

# Professional Master's Degree Hyperbaric Medicine





## Professional Master's Degree Hyperbaric Medicine

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

Website: [www.techtitute.com/us/medicine/professional-master-degree/master-hyperbaric-medicine](http://www.techtitute.com/us/medicine/professional-master-degree/master-hyperbaric-medicine)

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# 01

# Introduction

Hyperbaric oxygenation treatment (HBOT) is currently undergoing a resurgence as an additional tool of great value to different medical specialties. The addition of next generation hyperbaric chambers, which are easier to use and install and are more affordable, in public and private health institutions has persuaded a great deal of top level professionals to incorporate HBOT into their professional skill set.





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*Gaining up-to-date knowledge in this field of medicine is key to improving patients' quality of life. Specializing in hyperbaric oxygenation treatment is a valuable tool when treating a number of different diseases"*



Although Hyperbaric Medicine is more than 200 years old, its multiple use and advantages are unknown to many health professionals. The Professional Master's Degree in Hyperbaric Medicine will allow the health professional to deepen their knowledge of hyperbaric chambers and their usage. This course will also provide you with the skills to manage a Hyperbaric Medicine center in any environment, providing a firm basis for your future professional development.

The program provides solid up-to-date training in hyperbaric oxygen therapy which will allow professionals to develop the necessary skills to identify and resolve different medical cases for which hyperbaric oxygenation can be effective and efficient.

Its usefulness in a wide range of medical specialties enables us to consider incorporating this therapeutic tool into a variety of medical procedures. This improves professional practice and optimizes medical treatments based on the foundations and effects of HBOT.

Our current understanding of Hyperbaric Medicine has been formed by the experiences of the different teachers in the field all the while considering the current reality of this specialty. The applications and limitations of hyperbaric chambers for low pressure treatment are presented on this course, as well as the concepts of traditional Hyperbaric Medicine and the basic concepts of underwater pathologies.

The fact that HBOT is now used for low pressure treatments means it has wider applications. It can be implemented by any health professional with the appropriate training and is adapted to the use of hyperbaric chambers offering patients and chamber technicians greater accessibility and safety.

The 100% online format, with theoretical content, online videos on specific topics, interactive classes, presentation of clinical cases and tutored self-assessment questionnaires makes this Professional Master's Degree unique within the specialty.

The objective of the course is to make professionals aware of the benefits of hyperbaric chamber treatment for diseases of varying origins and the limitations and applications of the different chambers that exist in the current market. In addition to enabling them to detect the contraindications of this treatment and evaluate patients' responses to the treatment.

This **Professional Master's Degree in Hyperbaric Medicine** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ◆ Development of practical cases presented by experts in Hyperbaric Medicine
- ◆ 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
- ◆ Developments in Hyperbaric Medicine
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ Special emphasis on innovative methodologies in Hyperbaric Medicine
- ◆ 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



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

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*This Professional Master's Degree is the best investment you can make when selecting a refresher program, for two reasons: in addition to updating your knowledge in Hyperbaric Medicine, you will obtain a qualification from TECH Global University"*


TECH includes, in its teaching staff, professionals belonging to the field of Hyperbaric Medicine who have contributed their vast experience of working in the field to the program, in addition to recognized specialists from reference societies and prestigious universities.

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

This program is designed around Problem-Based Learning, whereby the specialist must try to solve the different situations which commonly arise in professional practice throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts in Hyperbaric Medicine with extensive experience.

*This program has the best educational material, which will enable a contextual study that will facilitate your learning.*

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



RECIRCULADOR

02

# Objectives

This Professional Master's Degree in Hyperbaric Medicine is oriented towards providing professionals with training in the foundations and applications of HBOT and highlighting the scientific evidence related to the different specialities within the field of health.







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*This Professional Master's Degree will provide you with everything you need to know about the latest advances in Hyperbaric Medicine"*



## General objectives

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- Promote the benefits of hyperbaric oxygenation treatment in different medical specialties
- Train health professionals in the foundations, mechanisms of action, indications, contraindications and applications of hyperbaric oxygen
- Study the degree of evidence published and the recommendations and indications of the different scientific societies related to Hyperbaric Medicine
- Recognize 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
- Achieve the skills to define, evaluate and determine the diagnostic and therapeutic focus in chronic patients in Hyperbaric Medicine with a neuropathic, musculoskeletal, oncological and visceral origin



*Take advantage of the opportunity to get up to date with the latest developments in Hyperbaric Medicine"*





## Specific objectives

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### Module 1. Introduction to Hyperbaric Medicine

- ♦ Introduce the world history of Hyperbaric Medicine and 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 which includes treatment with lower pressure, its indications, limitations and potential future applications

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

- ♦ Understand 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

### Module 3. Physiological Therapeutic Effects of HBOT

- ♦ Learn 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 this physiological effects with different indications of HBOT
- ♦ Get to grips with the analysis of different clinical cases which can benefit from the therapeutic effects of HBOT

