Postgraduate Certificate
Fundamentals of Hyperbaric Oxygenation Treatment (HBOT)

Endorsed by the NBA

tech global university

tech global university

Postgraduate Certificate

Fundamentals of Hyperbaric Oxygenation Treatment (HBOT)

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

Website: **www.techtitute.com/us/sports-science/postgraduate-certificate/fundamentals-hyperbaric-oxygenation-treatment-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 Sports Science professional needs as a priority to know the bases of action and effects of Hyperbaric Oxygenation in order to be able to correctly choose the cases in their professional development that are suitable for this type of treatment. In this sense, this program will prepare you to start working with this important resource that offers great benefits and therapeutic opportunities. Thus, the student will become a professional much more prepared and able to put the HBOT into practice in the daily practice of his profession as an expert in Sports Science.

A high-level program that will put you in the front line of intervention in this area of work"

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

The mathematical model of Krogh is also presented, which allows to know the oxygen perfusion radius effect at different treatment pressures.

The different types of hypoxia are detailed so that the student can understand the hypoxic bases of the different pathologies 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 oxygenation treatment.

In addition, a 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 onset of the concept of hyperoxia is what generates and triggers the entire cascade of therapeutic effects described in this training. Likewise, it must 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 the Fundamentals of Hyperbaric Oxygenation Treatment (HBOT)** contains the most complete and up-to-date educational program on the market. The most important features include:

- Development of practical cases presented by experts in Hyperbaric Medicine
- 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
- Developments in Hyperbaric Medicine
- Practical exercises where self-assessment can be used to improve learning
- Its special emphasis on innovative methodologies in Fundamentals of Hyperbaric Oxygenation Treatment
- 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"

This program is the best investment you can make in the selection of a refresher program for two reasons: in addition to updating your knowledge in the Fundamentals of Hyperbaric Oxygenation Treatment (HBOT), you will obtain a qualification from TECH Global University"

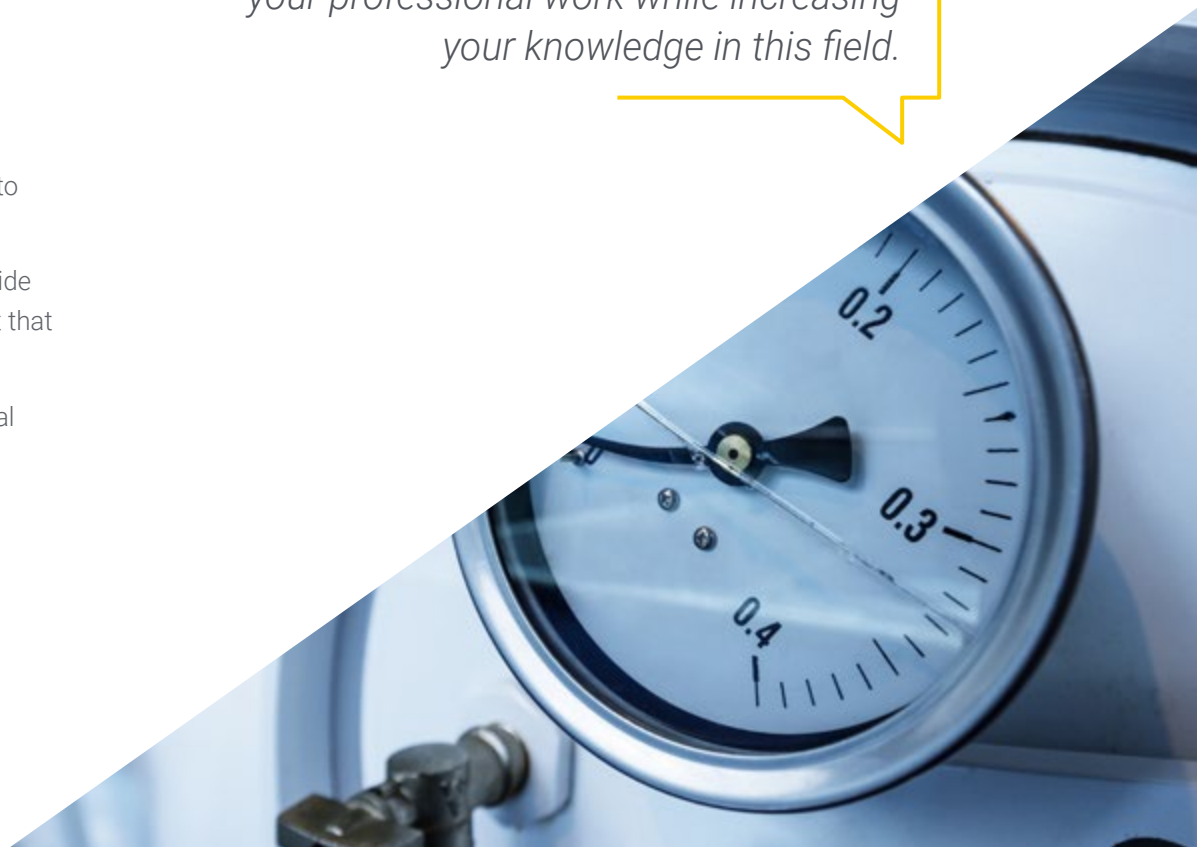
This specialization comes with the best didactic material, providing you with a contextual approach that will facilitate your learning.

