Postgraduate Certificate

Anatomy, Physiology, and Biomechanics of the Voice in Medicine

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Postgraduate Certificate

Anatomy, Physiology, and Biomechanics of the Voice in Medicine

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

Website: **www.techtitute.com/us/medicine/postgraduate-diploma/anatomy-physiology-biomechanics-voice-medicine**

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01

Introduction

A complete knowledge of the anatomy, physiology, and mechanics that determine the correct and healthy functioning of the human voice requires from the medical professional a pedagogical effort that allows them to know in a broader and more specific way the disorders that may arise in this field, being able to give them varied and complementary answers, including vocal therapy. This program is an advanced compendium that will lead you to a deep understanding of the different contexts in which the voice requires previous attention, support, or curative or palliative intervention.

Learn and update yourself in anatomy, physiology, and biomechanics of the voice and be able to give a wide and complete answer to patients with problems in this field"

For the physician, a complete and up-to-date knowledge of the anatomy and physiology of the voice is an essential condition in the management of conditions in which the voice is affected. Biomechanics is configured in this context as a knowledge that will allow the physician to complement this approach capacity. Incorporating this specific knowledge into your skills allows you to provide more comprehensive answers to your patients' voice problems.

The medical professionals intervene in the care of their patients' voice in many contexts and situations. Professionals such as broadcasters, journalists, commercials, actors, singers, etc., require knowledge and management of their speaking apparatus, since its use is essential for their work. In this sense, it is also important to be aware of the multifactorial nature of the voice and its alterations. The changes that occur in the human voice over time are related, among other factors, to the maturation and development of the phonorespiratory system, as well as to its deterioration.

Another type of change is due to sex-related differences. There are also modifications in the voice due to professional use and to structural and functional alterations associated or not with other pathologies. And all of this is evident in both the normal voice and the pathological voice.

For all these reasons, knowledge about the use of one's own voice, programs for the prevention of disorders, and Vocal Therapy in Medicine applied to the use in different contexts are crucial elements for the health, well-being, and development of any speaker.

This type of academic training makes professionals in this field increase their ability to succeed, which results in better practice and performance that will have a direct impact on professional work in both teaching and professional communication.

This program offers a very broad view of vocal pathology and voice physiology, with examples of successful cases. It includes all the necessary and basic techniques for the preparation and re-education of the voice, taking into account the professions that use it as their main working tool, providing tools, experiences and advances in this field, which have also been guaranteed by the teaching staff of the Postgraduate Certificate, as they all work in this field. Professionals will learn based on professional experience, as well as evidence-based pedagogy, which makes student education more effective and accurate.

This **Postgraduate Certificate in Anatomy, Physiology, and Biomechanics of the Voice in Medicine** 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
- A highly visual teaching system, supported by graphic and schematic contents that are easy to assimilate and understand
- Practical cases presented by practising 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

Our innovative telepractice concept will give you the opportunity to learn through an immersive experience, with a high educational impact”

With this Postgraduate Certificate you will be able to combine high intensity education with your personal and professional life, achieving your goals in a simple and real way"

