

# Postgraduate Certificate Physiological Therapeutic Effects of HBOT

Endorsed by the NBA





## Postgraduate Certificate Physiological Therapeutic Effects of HBOT

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/in/physiotherapy/postgraduate-certificate/physiological-therapeutic-effects-hbot](http://www.techtute.com/in/physiotherapy/postgraduate-certificate/physiological-therapeutic-effects-hbot)

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 16*

05

Methodology

---

*p. 20*

06

Certificate

---

*p. 28*

01

# Introduction

The use of Hyperbaric Oxygen Therapy has demonstrated results in multiple contexts. Its beneficial action can be applied to a wide range of ailments and diseases. Knowing the Physiological Therapeutic Effects of HBOT will open new avenues of work and approach that may be of great interest to the physiotherapy professional.





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*Get to know all the therapeutic effects that HBOT offers to patients from the physiotherapeutic intervention and take a leap towards the highest quality”*

The detailed knowledge of the physiological therapeutic effects obtained from the generation of hyperoxia will allow the student to develop the critical sense to understand the mechanisms of action in the different proven and potential clinical applications. For this purpose, the physiological therapeutic effects are explained in detail through documents, videos and exercises of applications in different pathologies.

Each particular case will benefit from different biochemical effects triggered by the transient increase in reactive oxygen species during the HBOT session.

The first part of the Postgraduate Certificate presents the action of hyperbaric oxygen in mitochondrial reactivation, and reviews the importance of reversing mitochondrial dysfunction in the prevention and treatment of different diseases. Therefore, the most relevant physiological effects described are detailed: vasoconstriction, angiogenesis, collagen synthesis, osteogenesis, neuroprotection, peripheral axonal regeneration, bactericidal effect, anti-inflammatory effect and antioxidant effect. A bibliography is also provided for those who wish to study a particular effect in greater depth, as well as review documents.

On the other hand, the concept of relative hyperoxia is presented, an effect achieved with normobaric oxygen therapy and that it is considered that it could be achieved with hyperbaric oxygen therapy at low pressures.

The understanding and interpretation of this Postgraduate Certificate is fundamental to be able to assess the probable effect achieved in different clinical cases.

This **Postgraduate Certificate in Physiological Therapeutic Effects of HBOT** 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
- ♦ News on Hyperbaric Medicine in the field of physiotherapy
- ♦ Practical exercises where the self-assessment process can be carried out 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



*Don't miss this opportunity to study in the biggest private online university"*

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*This Postgraduate Certificate is the best investment you can make in the selection of a refresher program for two reasons: in addition to updating your knowledge in Physiological Therapeutic Effects of HBOT, you will obtain a diploma from TECH Technological University"*

It includes in its teaching staff professionals belonging to the field of Hyperbaric Medicine, who contribute their work experience to this program, as well as recognized specialists from leading societies and prestigious universities.

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

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise throughout the program. For this purpose, the professional will be assisted by a novel interactive video system developed by renowned and experienced experts in the Physiological Therapeutic Effects of HBOT.

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

*This 100% online Postgraduate Certificate will allow you to balance your studies with your professional work while increasing your knowledge in this field.*



# 02 Objectives

The program in Physiological Therapeutic Effects of HBOT is aimed at teaching the fundamentals and applications of hyperbaric oxygen therapy and exposing the scientific evidence in the different specialties in the field of health.