This 100% online program's degree will allow you to combine your studies with your professional work while increasing your knowledge in this field.

It includes in its teaching staff professionals belonging to the field of Hyperbaric Medicine, who pour into this specialization the experience of their work, 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 train in real situations.

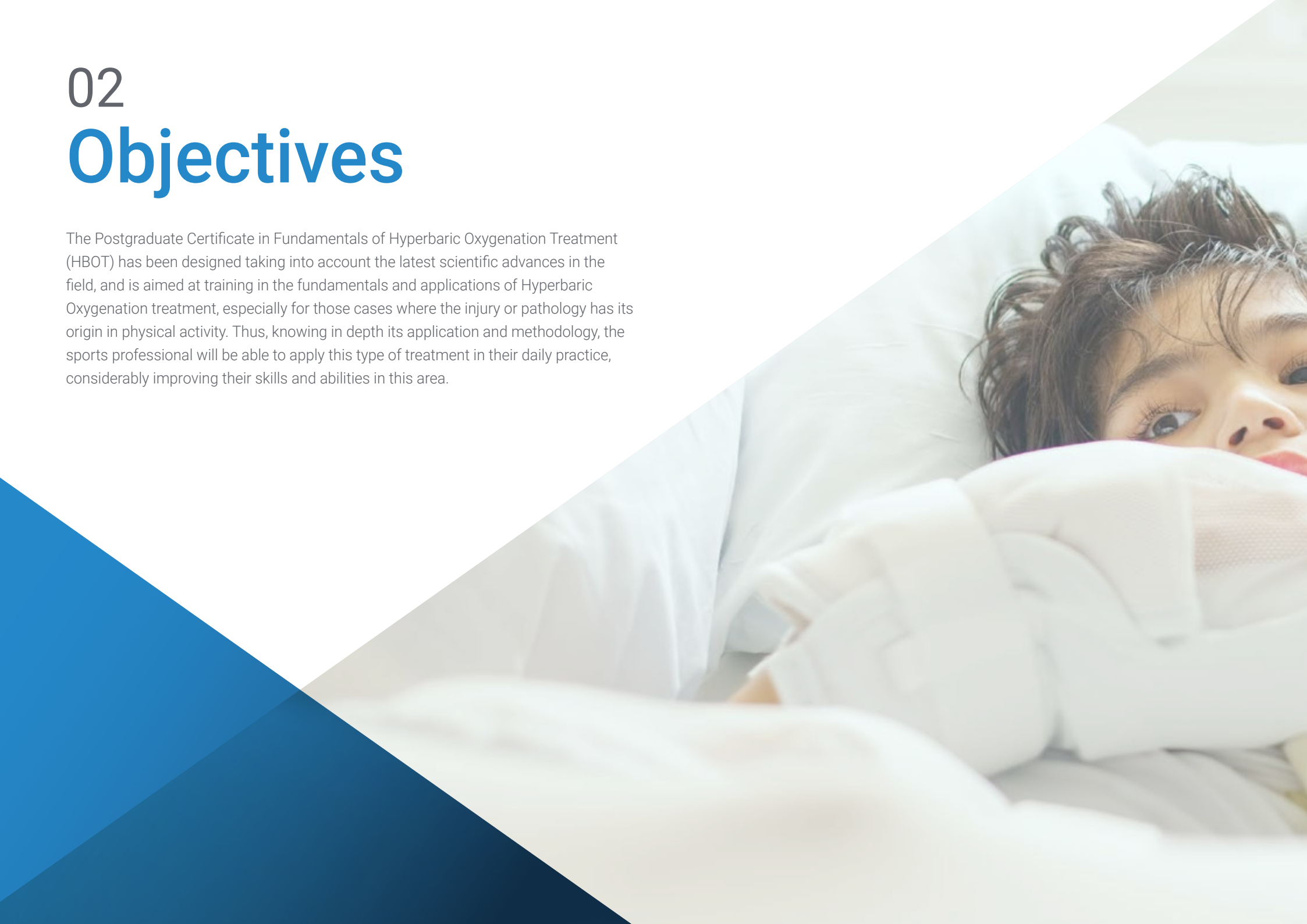
This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic program. For this, the professional will have the help of an innovative interactive video system made by recognized experts, with great experience in Hyperbaric Oxygenation Treatment Fundamentals.



