hyperbaric Medicine Unit, La Milagrosa Hospital and Santa Elena Clinic, Madrid

### Dr. Navarro Viltre, Bárbara Ivonne

- ◆ Deputy of the Emergency Department of the General Hospital of Catalonia
- ◆ Specialist in Family and Community Medicine Via MIR
- ◆ Head of the Hyperbaric Medicine in Physical Activity and Sport Unit at the Hospital of Cataluña.

### Dr. Ramallo, Rubén Leonardo

- ◆ Medical Surgeon Faculty of Medical Sciences. National University of Córdoba. Argentina
- ◆ Specialist in Internal Medicine. Residency in Internal Medicine, Córdoba Hospital
- ◆ Master's Degree in Psychoimmunoneuroendocrinology. 2015-2016. Favaloro University
- ◆ Director of the AAMHEI Medical Clinic Commission

### Dr. Romero-Feris, María Delfina

- ◆ President of AEMHEI
- ◆ Biobaric Medical Director Spain

### Dr. Verdini, Fabrizio

- ◆ Clinical Doctor
- ◆ Diploma in Public Health Management
- ◆ Master's Degree in Healthcare Management
- ◆ Institutional Relations AAMHEI

# 05

## Structure and Content

The structure of the contents has been designed by the best professionals in the field of Hyperbaric Medicine, with an extensive experience and recognized prestige in the profession, backed by the volume of cases reviewed, studied and diagnosed, and with extensive knowledge of new technologies applied to Hyperbaric Medicine. This professional team, fully aware of the importance of this type of therapy for the recovery of sports injuries, has created this complete program that will provide you with the necessary tools to apply Hyperbaric Medicine successfully in your profession.





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*A complete and up-to-date program that will give you the professional boost your training needs”*



## Module 1. Introduction to Hyperbaric Medicine in Physical Activity and Sport

- 1.1. History of the Hyperbaric Medicine in Physical Activity and Sport
- 1.2. First Hyperbaric Chambers
- 1.3. Discovery of Oxygen
- 1.4. Scientific Period of Hyperbaric Medicine in Physical Activity and Sport
- 1.5. Types of Hyperbaric Chambers Revitalair Technology Chambers
- 1.6. Technical and Therapeutic Safety of the New Generation Hyperbaric Chambers
- 1.7. Hyperbaric Medicine Societies in Physical Activity and Sport in the World and the Evolution of the Indications
- 1.8. Introduction to the Basis of Hyperbaric Oxygenation
- 1.9. Introduction to the Adverse Effects and Contraindications
- 1.10. Current Concept of Hyperbaric Oxygenation Treatment Medium Pressure, Micro pressure and Hyperbaria

## Module 2. Basis of Hyperbaric Oxygenation Treatment (HBOT)

- 2.1. Physiological Bases of HBOT
- 2.2. Dalton, Henry, Boyle and Mariotte Physical Laws
- 2.3. Physical and Mathematical Bases of the Diffusion of Oxygen within Tissue in the Different Treatment Pressures. Krogh Model
- 2.4. Physiology of Oxygen
- 2.5. Physiology of Respiration
- 2.6. Volumetric and Solumetric Effect
- 2.7. Hypoxia Types of Hypoxia
- 2.8. Hyperoxia and Treatment Pressure
- 2.9. Hyperoxia Effective in Wound Healing
- 2.10. Bases of the Intermittent Hyperoxia Model