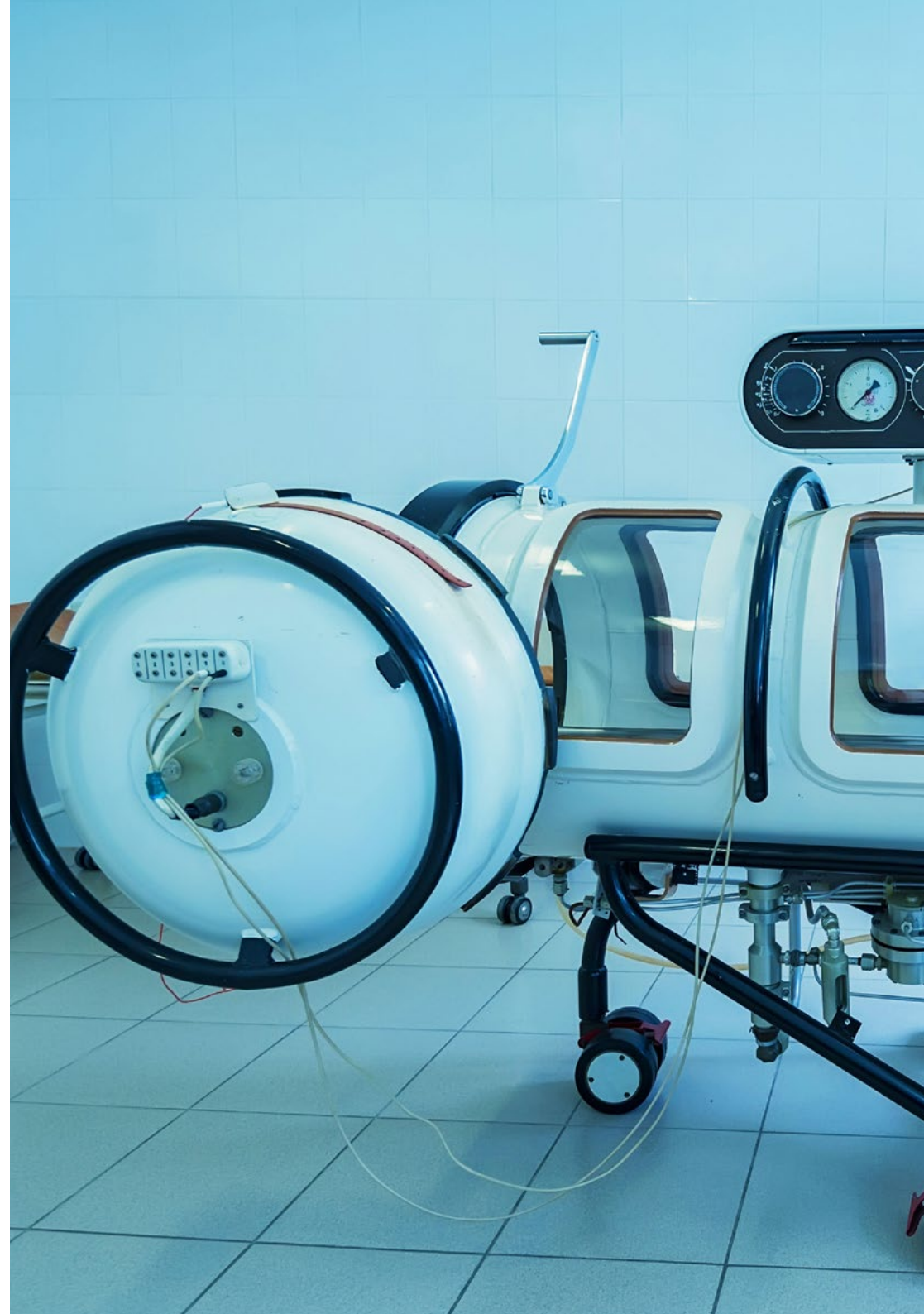
“ Learn how to take full advantage of  
HBOT in physical therapy intervention”

