

# Postgraduate Certificate

## Fundamentals of Hyperbaric Oxygen Therapy (HBOT)

Endorsed by the NBA





## Postgraduate Certificate Fundamentals of Hyperbaric Oxygen Therapy (HBOT)

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Global University
- » Credits: 6 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/physiotherapy/postgraduate-certificate/fundamentals-hyperbaric-oxygen-therapy-hbot](http://www.techtute.com/us/physiotherapy/postgraduate-certificate/fundamentals-hyperbaric-oxygen-therapy-hbot)

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# 01

# Introduction

Knowing the principles of action and effects of Hyperbaric Oxygenation is an essential step to start working with this important resource that offers great benefits and therapeutic opportunities to physiotherapy. In this program, you will learn everything you need to take this important leap and start working effectively with a therapy that is on the rise. You will not only become a better professional, but also a much more competent physiotherapist and prepared to work with pathologies of various types through the benefits offered by HBOT.





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*A high-level Postgraduate Certificate that will put you in the front line of intervention in this field of work"*

The fundamentals of HBOT are presented in a practical, accessible and simple way to facilitate the study of the healthcare professional and to enable them to perform daily activities. Henry, Dalton, and Boyle and Mariotte's laws of physics are explained and reviewed again in order to incorporate the concept of volumetric and solometric effect.

Krogh's mathematical model is also presented, which helps us determine the oxygen perfusion radius effect at different treatment pressures.

The different types of hypoxia are detailed so that the student can understand the hypoxic principles of the different diseases and recognize the therapeutic applications of hyperoxia. The incorporation of the physiological concept of dilute hyperoxia in plasma and interstitial fluids is the basis of Hyperbaric Oxygen Therapy.

In addition, detailed knowledge of the fundamentals will provide insight into the limitations and applications of the different types of treatment pressure (high pressure, medium pressure, micropressure).

It should be noted that the concept of hyperoxia is what generates and triggers the entire cascade of therapeutic effects described in this program. Likewise, it should be taken into account that without the incorporation of this element, the initial basis of hyperbaric oxygenation, its indications, contraindications and adverse events cannot be recognized.

This **Postgraduate Certificate in Fundamentals of Hyperbaric Oxygen Therapy (HBOT)** contains the most complete and up-to-date scientific program on the market. Its most notable features are:

- ♦ 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 the self-assessment process can be carried out to improve learning
- ♦ Its special emphasis on innovative methodologies in Fundamentals of Hyperbaric Oxygen Therapy
- ♦ 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 Hyperbaric Oxygen Therapy Fundamentals (HBOT), you will obtain a diploma from TECH Global 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 of leading societies and prestigious universities.

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

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system created by recognized experts in Hyperbaric Oxygen Therapy Fundamentals and with great experience.

*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 Fundamentals of Hyperbaric Oxygen Therapy (HBOT) is oriented to educate students and delve into the fundamentals and applications of Hyperbaric Oxygen Therapy as a solution to various pathologies treated by the physiotherapy professional. In this sense, during the program, we will delve into their correct use, and we will prepare you to be able to put these treatments into practice in your sessions. In this way, you will become a much more competent and prepared professional to work as a physiotherapist in both public and private health institutions.







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*Include the use of hyperbaric therapy in your practice as a physiotherapist and offer your patients an alternative way to improve their conditions”*



## General Objectives

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- Disseminate the usefulness of Hyperbaric Oxygen Therapy in physiotherapeutic treatments.
- Prepare physiotherapy professionals in the fundamentals, 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 in the field of physiotherapy
- 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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- Study the fundamentals of Hyperbaric Oxygen Therapy (HBOT) and the mechanisms to achieve hyperoxia
- Present the physical laws involved and Krogh's mathematical model that supports the effect of 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



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

# 03

## Course Management

The educational program includes, in its teaching staff, experts in Hyperbaric Medicine, as well as prestigious physiotherapists, who contribute their extensive work experience to this program. In addition, other recognized specialists participate in its design and elaboration, completing the program in an interdisciplinary way and providing the physiotherapists with a series of transversal competencies that are crucial in their professional development and consolidation.