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

- ♦ Present the scientific evidence of HBOT on different types of complex wounds and burns
- ♦ Learn about the role HBOT plays in wound healing process
- ♦ Gain up-to-date knowledge of 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



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

- ♦ Describe the effect and scientific evidence of HBOT on altitude sickness
- ♦ Demonstrate the mechanism of hyperbaric oxygen on analgesia and experimental evidence
- ♦ Learn about 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

### Module 6. HBOT in Physical and Neurological Rehabilitation

- ♦ Present the scientific evidence on the neurological indications of HBOT
- ♦ Describe the effect of HBOT on physical rehabilitation
- ♦ Learn about 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 Parkinson's and Alzheimer's
- ♦ Present the experience of clinical cases treated with HBOT

### Module 7. HBOT in Oncology

- ♦ 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
- ♦ Learn about HBOT's oncological safety (angiogenesis and tumor growth)
- ♦ Present the experimental evidence of the safety and efficiency of HBOT in oncologic pathology





### **Module 8. HBOT in Toxicology**

- ◆ 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)

### **Module 9. HBOT in Dysbaric Pathology**

- ◆ 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

### **Module 10. Indications and Contraindications Integration Module**

- ◆ Learn about the valid indications of HBOT for the different societies of Hyperbaric Medicine 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, the professional will have acquired the necessary skills for a quality and up-to-date practice based on the most innovative teaching methodology.



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*This program will help you acquire the skills you need to excel in providing quality patient care"*





## General skills

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- Identify and resolve cases of pathologies in which hyperbaric oxygenation treatments can reduce the risk of morbidity and mortality, or considerably improve the patient's quality of life
- Recognize the benefits of hyperbaric chamber treatment on pathologies of diverse origins
- Actively participate in the use and expansion of the specialty in the field of public and private health

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





## Specific skills

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- ♦ Recognize the different hyperbaric chambers which have existed throughout history
- ♦ Identify the origin of the scientific societies of this speciality
- ♦ Recognize 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
- ♦ 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's teaching staff includes leading experts in Hyperbaric Medicine who contribute their vast work experience to this program. In addition other recognized specialists have participated in its design and preparation, enabling our team to prepare this specialization in an interdisciplinary manner.







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*Leading professionals in the field have come together to teach you the latest advances in Hyperbaric Medicine”*

## International Guest Director

Dr. Peter Lindholm is an eminence in Hyperbaric Medicine and the approach to Respiratory Disorders. His research has been focused on the Pathophysiology of Lung Diving, exploring topics such as Hypoxia and loss of consciousness.

Specifically, this expert has analyzed in depth the effects of the medical condition known as Lungsqueeze, frequent in divers. Among his most important contributions in this area is a detailed review of how glossopharyngeal breathing can extend lung capacity beyond normal limits. In addition, he described the first case series linking glossopharyngeal insufflation with cerebral gas embolism.

At the same time, he has been a pioneer in proposing the term Tracheal Squeeze as an alternative to pulmonary edema in divers who bleed after deep dives. On the other hand, the specialist has shown that exercise and fasting before diving increase the risk of loss of consciousness, similar to hyperventilation. In this way, he has developed an innovative method to use Magnetic Resonance Imaging in the diagnosis of Pulmonary Embolism. In the same way, he has delved into new techniques for measuring hyperbaric oxygen therapy.

Dr. Lindholm also serves as Director of the Endowed Gurnee Chair of Diving and Hyperbaric Medicine Research in the Department of Emergency Medicine at the University of California, San Diego, United States. Likewise, this renowned expert spent several years at Karolinska University Hospital. In that institution he worked as Director of Thoracic Radiology. He also has vast experience in diagnosis by means of clinical imaging based on radiation, and has even given lectures on the subject at the prestigious Karolinska Institute in Sweden. He is also a regular speaker at international conferences and has numerous scientific publications.



## Dr. Lindholm, Peter

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- Chair of Hyperpathic Medicine and Diving at the University of California, San Diego, United States
- Director of Thoracic Radiology at the Karolinska University Hospital
- Professor of Physiology and Pharmacology at Karolinska Institute in Sweden
- Reviewer for international scientific journals such as American Journal of Physiology and JAMA
- Medical Residency in Radiology at the Karolinska University Hospital
- Doctor of Science and Physiology, Karolinska Institute, Sweden

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

## Management



### Dr. Cannellotto, Mariana

- ♦ Medical Director of the network of BioBarica Hyperbaric Medicine Centers, Argentina
- ♦ Vice President of AAMHEI
- ♦ Specialist in Clinical Medicine
- ♦ Specialist in Hyperbaric Medicine, School of Medicine



### Dr. Jordá Vargas, Liliana

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



## Professors

### Dr. Verdini, Fabrizio

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

### Dr. Ramallo, Rubén Leonardo

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

### Dr. Emilia Fraga, Pilar María

- ◆ FINES Teacher
- ◆ AAMHEI Pedagogical Assistant



05

# Structure and Content

The structure of the content has been designed by the best professionals in the field of Hyperbaric Medicine. They possess extensive experience and recognized prestige in the profession, backed by the volume of cases they have reviewed, studied and diagnosed, and they have extensive knowledge of the latest technology applied to Hyperbaric Medicine.