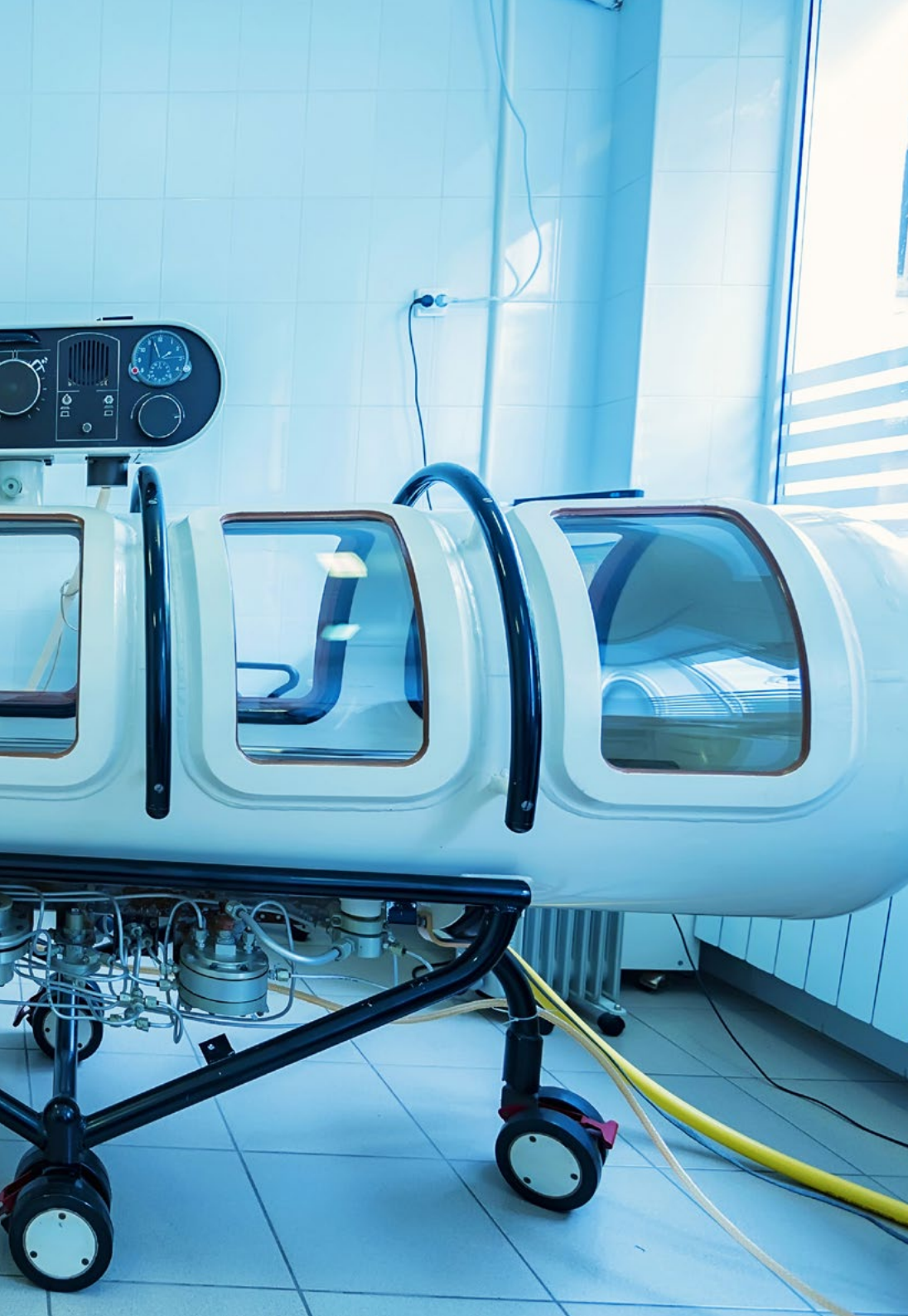


## General Objectives

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- Promote the usefulness of hyperbaric oxygen therapy in different medical specialties
- Enable health professionals on 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





## Specific Objectives

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- ♦ Studying 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
- ♦ Learning the analysis of different clinical cases which can benefit from the therapeutic effects of HBOT



*Update your knowledge through the program on Physiological Therapeutic Effects of HBOT"*

03

# Course Management

The program's teaching staff includes leading experts in Hyperbaric Medicine who contribute their vast work experience to this educational program. Additionally, other recognized specialists participate in its design and preparation which means that the program is developed in an interdisciplinary manner.



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*We have an excellent team of specialists in the field of Hyperbaric Medicine that will help you prepare in this field"*

## Management



### Dr. Cannellotto, Mariana

- ♦ Medical Director of the network of Hyperbaric Medicine centers BioBarica 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

# 04

# Structure and Content

The structure of the contents has been designed by leading professionals in the field of Hyperbaric Medicine, with 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.