**Module 3. Physiological Therapeutic Effects of HBOT**

- 3.1. Introduction to the Physiological Therapeutic Effects
- 3.2. Vasoconstriction
  - 3.2.1. Robin Hood Effect
  - 3.2.2. Effect of HBOT on Blood Pressure and Heart Rate
- 3.3. Stem Cells and Oxygen
  - 3.3.1. Liberation of Stem Cells with HBOT
  - 3.3.2. Importance of Stem Cells on Wound Healing
  - 3.3.3. Oxygen in the Differentiation of Stem Cells
- 3.4. Oxygen in the Synthesis of Collagen
  - 3.4.1. Synthesis and Types of Collagen
  - 3.4.2. Oxygen in the Synthesis and Maturing of Collagen
  - 3.4.3. HBOT and Collagen in Healing
- 3.5. Angiogenesis and Vasculogenesis
  - 3.5.1. Degenerative Angiogenesis and Hyperbaric Oxygen
- 3.6. Osteogenesis
  - 3.6.1. HBOT and Osteogenesis and Bone Resorption
- 3.7. Mitochondrial Function, Inflammation and Oxidative Stress
  - 3.7.1. Mitochondrial Dysfunction in the Pathogenesis of Different Pathologies
  - 3.7.2. HBOT and Mitochondrial Function
- 3.8. Oxidative Stress and Hyperbaric Oxygen
  - 3.8.1. Oxidative Stress in Different Pathologies
  - 3.8.2. Oxidative Stress in Hyperbaric Oxygen
- 3.9. Anti-inflammatory Effect in Hyperbaric Oxygen
  - 3.9.1. Hyperbaric Oxygen and Inflammation
- 3.10. Antimicrobial Effect in Hyperbaric Oxygen
  - 3.10.1. Bacterial Effect of Oxygen
  - 3.10.2. Hyperbaric Oxygen and Biofilm
  - 3.10.3. Hyperbaric Oxygen and the Immune Response
- 3.11. Oxygen and Neurone Function
  - 3.11.1. Oxygen and Peripheral Axonal Regeneration
  - 3.11.2. Oxygen and Neuroplasticity

**Module 4. HBOT in Wound Healing Process and Infectious Pathology**

- 4.1. HBOT in Healing Physiology
- 4.2. Medium Pressure and Wound Healing
  - 4.2.1. Effective Angiogenesis
  - 4.2.2. Equivalent Osteogenesis
  - 4.2.3. Anti-inflammatory Effect in Medium Pressure
- 4.3. Necrotizing Infections
- 4.4. HBOT in Chronic Ulcers and Diabetic Foot
- 4.5. Burns
- 4.6. Injuries from Radiofrequency Lesions and Hyperbaric Oxygen
- 4.7. HBOT in Crush Syndrome
- 4.8. Vasculitis and HBOT
- 4.9. HBOT in Pyoderma Gangrenosum
- 4.10. Evidence of HBOT in Other Injuries and Dermatological Conditions

**Module 5. HBOT in Pain, Rheumatic Diseases and the Medical Clinic**

- 5.1. HBOT in Altitude Sickness
- 5.2. Mechanisms of Action in Analgesia Neuropathic Pain and Hyperbaric Oxygen
- 5.3. Arthropathies and Collagenopathies
- 5.4. HBOT in Dysfunctional Neurosensitive Syndromes
- 5.5. Fibromyalgia and Hyperbaric Oxygen
- 5.6. HBOT in Ischemia Reperfusion Injury
- 5.7. Tinnitus and Sudden Onset Deafness
- 5.8. Inflammatory Bowel Diseases and Hyperbaric Oxygen
- 5.9. HBOT in Fertility
- 5.10. Hyperbaric Oxygen in the Metabolism of Diabetes and Severe Anemia

## Module 6. HBOT in Physical and Neurological Rehabilitation

- 6.1. HBOT in Recovery and Performance in Sport
- 6.2. Hyperbaric Oxygen and Sporting Injuries
- 6.3. Brain Trauma and Post-Concussion Syndrome
- 6.4. Stroke Recovery and Hyperbaric Oxygen
- 6.5. Brain Paralysis and HBOT
- 6.6. Autism
- 6.7. Ischemic Encephalopathies
- 6.8. HBOT in Parkinson's
- 6.9. HBOT in Alzheimer's
- 6.10. HBOT in Trauma (Avascular Necrosis, Bone Edema, Fractures and Osteomyelitis)

## Module 7. HBOT in Oncology

- 7.1. Hypoxia and Tumors
- 7.2. Tumoral Angiogenesis
- 7.3. Oncologic Safety of HBOT
- 7.4. HBOT and Radiosensitization
- 7.5. HBOT and Chemotherapy
- 7.6. Osteoradionecrosis and Hyperbaric Oxygen
- 7.7. Radical Cystitis and Proctitis
- 7.8. Radio induced Skin Syndrome and HBOT
- 7.9. HBOT in Other Radio lesions
- 7.10. HBOT in Oncology Pain and Quality of Life