02

Objectives

The Postgraduate Certificate in Fundamentals of Hyperbaric Oxygenation Treatment (HBOT) has been designed taking into account the latest scientific advances in the field, and is aimed at training 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 their daily practice, considerably improving their skills and abilities in this area.



Offer your patients an alternative way to improve their pathologies by mastering the therapeutic capacity of HBOT"

General Objectives

- Disseminate the usefulness of Hyperbaric Oxygenation treatment in different specialties, including sports
- Train Sports Medicine 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
- Recognise the potential applications of hyperbaric oxigen 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

- Train in the fundamentals of Hyperbaric Oxygenation Treatment (HBOT) and the mechanisms 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.

03

Course Management

The program includes, in its teaching staff, professionals belonging to the field of Hyperbaric Medicine and Sports, who pour into this training the experience of their work with the aim that the student learns 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 the professional to acquire the ideal transversal knowledge to be able to apply this type of treatment in different scenarios.

We have a great professional team in the field of Hyperbaric Medicine that will help you to train in this field and become a prestigious professional"

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

- 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

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. 2006
- Specialist in Hyperbaric Medicine, School of Medicine. 2009
- Vice President of AAMHEI

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. (1992-1997)
- Microbiology Specialist
- Head of Microbiology, CRAI North, Cucaiba, Argentina

Teachers

Dr. Emilia Fraga, Pilar María
- FINES Teacher
- AAMHEI Pedagogical Assistant

Dr. López Jiménez, Elías
- Degree in Medicine from the Complutense University of Madrid
- Specialist in Radiotherapeutic Oncology via RMI, La Princesa Hospital

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 Hyperbaric Medicine unit at Cataluyna Hospital

Dr. Ramallo, Rubén Leonardo
- Medical Director Integralis Center S.A
- 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
- Medical Liaison at BioBarica Hyperbaric Systems
- Medical Surgeon by the University of Carabobo, Venezuela
- Diploma in Public Health Management from the University of Carabobo, Venezuela.
- Master's Degree in Healthcare Management
- Course in Biochemistry and Pharmacology

04

Structure and Content

This program has a compendium of first level contents specially designed by a multidisciplinary faculty composed of the best 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. This professional team, fully aware of the importance of this type of therapy for the recovery of sports injuries, has created this complete Postgraduate Certificate that will provide you with the necessary tools to apply Hyperbaric Medicine successfully in your profession.