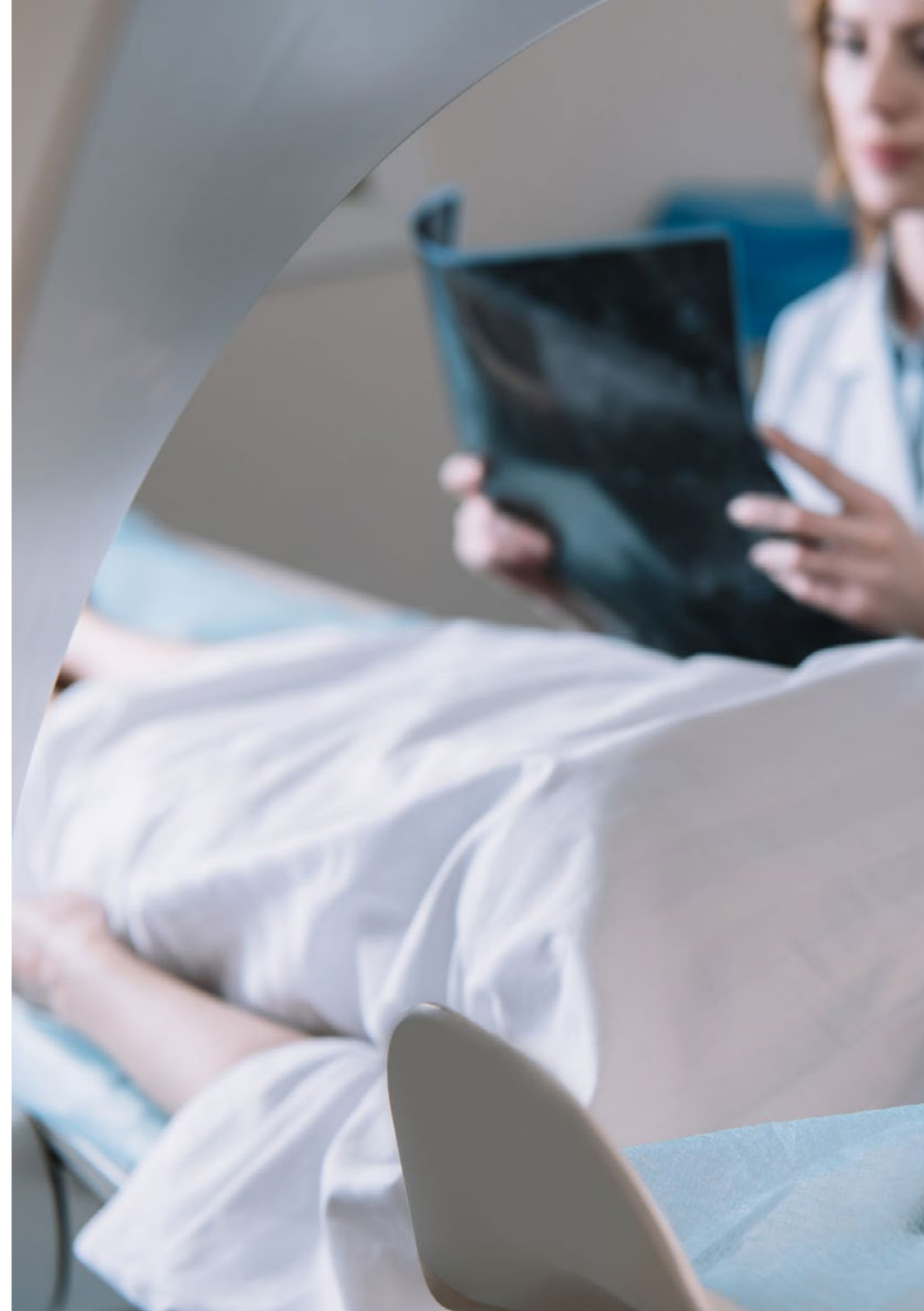


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*This Postgraduate Certificate in  
Physiological Therapeutic Effects of HBOT  
contains the most complete and up-to-  
date scientific program on the market”*