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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"*

## 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 Gurneee 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**

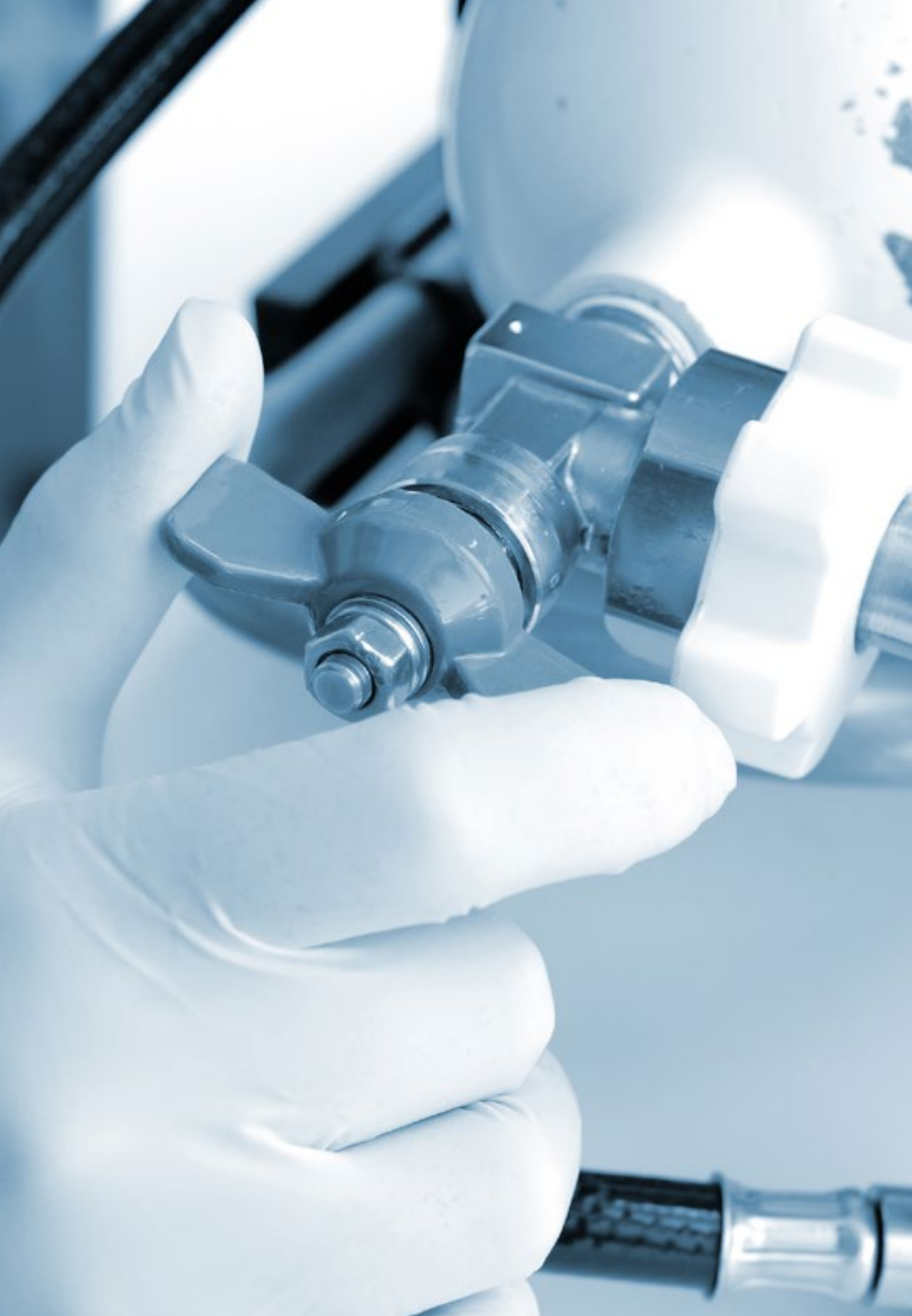
- ♦ Medical Director of the network of Hyperbaric Medicine centers BioBarica Argentina
- ♦ Vice President of AAMHEI
- ♦ Specialist in Clinical Medicine
- ♦ Specialist in Hyperbaric Medicine, School of Medicine



### **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 of this educational program has been designed by leading professionals in the field of Hyperbaric Medicine and Physiotherapy who, with extensive experience and recognized prestige in the profession, have used all their knowledge to enable you to achieve excellence. This team of professionals endorses its knowledge through the volume of cases reviewed, studied and diagnosed, and with a wide mastery of new technologies applied to hyperbaric medicine. This will ensure that the knowledge you receive is based on experience and will equip you with the necessary skills to successfully practice the profession.