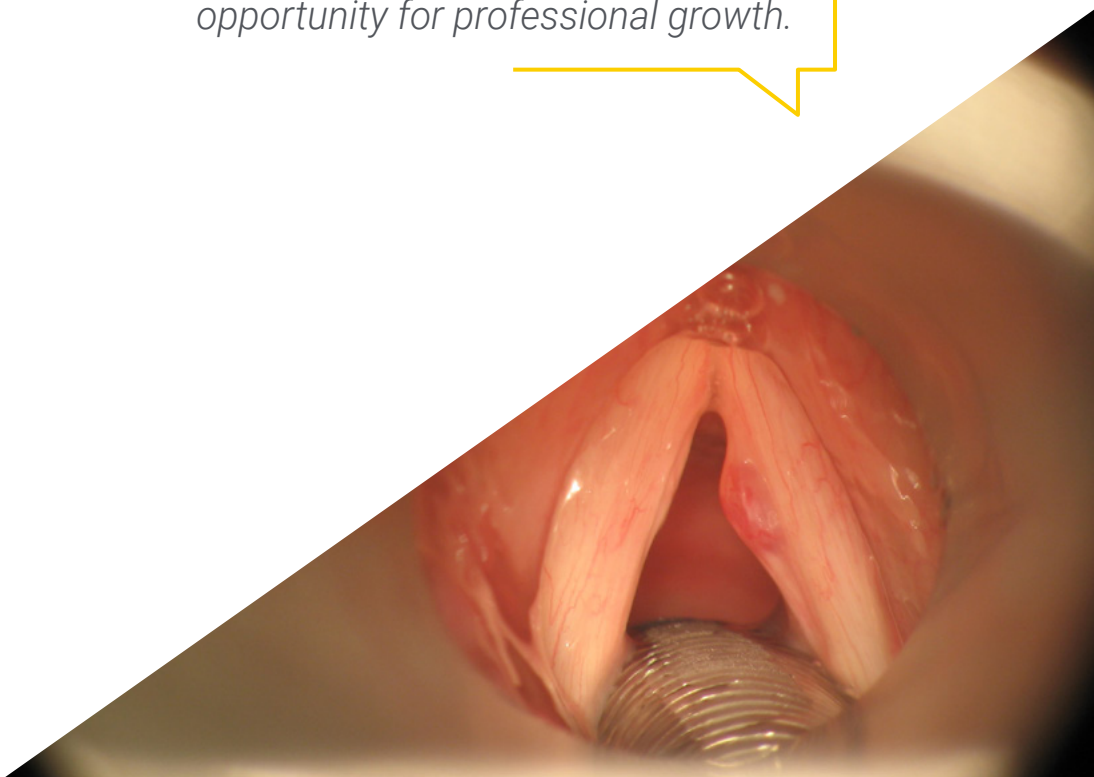
A program that will allow you to become a highly competent professional who can intervene in the improvement of your patients through voice therapy.

A program created and directed by active professionals who are experts in this field of work, which makes this Postgraduate Certificate a unique opportunity for professional growth.

The program's teaching staff includes professionals from the sector who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

Its 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 an immersive education programmed to learn in real situations.

The design of this program focuses on Problem-Based Learning, by means of which the professional must try to solve the different professional practice situations that are presented throughout the academic course. For this purpose, the student will be assisted by an innovative interactive video system created by renowned experts.



02

Objectives

The Postgraduate Certificate offers in detail the most relevant advances in the specialty from an eminently practical point of view, in an era in which the accreditation of knowledge plays a fundamental role.

The objective of this training is to offer professionals who work in Vocal Therapy, the necessary knowledge and skills to perform their duties using the most advanced protocols and techniques of the moment.

The objectives of this program have been designed to ensure that students learn in a stimulating and fast way, incorporating what they have learned in an immediate and practical way"

General Objectives

- Learn the specific anatomical and functional aspects of the phonatory system as a basis for the rehabilitation of vocal pathologies and for vocal work with voice professionals
- Gain in-depth knowledge of the most current diagnostic and treatment techniques
- Delve into the knowledge and analysis of the results obtained in objective voice assessments
- Learn how to implement a correct and complete assessment of vocal function in daily clinical practice
- Know the most important features of the voice and learn to listen to different types of voices in order to know which aspects are altered to guide clinical practice
- Analyze the different possible vocal pathologies and achieve scientific rigor in treatments
- Learn about different approaches to the treatment of vocal pathologies
- Raise awareness of the need for vocal care
- Teach the work of Vocal Therapy in Medicine focused on different voice professionals.
- Learn the importance of multidisciplinary work in some voice pathologies
- View the voice as a global ability of the person and not as an exclusive act of the phonatory system
- Solve real case studies with current therapeutic approaches based on scientific evidence