## Module 1. Physiological Therapeutic Effects of HBOT

- 1.1. Introduction to the Physiological Therapeutic Effects
- 1.2. Vasoconstriction
  - 1.2.1. Robin Hood Effect
  - 1.2.2. Effect of HBOT on Blood Pressure and Heart Rate
- 1.3. Stem Cells and Oxygen
  - 1.3.1. Liberation of Stem Cells with HBOT
  - 1.3.2. Importance of Stem Cells on Wound Healing
  - 1.3.3. Oxygen in the Differentiation of Stem Cells
- 1.4. Oxygen in the Synthesis of Collagen
  - 1.4.1. Synthesis and Types of Collagen
  - 1.4.2. Oxygen in the Synthesis and Maturing of Collagen
  - 1.4.3. HBOT and Collagen in Healing
- 1.5. Angiogenesis and Vasculogenesis
  - 1.5.1. Degenerative Angiogenesis and Hyperbaric Oxygen
- 1.6. Osteogenesis
  - 1.6.1. HBOT and Osteogenesis and Bone Resorption
- 1.7. Mitochondrial Function, Inflammation and Oxidative Stress
  - 1.7.1. Mitochondrial Dysfunction in the Pathogenesis of Different Pathologies
  - 1.7.2. HBOT and Mitochondrial Function
- 1.8. Oxidative Stress and Hyperbaric Oxygen
  - 1.8.1. Oxidative Stress in Different Pathologies
  - 1.8.2. Oxidative Stress in Hyperbaric Oxygen
- 1.9. Anti-Inflammatory Effect in Hyperbaric Oxygen
  - 1.9.1. Hyperbaric Oxygen and Inflammation
- 1.10. Antimicrobial Effect in Hyperbaric Oxygen
  - 1.10.1. Bacterial Effect of Oxygen
  - 1.10.2. Hyperbaric Oxygen and *Biofilm*
  - 1.10.3. Hyperbaric Oxygen and the Immune Response
- 1.11. Oxygen and Neuron Function
  - 1.11.1. Oxygen and Peripheral Axonal Regeneration
  - 1.11.2. Oxygen and Neuroplasticity





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*This Postgraduate Certificate will allow you to advance in your career in a comfortable way, balancing your studies with your professional and personal activities"*

# 05 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"*

## At TECH we use the Case Method

What should a professional do in a 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. Physiotherapists/kinesiologists 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 of professional physiotherapy practice.

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

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

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



## Relearning Methodology

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



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

With this methodology we trained more than 65,000 physiotherapists/kinesiologists with unprecedented success in all clinical specialties, regardless of the workload. 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 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 our 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 really 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.



#### Physiotherapy Techniques and Procedures on Video

TECH brings students closer to the latest techniques, the latest educational advances and to the forefront of current Physiotherapy 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 them as many times as you want.



#### Interactive Summaries

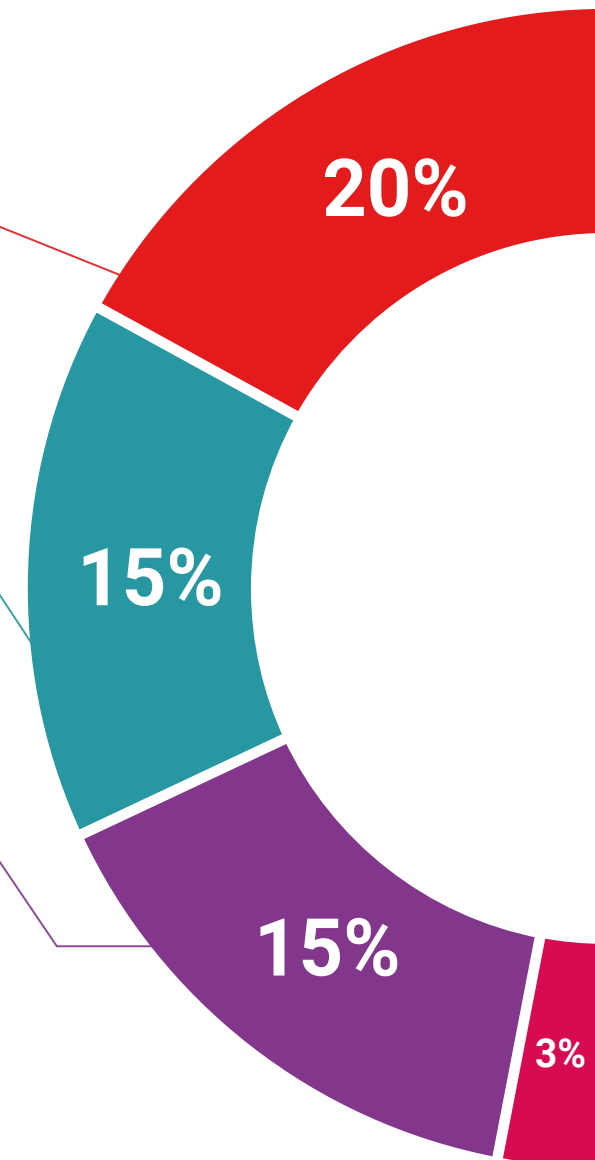
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