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*This Postgraduate Certificate in Fundamentals of Hyperbaric Oxygen Therapy (HBOT) contains the most complete and up-to-date Scientific program on the market”*

### Module 1. Fundamentals of the Hyperbaric Oxygenation Treatment (HBOT)

- 1.1. Physiological Principles of Hyperbaric Oxygen Therapy
- 1.2. Dalton, Henry, Boyle and Mariotte's Laws of Physics
- 1.3. Physical and Mathematical Principles of the Diffusion of Oxygen within Tissue in the Different Treatment Pressures. Krogh Model
- 1.4. Physiology of Oxygen
- 1.5. Physiology of Respiration
- 1.6. Volumetric and Solometric Effect
- 1.7. Hypoxia: Types of Hypoxia
- 1.8. Hyperoxia and Treatment Pressure
- 1.9. Hyperoxia Effective in Wound Healing
- 1.10. Principles of the Intermittent Hyperoxia Model





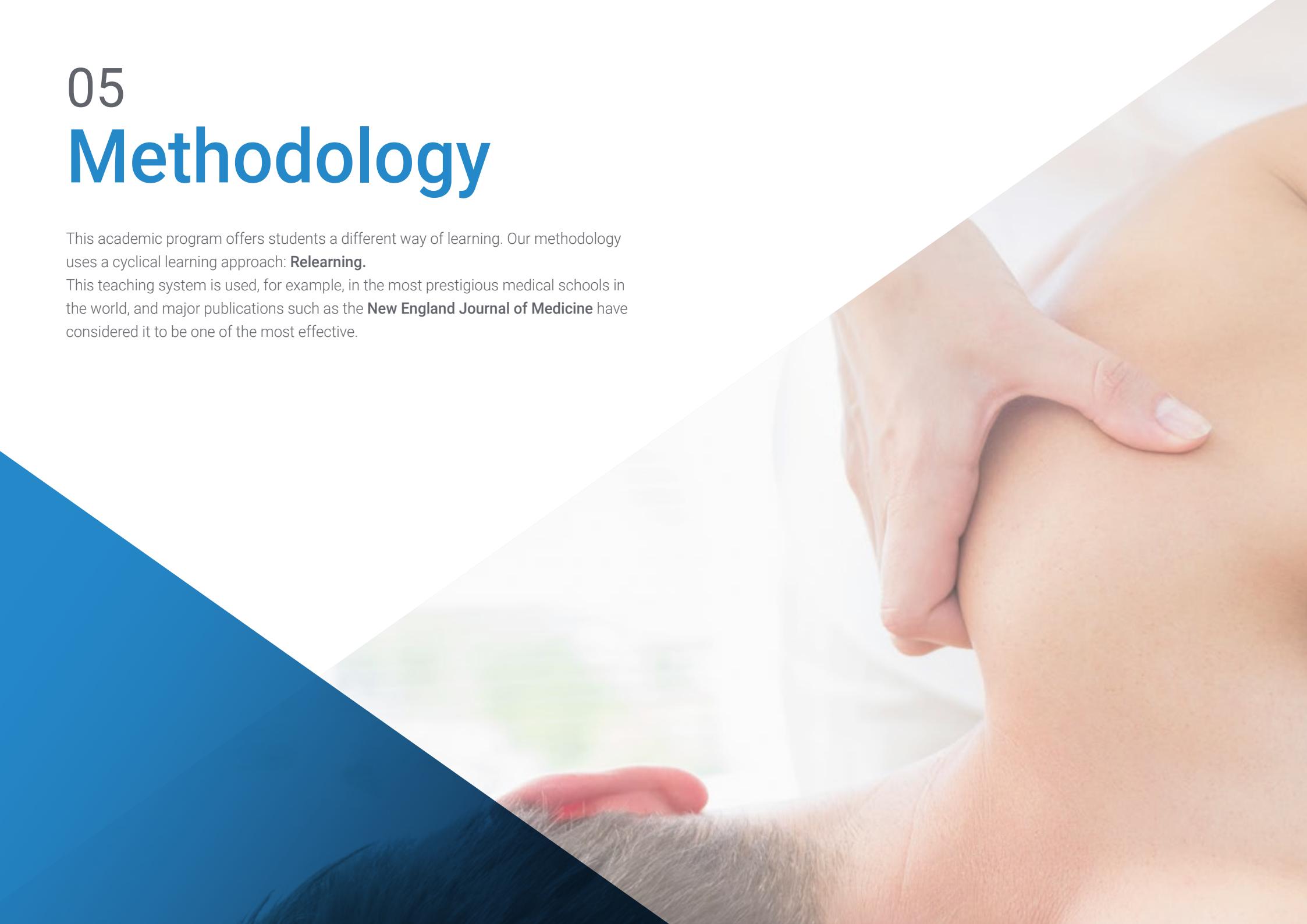
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*This program will allow you to advance in your career in a comfortable way without abandoning your other responsibilities; a unique opportunity to advance"*