## Module 8. HBOT in Toxicology

- 8.1. Bibliographical Evidence in Relation to Dosage/ Speed of Using Hyperbaric Oxygen in Carbon Monoxide Poisoning
- 8.2. Inflammation in Carbon Monoxide Poisoning
- 8.3. Delayed Neurological Syndrome
- 8.4. Smoke Inhalation and Hyperbaric Oxygen
- 8.5. HBOT in Hydrogen Cyanide Poisoning
- 8.6. HBOT in Other Gases Poisoning
- 8.7. Hyperbaric Oxygen in Pollution and Tobacco
- 8.8. Hyperbaric Oxygen in Addiction Recovery
- 8.9. HBOT in Brown Recluse Spider Bite Injuries and Poisoning
- 8.10. HBOT in Snake Bite Injuries and Poisoning

## Module 9. HBOT in Dysbaric Pathology

- 9.1. Diving and Diving Medicine Physiological Reactions to Diving Conditions Deep Neurological Syndrome
- 9.2. Changes in Environmental Pressure Decompression Sickness Air Embolism Pathophysiology. Symptoms and Signs
- 9.3. Treatment of Decompression Sickness Prevention of Dysbaric Accidents Decompression Table
- 9.4. Dysbaric Pathology and Evidence-Based Medicine
- 9.5. Dysbaric Osteonecrosis
- 9.6. HBOT in Postoperative Gas Embolism Iatrogenic Embolism
- 9.7. Hyperbaric Medicine in Physical Activity and Sport in the Workplace Work in Compressed Air Medical Documents and Immersion Records Health Risks
- 9.8. Work Accidents in Operating High Pressure Chambers Medical Support and Treatment for Compressed Air Jobs
- 9.9. Fire Evaluation and Prevention with Hyperbaric Chamber with Combustion Risk
- 9.10. Regulations and Requirements for the Installation of Different Types of Hyperbaric Chambers



## Module 10. Indications and Contraindications - Integration Module

- 10.1. Absolute and Relative Contraindications of HBOT
- 10.2. Adverse Effects of Hyperoxia
- 10.3. Neuronal and Pulmonary Oxygen Toxicity
- 10.4. Neurotoxicity/Neuroexcitability
- 10.5. Objective and Subjective Barotrauma
- 10.6. Special Care for Patients who Receive HBOT at Different Pressures
- 10.7. Indications by Consensus of the European Committee of Hyperbaric Medicine
- 10.8. Emerging Medical Applications *Off Label* and *Medicare* Indications
- 10.9. Management in Hyperbaric Medicine Centers in Physical Activity and Sport HBOT in Public and Private Health
- 10.10. Cost- Benefit Relationship of the Application of HBOT HBOT Cost Efficiency

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



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.







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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"*