This Postgraduate Certificate in Fundamentals of Hyperbaric Oxygenation Treatment (HBOT) contains the most complete and up-to-date scientific program on the market"

Module 1. Fundamentals of the Hyperbaric O xygenation Treatment (HBOT)

1.1. Physiological Bases of HBOT
1.2. Dalton, Henry, Boyle and Mariotte Physical Laws
1.3. Physical and Mathematical Bases 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. Hypoxia Types of Hypoxia
1.7. Hyperoxia and Treatment Pressure
1.8. Hyperoxia Effective in Wound Healing
1.9 Bases of the Intermittent Hyperoxia Model

This training will allow you to advance in your career in a comfortable way without abandoning your other occupations; 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"

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.

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

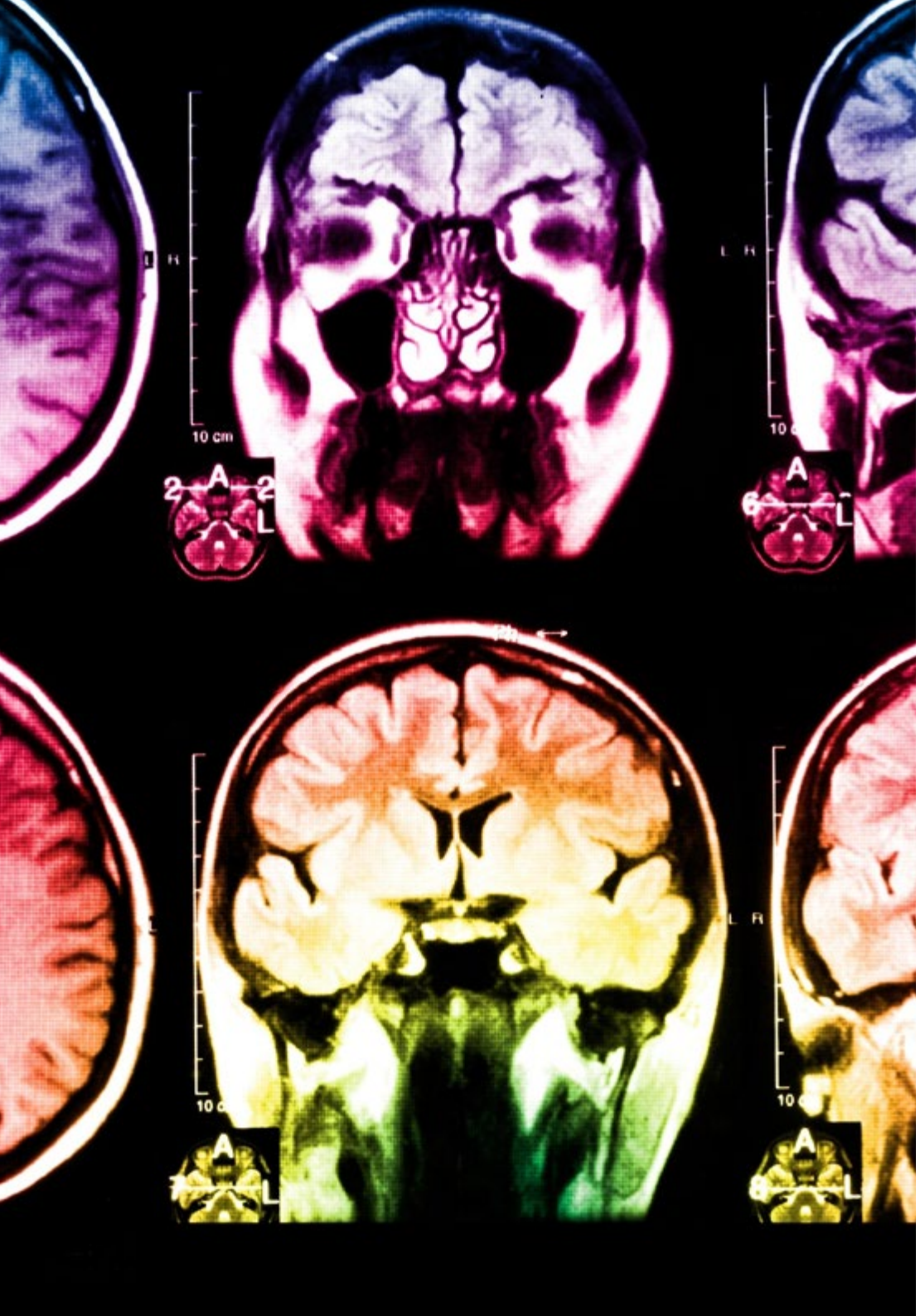
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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.