Specific Objectives

- Learn about the phylogenetic origin of the phonatory system
- Learn about the evolutionary development of the human larynx
- Learn the main muscles and the functioning of the respiratory system
- Learn about the main anatomical structures that make up the larynx and how they function
- Learn the histology of the vocal cords
- Analyze the vibratory cycle of the vocal chords
- Analyze the different structures and cavities that form the vocal tract
- Study the different theories that have given answers to how voice is produced
- Study the characteristics of phonatory physiology and its main components
- Gain in-depth knowledge of the different exploratory tests used in the morphofunctional exploration of the larynx
- Learn the instruments needed to perform a morphofunctional assessment of the phonatory system

A boost to your CV that will give you the competitiveness of the best prepared professionals in the labor market"

03

Course Management

For our course to be of the highest quality, we are proud to work with a teaching staff of the highest level, chosen for their proven track record. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.

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"

International Guest Director

Awarded on multiple occasions for her Clinical Excellence, Dr. Sarah Schneider is a renowned Speech-Language Pathologist highly specialized in the comprehensive treatment of voice and upper airway related conditions.

In this way, she has worked in prestigious international institutions such as UCSF Health in the United States. There, she has led several clinical programs that have allowed the implementation of interdisciplinary approaches for the optimal treatment of voice disorders, swallowing problems and even communication difficulties. Thanks to this, he has helped patients to optimize their quality of life considerably by overcoming complex pathologies ranging from Laryngeal Dystonia or abnormal Vocal Vibrations to Voice Rehabilitation in transgender users. In this same line, he has contributed significantly to numerous singers and professional speakers to optimize their vocal performance.

She also balances this work with her facet as a Clinical Researcher. As such, she has written multiple scientific articles on subjects such as the most innovative techniques for the restoration of the voice in people who have lost it due to surgery or serious injuries such as laryngeal cancer. Her line of study also includes the use of advanced technologies for the diagnosis and treatment of common Phonetic Dysfunctions, among which Hypernasality is included.

In his firm commitment to improving the overall well-being of individuals, he has shared his findings at various conferences on a global scale with the aim of advancing progress in this field. Through these initiatives, she has enabled specialists to not only update on the most recent advances in voice restoration, but also to develop effective strategies for the prevention of vocal injuries in experts who rely on their oral ability, actors being a clear example of this.

Dr. Schneider, Sarah

- Director of Speech-Language Pathology at UCSF Health, California, United States
- Speech Pathologist for Dr. Robert T. Sataloff in Philadelphia, Pennsylvania
- Speech Pathologist at Vanderbilt Voice Center in Nashville, Tennessee
- Master of Science degree in Speech-Language Pathology from Marquette University
- Bachelor of Science degree in Communication Sciences and Disorders from Marquette University
- Member of:
  - Editorial Board of theJournal of Voice
  - California Hearing and Speech Association

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

Guest Director

Dr. Gavilán, Javier

- Head of Service and Professor of Otorhinolaryngology at the La Paz university hospital, Madrid
- 350 articles in international scientific journals
- Recipient of the Honor Award from the American Academy of Otolaryngology-HNS
- Member of more than 25 Scientific Societies

Management

Ms. Martín Bielsa, Laura

- Director of Multidisciplinary Center Dime Más
- Speech therapist and teacher
- Expert in voice pathology
- Director of Multidisciplinary Center Dime Más
- CFP Estill Voice Training
- Extensively trained in different methods of vocal rehabilitation
- Dean of the Professional Association of Speech-Language Pathologists of Aragon

Professors

Dr. Ogén Morado, Carolina

- ENT Service at the La Paz university hospital of Madrid
- Postgraduate course in rehabilitation and improvement of the professional speaking and singing voice Institute of Human Sciences-University of Alcalá de Henares Madrid
- Postgraduate course in voice pathology Institute of Human Sciences-University of Alcalá de Henares Madrid
- Graduate in Teaching, specializing in Hearing and Language, La Coruña University
- Postgraduate course in Hearing and Language Disorders at the University of La Coruña
- Diploma in Speech Therapy from the University of La Coruña