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*This Professional Master's Degree in Hyperbaric Medicine contains the most complete and up-to-date scientific program on the market”*

## Module 1. Introduction to Hyperbaric Medicine

- 1.1. History of Hyperbaric Medicine
- 1.2. First Hyperbaric Chambers
- 1.3. Discovery of Oxygen
- 1.4. Scientific Period of Hyperbaric Medicine
- 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 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. Principles 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 Disease
- 6.9. HBOT in Alzheimer's Diseases
- 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 Radiosensitivity
- 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 Corner 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
  - 9.1.1. Physiological Reactions to Diving Conditions
  - 9.1.2. Deep Neurological Syndrome
- 9.2. Changes in Environmental Pressure
  - 9.2.1. Decompression Sickness
  - 9.2.2. Air Embolism
  - 9.2.3. Pathophysiology
  - 9.2.4. Symptoms and Signs
- 9.3. Treatment of Decompression Sickness
  - 9.3.1. Prevention of Dysbaric Accidents
  - 9.3.2. 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 the Workplace
  - 9.7.1. Working in Compressed Air
  - 9.7.2. Medical Documents and Immersion Records
  - 9.7.3. Health Risks
- 9.8. Occupational Accident among Operators of 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: HBOT in Public and Private Health
- 10.10. Cost-Benefit Relationship of the Application of HBOT: HBOT Cost Efficiency

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*This program will allow you to advance in your career with ease”*

06

# Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach known as **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** consider 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

What should a professional do in any given situation? 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 you will experience a way of learning that is shaking the foundations of traditional universities around the world*



According to Dr. Gervas, 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 in the physician's professional 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. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student 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 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.

*Professionals will learn through real cases and by resolving 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 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

*Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, 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 (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.



#### Surgical Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical techniques. 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 on the efficacy of learning by observing experts. The system known as 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 Professional Master's Degree in Hyperbaric Medicine guarantees you, in addition to the most rigorous and up-to-date training, access to a Professional Master's Degree issued by TECH Global University.





“

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



This program will allow you to obtain your **Professional Master's Degree diploma in Hyperbaric Medicine** 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.

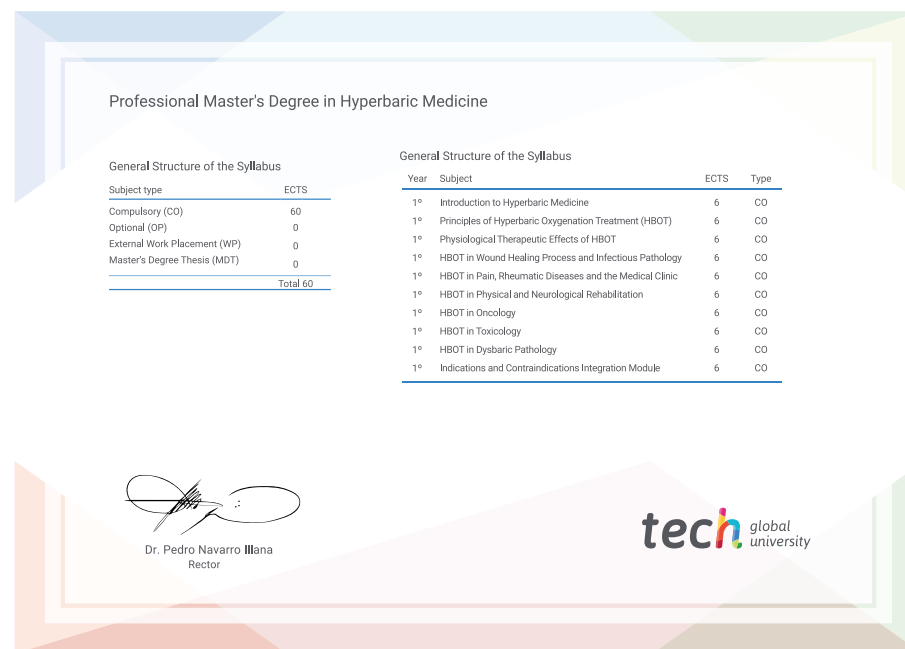
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Professional Master's Degree in Hyperbaric Medicine**

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 quality

online training

development language

virtual classroom

**tech** global  
university

## Professional Master's Degree

### Hyperbaric Medicine

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

# Professional Master's Degree

## Hyperbaric Medicine