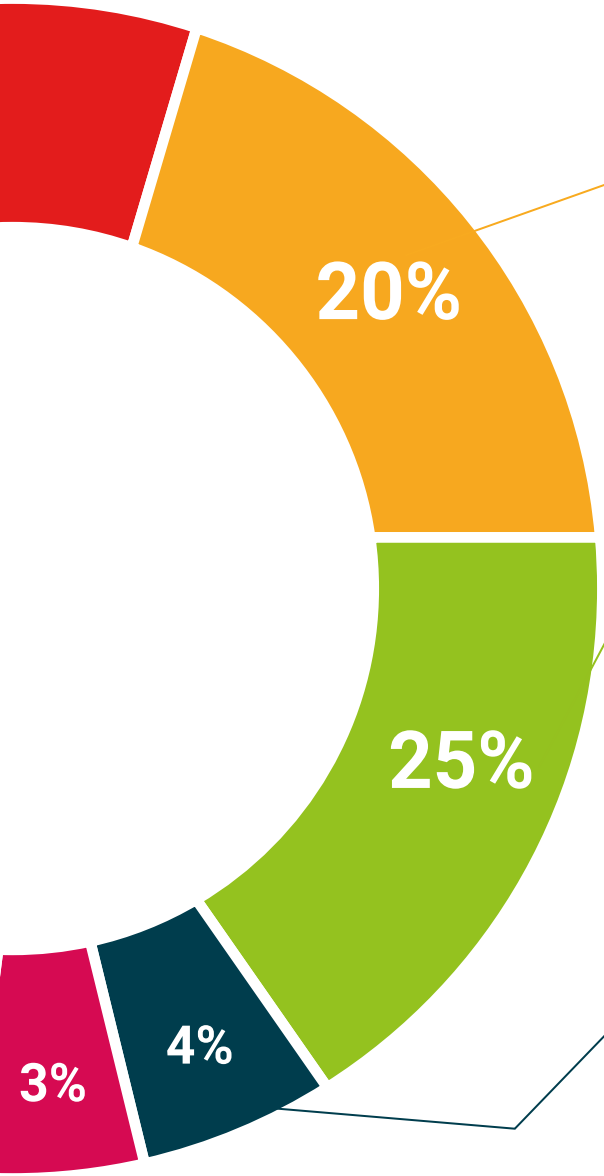
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

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.

06

Certificate

The Postgraduate Certificate in Fundamentals of Hyperbaric Oxygenation Treatment (HBOT) guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.

