

# Postgraduate Diploma

## Respiratory Physiotherapy in Critically Ill Patients and its Techniques





## Postgraduate Diploma Respiratory Physiotherapy in Critically Ill Patients and its Techniques

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Technological University
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/physiotherapy/postgraduate-diploma/postgraduate-diploma-respiratory-physiotherapy-critically-ill-patients-techniques](http://www.techtute.com/us/physiotherapy/postgraduate-diploma/postgraduate-diploma-respiratory-physiotherapy-critically-ill-patients-techniques)

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# 01

# Introduction

The increase in the incidence of respiratory pathologies, both in children and adults, has a considerable impact on the quality of life of the patients who suffer from them, as well as on our health system, with a high social and economic cost in terms of days of hospitalization, sick leave and early death.

With this intensive education, the physiotherapist will specialize in respiratory physiotherapy in critical patients, and will acquire new techniques for the treatment of these respiratory pathologies, from the hand of experts in the field.



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*A complete program created for physiotherapy professionals, which will allow you to balance your education with other occupations and access from anywhere with total flexibility"*

Respiratory physiotherapy in critically ill patients is part of physiotherapy, but focusing on the pathophysiology of the respiratory system, both medical and surgical, requiring a demanding knowledge of the respiratory system and the existing techniques for treatment, healing and stabilization of the same.

Physiotherapy is considered one of the therapeutic pillars in the management of patients with lung diseases, whether obstructive or restrictive, chronic or acute.

The disciplinary consideration of respiratory physiotherapy with a scientific–technical basis began in the late twentieth century, thanks to technological advances that allow measuring respiratory work and techniques, and is currently becoming necessary and essential in different hospital units. Therefore, it is essential that physical therapists update their knowledge in respiratory physiotherapy and acquire new techniques and tools to apply in their daily practice.

The Postgraduate Diploma has a teaching staff specialized in respiratory physiotherapy, who contribute both their practical experience in their day-to-day work in private practice, as well as their lengthy experience in teaching at national and international level. In addition, it has the advantage of being a 100% online education, so that students can decide from where to study and at what time to do it, in this way, they can flexibly self-direct their study hours.

The **Postgraduate Diploma in Respiratory Physiotherapy in Critically Ill Patients and its Techniques** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ The latest technology in online teaching software
- ♦ Intensely visual teaching system, supported by graphic and schematic contents, easy to assimilate and understand
- ♦ Practical cases presented by practicing experts
- ♦ State-of-the-art interactive video systems
- ♦ Teaching supported by telepractice
- ♦ Continuous updating and recycling systems
- ♦ Autonomous learning: full compatibility with other occupations
- ♦ Practical exercises for self-assessment and learning verification
- ♦ Support groups and educational synergies: questions to the expert, debate and knowledge forums
- ♦ Communication with the teacher and individual reflection work
- ♦ Content that is accessible from any fixed or portable device with an Internet connection
- ♦ Supplementary documentation databases are permanently available, even after the program



*A complete and practical program that will allow you to learn in a real and direct way everything you need to work as a physiotherapist”*

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*An effective and reliable program that will take you through an interesting and efficient learning process so that you will acquire all the knowledge of an expert in the field”*

Our teaching staff is made up of working professionals. In this way we ensure that we deliver the educational update we are aiming for. A multidisciplinary team of qualified and experienced professionals in different environments, who will develop the theoretical knowledge in an efficient way, but above all, they will bring their practical knowledge from their own experience to the program: one of the differential qualities of this educational program.

This mastery of the subject is complemented by the effectiveness of the methodological design of this Postgraduate Diploma. Developed by a multidisciplinary team of *e-learning* experts, it integrates the latest advances in educational technology. This way, you will be able to study with a range of comfortable and versatile multimedia tools that will give you the operability you need in your education.

The design of this program is based on Problem-Based Learning: an approach that views learning as a highly practical process. To achieve this remotely, we will use telepractice learning: with the help of an innovative interactive video system, and *learning from an expert*, you will be able to acquire the knowledge as if you were actually dealing with the scenario you are learning about. A concept that will allow you to integrate and fix learning in a more realistic and permanent way.