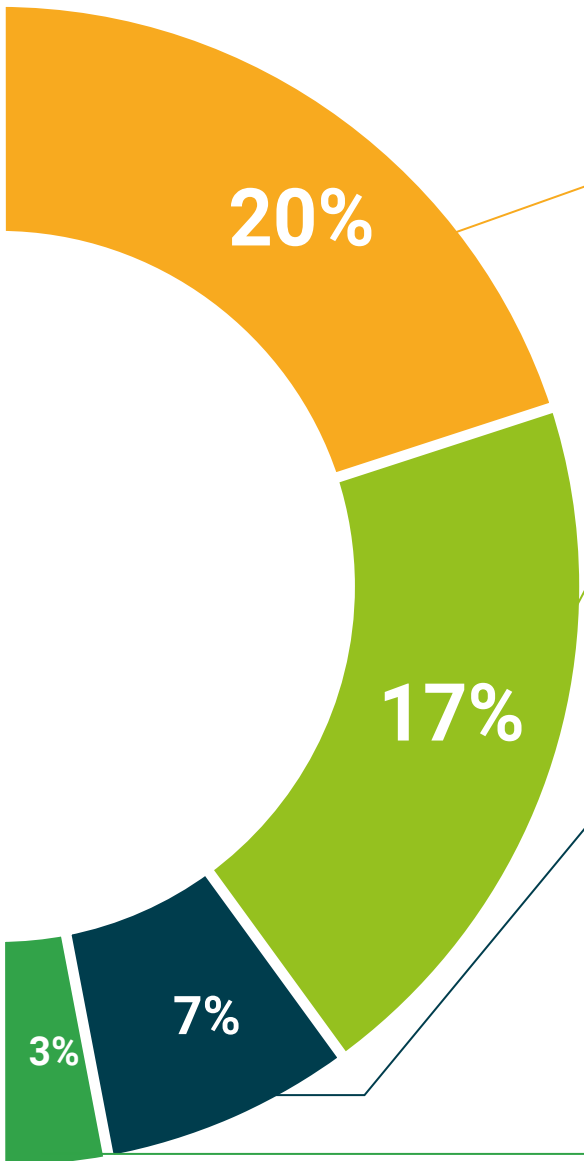
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



#### 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 usefulness 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.



# 06 Certificate

The Postgraduate Certificate in Physiological Therapeutic Effects of HBOT guarantees students, in addition to the most rigorous and up-to-date education, access to a certificate issued by TECH Technological University.



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

This **Postgraduate Certificate in Physiological Therapeutic Effects of HBOT** 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 **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery\*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations and professional career evaluation committees.

Title: **Postgraduate Certificate in Physiological Therapeutic Effects of HBOT**

Official N° of hours: **150 h.**

**Endorsed by the NBA**



\*Apostille Convention. In the event that the student wishes to have their paper certificate 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  
development language  
virtual classroom



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Physiological Therapeutic  
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