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 Oxygenation Treatment (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 Oxygenation Treatment (HBOT)**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**


tech global university

Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

Postgraduate Certificate in Fundamentals of Hyperbaric Oxygenation Treatment (HBOT)

This is a program of 180 hours of duration equivalent to 6 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

The Official Online University of the NBA

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates

*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.

tech global university

Postgraduate Certificate

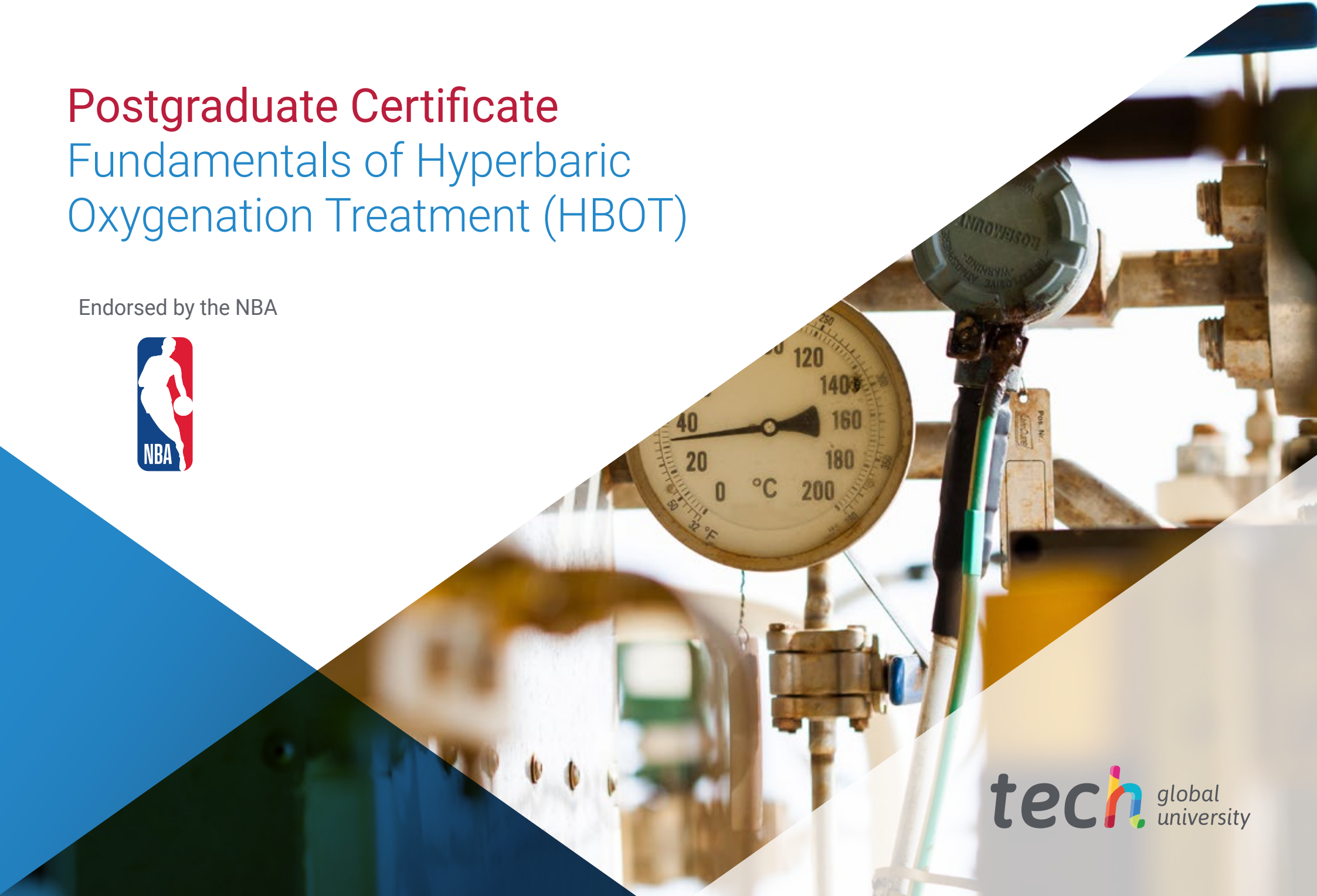
Fundamentals of Hyperbaric Oxygenation Treatment (HBOT)

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

Postgraduate Certificate

Fundamentals of Hyperbaric Oxygenation Treatment (HBOT)

Endorsed by the NBA



tech global university