*With a methodological design based on proven teaching techniques, this Postgraduate Diploma will take you through different teaching approaches to allow you to learn in a dynamic and effective way.*

*Our innovative telepractice concept will give you the opportunity to learn through an immersive experience, which will provide you with a faster integration and a much more realistic view of the contents: “Learning from an expert”.*



# 02 Objectives

This comprehensive program has been created from start to finish, to serve as a tool for personal and professional growth for physiotherapists. Its objective is to take you through a course that will allow you to acquire the most up-to-date knowledge and techniques for the most advanced and competitive practice in this field.





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*With a real practical objective, this Postgraduate Diploma will allow you to achieve your educational goals by boosting your CV to excellence"*



## General Objectives

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- ♦ Promote specialist knowledge of respiratory physiotherapy
- ♦ Update knowledge and manage physiotherapy in different patients with respiratory pathologies
- ♦ Have knowledge of the pathophysiology and advanced exploration of the respiratory system
- ♦ Execute, direct and coordinate the Respiratory Physiotherapy intervention plan for each patient



*Highly specialized objectives in a program created to qualify the best professionals in Respiratory Physiotherapy”*





## Specific Objectives

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### Module 1. Respiratory Techniques in Physiotherapy

- ♦ In-depth knowledge of the physiological mechanisms of the respiratory system
- ♦ Gain in-depth knowledge of the treatment techniques in respiratory physiotherapy
- ♦ Applying different techniques
- ♦ Handling of instrumental devices

### Module 2. Respiratory Physiotherapy in Critically Ill Patients

- ♦ Delve into respiratory physiotherapy in ICUs
- ♦ Manage the different respiratory techniques in critically ill patients
- ♦ Apply pre/post-surgery exercise programs

### Module 3. Respiratory Physiotherapy in COVID

- ♦ Manage respiratory physiotherapy treatment in COVID-19 critical care units
- ♦ Apply the correct respiratory physiotherapy treatment on site
- ♦ Become familiar with new scenarios of physiotherapy intervention in the post-COVID era

# 03

# Course Management

Within the concept of total quality of our program, we are proud to put at your disposal a teaching staff of the highest level, chosen for their proven experience. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.





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*With the expertise of industry professionals who will teach you based on the reality of the sector in a contextual and realistic learning"*

## Management



### **Dr. García Coronado, Luis Pablo**

- ♦ Physiotherapist at La Paz University Hospital
- ♦ Supervisor of the Physiotherapy Department at La Paz University Hospital.
- ♦ Specialist in sports Physiotherapy, Re-training, electrotherapy, Pilates and Therapeutic exercise.
- ♦ Director at Fisoespaña C. B
- ♦ Director at Fisioganas S.L.
- ♦ Director at Pilates Wellness & Beauty S.L.

## Professors

### Ms. Peroy Badal, Renata

- ♦ Physiotherapist in charge of Respiratory Rehabilitation for COPD patients, Hospital Virgen de la Torre
- ♦ Respiratory physiotherapy in critical patients admitted to the ICU and in pre and postoperative patients undergoing abdominal surgery discharged from the inpatient unit
- ♦ Respiratory physiotherapy in adult and pediatric patients with spinal cord injuries and different neuromuscular pathologies associated with respiratory disorders
- ♦ Degree in Physiotherapy: 1996-1999 Gimbernat University School of Nursing and Physiotherapy (Autonomous University of Barcelona)
- ♦ Graduate in Physiotherapy: 2013-2014 Complutense de Madrid with the dissertation "Health Education in Respiratory Rehabilitation in COPD in primary care"
- ♦ Official Master's Degree in Respiratory and Cardiac Physiotherapy: 2015-2016, ONCE University School of Physiotherapy (Complutense University of Madrid)
- ♦ D.U EN KINESITHERAPIE RESPIRATORIE ET CARDIOVASCULAIRE: 2007-2008, Claude Bernard-lyon University with the thesis "Education before upper abdominal surgery: co-construction of a patient-therapist booklet"

### Ms. Pérez Esteban Luis-Yagüe, Teresa

- ♦ Physiotherapist at Gregorio Marañón General University Hospital, November 2019-20 September
- ♦ Specialist in Respiratory Physiotherapy, Castilla La Mancha-Toledo University
- ♦ Master's Degree in Manual Physiotherapy of the Locomotor System, University of Alcalá-Madrid
- ♦ Degree in Physiotherapy. Pontificia University of Salamanca, Salus Infirmorum-Madrid
- ♦ Basic Radiology for Physical Therapists online course
- ♦ Therapeutic exercise update program by the Consejo Gral, Colegios de Fisioterapeutas de España (Spanish General Council of Physiotherapists' Associations)