### Case Study to contextualize all content

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

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



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



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

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

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

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

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

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

## Relearning Methodology

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

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

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

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

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





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

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

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

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

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





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



#### Study Material

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

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



#### Classes

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

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



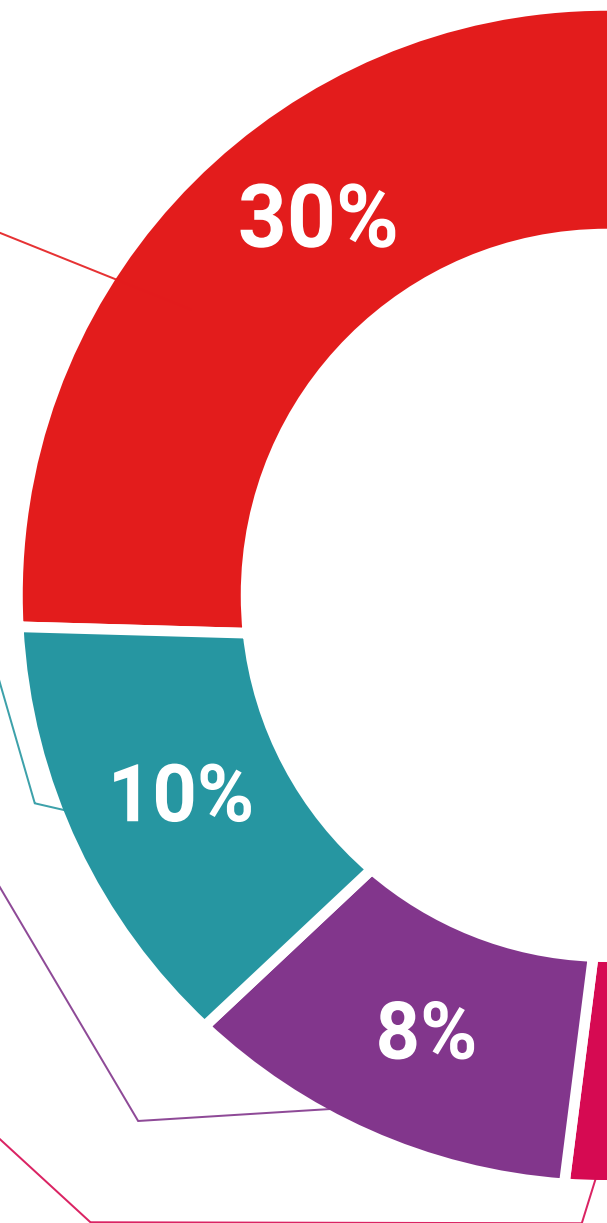
#### Practising Skills and Abilities

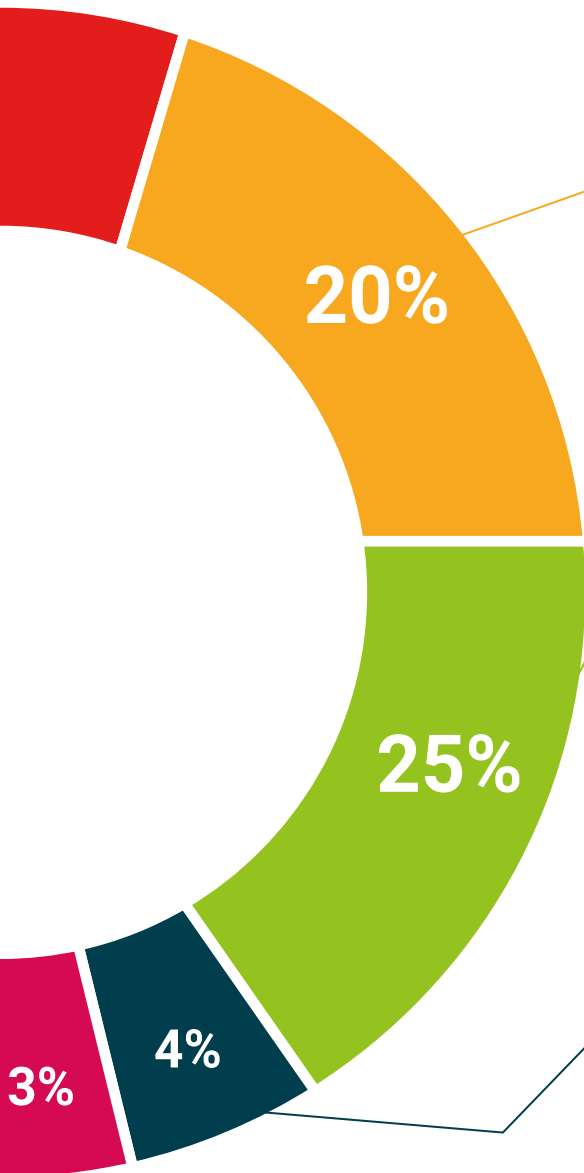
They will carry out activities to develop specific competencies and skills in each thematic area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



#### Additional Reading

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





#### Case Studies

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



#### Interactive Summaries

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

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



#### Testing & Retesting

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



# 07 Certificate

The Professional Master's Degree in Hyperbaric Medicine in Physical Activity and Sport guarantees students, in addition to the most rigorous and up-to-date education, access to a certificate 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 program will allow you to obtain your **Professional Master's Degree diploma in Hyperbaric Medicine in Physical Activity and Sport** 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** title 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: **Professional Master's Degree in Hyperbaric Medicine in Physical Activity and Sport**

Modality: **online**

Duration: **12 months**

Accreditation: **60 ECTS**



\*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.

future  
health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
online training  
development language  
virtual classroom



## Professional Master's Degree

Hyperbaric Medicine  
in Physical Activity  
and Sport

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

# Professional Master's Degree

## Hyperbaric Medicine in Physical Activity and Sport

Endorsed by the NBA