# 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.





“ 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

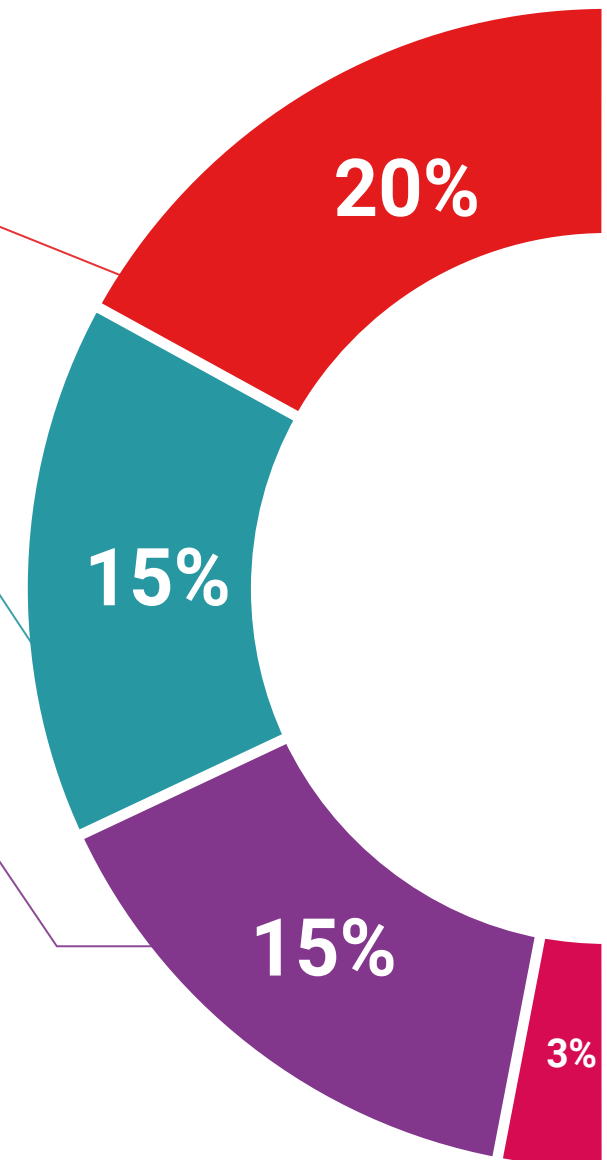
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

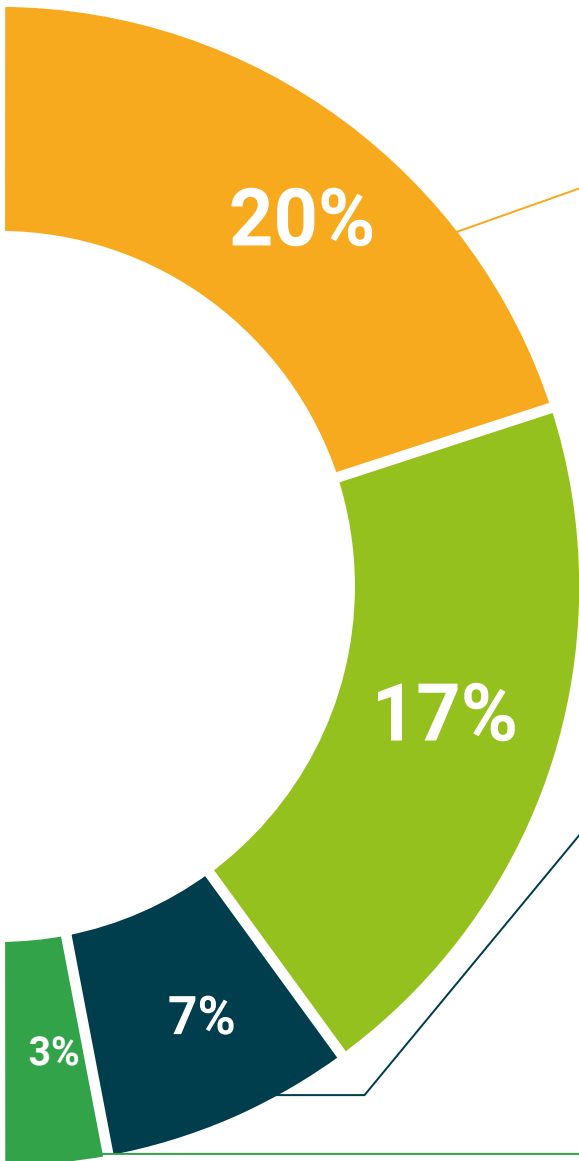
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



#### 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 Fundamentals of Hyperbaric Oxygen Therapy (HBOT) guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate 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 **Postgraduate Certificate in Fundamentals of Hyperbaric Oxygen Therapy (HBOT)** 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: **Postgraduate Certificate in Fundamentals of Hyperbaric Oxygen Therapy (HBOT)**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 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

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community commitment

**tech** global  
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