*An impressive teaching staff, made up of professionals from different areas of expertise, will be your teachers during your training: a unique opportunity not to be missed"*

# 04

# Structure and Content

The contents of this Postgraduate Diploma have been developed by the different professors on the program with a clear purpose: to ensure our students acquire each and every one of the necessary skills to become true experts in this field.

A complete and well-structured program that will take you to the highest standards of quality and success.







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*A very complete syllabus that will take you gradually through each and every one of the learning processes that the Respiratory Physiotherapy professional needs. With an added bonus: the commitment to excellence that characterizes us"*

## Module 1. Respiratory Techniques in Physiotherapy

- 1.1. Historical Evolution of Respiratory Physiotherapy
  - 1.1.1. Different Schools of Respiratory Physiotherapy
  - 1.1.2. Different Classification of Respiratory Physiotherapy
- 1.2. Respiratory Physiotherapy Objectives
  - 1.2.1. General Objectives
  - 1.2.2. Specific Objectives
- 1.3. Physiological Mechanisms to Understand the Techniques of Respiratory Physiotherapy
  - 1.3.1. Rocher Equation
  - 1.3.2. Poiseuille Law
  - 1.3.3. Collateral Ventilation
- 1.4. Treatment Techniques in Respiratory Physiotherapy
  - 1.4.1. Forced Inspiratory Techniques
  - 1.4.2. Slow Expiratory Techniques
  - 1.4.3. Forced Expiratory Techniques
  - 1.4.4. Slow Inspiratory Techniques
- 1.5. Secretions Drainage Techniques
  - 1.5.1. Techniques Based on Gravity
  - 1.5.2. Techniques Based on Shock Waves
  - 1.5.3. Techniques Based on Air Flow
- 1.6. Lung Expansion Techniques
  - 1.6.1. EDIC
  - 1.6.2. Incentive Spirometry
  - 1.6.3. Air Staking
- 1.7. Ventilatory Techniques
  - 1.7.1. Directed Costal Ventilation Technique
  - 1.7.2. Targeted Abdomino-Diaphragmatic Ventilation Technique
- 1.8. Instrumental Devices
  - 1.8.1. Cough Assist ®
  - 1.8.2. Vibration Vests (Dresses ™)
  - 1.8.3. Percussionaire ®
  - 1.8.4. PEP Devices



- 1.9. Aerosol Therapy
  - 1.9.1. Type of Nebulizers
  - 1.9.2. Type of Inhalers
  - 1.9.3. Inhalation Technique
- 1.10. Health Education and Relaxation
  - 1.10.1. Importance of Health Education in Chronic Pathologies
  - 1.10.2. Importance of Relaxation in Chronic Pathologies

## Module 2. Respiratory Physiotherapy in Critically Ill Patients

- 2.1. Critical Patients
  - 2.1.1. Definition
  - 2.1.2. Different Work Teams With Critical Patients
  - 2.1.3. Multidisciplinary Work Team
- 2.2. Critical Unit
  - 2.2.1. Basic knowledge of Monitoring Patients
  - 2.2.2. Different Oxygen Support Devices
  - 2.2.3. Health Protection
- 2.3. Physiotherapy in the ICU
  - 2.3.1. Intensive Care Unit
  - 2.3.2. The Role of Physiotherapy in this Ward
  - 2.3.3. Systems of Mechanical Ventilation Monitoring of Mechanical Ventilation
- 2.4. Thoracic Area Physiotherapy
  - 2.4.1. Thoracic Resuscitation Unit
  - 2.4.2. *Pleur-Evac* and Pulmonary Drainage Devices
  - 2.4.3. Basic Notions in Thoracic Radiography
- 2.5. Physiotherapy in the Coronary Unit
  - 2.5.1. Cardiac Pathology Sternotomies
  - 2.5.2. Main Cardiac Surgeries and Treatments
  - 2.5.3. Breathing Exercise Programs Pre/Post Surgery
  - 2.5.4. Complications and Contraindications

- 2.6. Physiotherapy in Neuromuscular Patients
  - 2.6.1. Concept of Neuromuscular Disease (ENM) and Main Characteristics
  - 2.6.2. Respiratory Alterations in ENM and Complications with Hospital Admission
  - 2.6.3. Main Respiratory Physiotherapy Techniques Applied to NME (Hyperinflation and Assisted Cough Techniques)
  - 2.6.4. Phonatory Valve and Suction Techniques
- 2.7. URPA
  - 2.7.1. Post-anaesthetic resuscitation unit
  - 2.7.2. Sedation. Basic Concepts from Pharmacology
  - 2.7.3. Importance of Early Mobilization of Patients and Seated Sitting
- 2.8. Physiotherapy in Neonatal ICU and Pediatrics
  - 2.8.1. Embryonic Factors: Antenatal and Postnatal Factors that Determine Lung Development
  - 2.8.2. Common Respiratory Pathologies in Neonatology and Pediatrics
  - 2.8.3. Treatment Techniques
- 2.9. Approach to Bioethics
  - 2.9.1. Ethical Questions in Critical Care Units
- 2.10. Importance of Family and the Environment During the Process of Recovery
  - 2.10.1. Emotional Factors
  - 2.10.2. Guidelines for Accompaniment

## Module 3. Respiratory Physiotherapy in COVID

- 3.1. Introduction
  - 3.1.1. COVID-19. Origin
  - 3.1.2. Evolution of the Coronavirus Pandemic
  - 3.1.3. Confinement and Quarantine
- 3.2. Development of the Disease
  - 3.2.1. Clinical Picture
  - 3.2.2. Methods and Detection. Tests and Analysis
  - 3.2.3. Epidemiological Curve

- 3.3. Isolation and Protection
  - 3.3.1. P.P.E. Personal Protective Equipment
  - 3.3.2. Types of Masks and Respiratory Protection
  - 3.3.3. Hand Washing and Personal Hygiene
- 3.4. Pathophysiology in COVID-19
  - 3.4.1. Desaturation and Worsening From the Point Of View of Physiotherapy
  - 3.4.2. Complementary Tests
- 3.5. Patient Admitted to Hospital. Pre- ICU/Post- ICU
  - 3.5.1. Risk Factors and Aggravating Factors
  - 3.5.2. Criteria for Admission to a Inpatient Unit
  - 3.5.3. Admission to Critical Care Unit
- 3.6. Critically Ill Patients with COVID-19
  - 3.6.1. Characteristics of Critically Ill Patients. Average Length of Stay
  - 3.6.2. Monitoring of Mechanical Ventilation. IMV/NIMV
  - 3.6.3. Methods of Weaning Upon Improvement of the Clinical Picture
- 3.7. After-effects of Critically Ill Patients
  - 3.7.1. Barthel Scale
  - 3.7.2. DAUCI. Post-ICU Acquired Weakness
  - 3.7.3. Swallowing Disturbance
  - 3.7.4. Basal Hypoxemia
- 3.8. SEPAR Guide
  - 3.8.1. Research on the COVID-19
  - 3.8.2. Scientific Articles and Literature Reviews
- 3.9. Respiratory Physiotherapy Treatment
  - 3.9.1. Manage COVID-19 Respiratory Physiotherapy Treatment in Critical Care Units
  - 3.9.2. On-site Respiratory Physiotherapy Treatment
  - 3.9.3. Discharge Recommendations
- 3.10. Post COVID-19 Era
  - 3.10.1. New Scenarios in Physiotherapy Intervention
  - 3.10.2. Preventative Actions





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*A very complete teaching program, structured in very well-developed didactic units, focused on learning with a high educational impact”*

# 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. Gérvas, 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 Diploma in Respiratory Physiotherapy in Critically Ill Patients and its Techniques guarantees students, in addition to the most rigorous and up-to-date education program, access to a Postgraduate Diploma 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 Diploma in Respiratory Physiotherapy in Critically Ill Patients and its Techniques** 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 Diploma** issued by **TECH Technological University** via tracked delivery\*.

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

Title: **Postgraduate Diploma in Respiratory Physiotherapy in Critically Ill Patients and its Techniques**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**



\*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.





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