Dr. García-López, Isabel

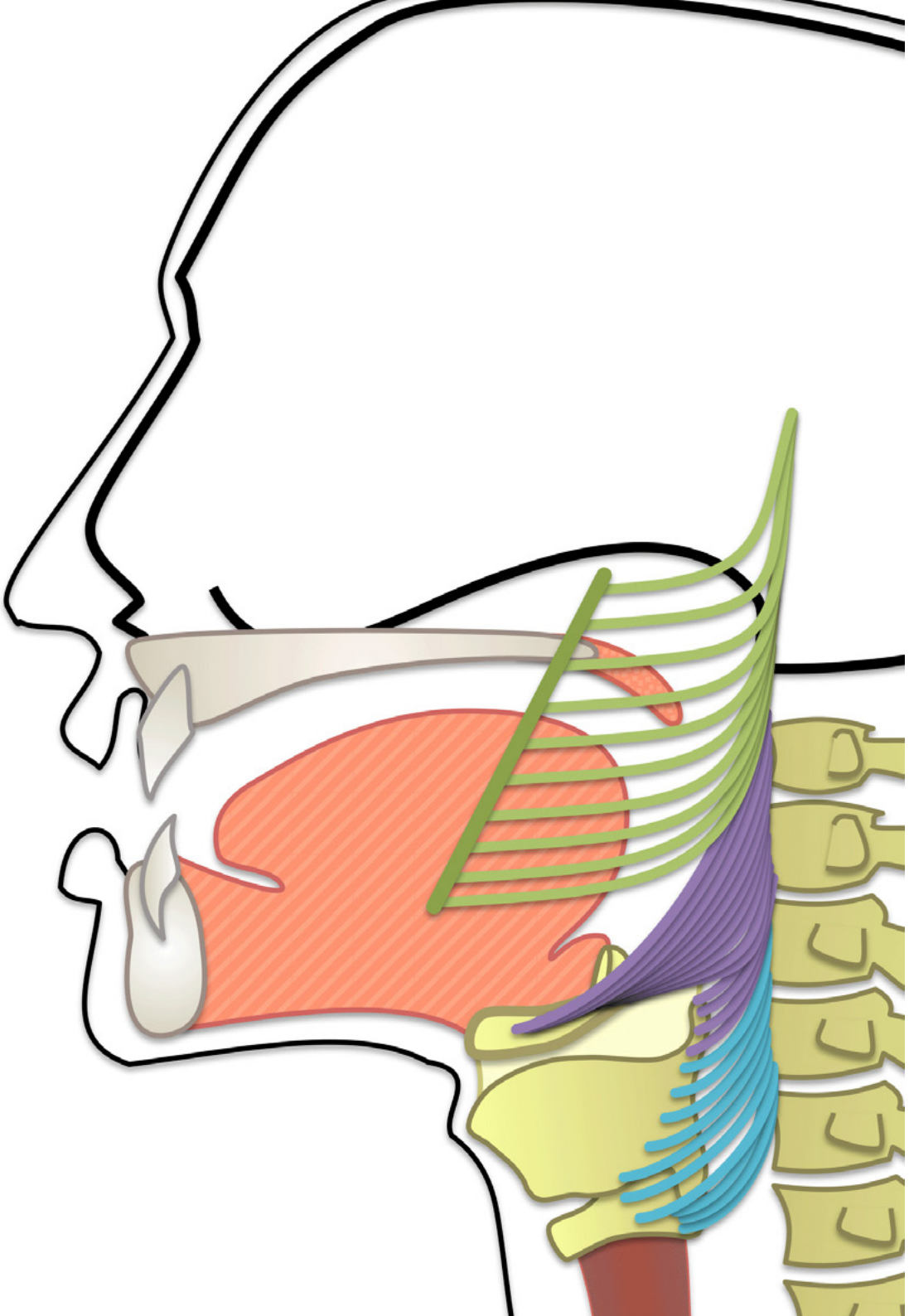
- PhD in Medicine and Surgery from the Autonomous University of Madrid.
- Medical Specialist in Otorhinolaryngology with specific training and dedication to Voice Disorders
- General Vice-Secretary of the Spanish Society of Otorhinolaryngology and Head and Neck Surgery
- Lecturer in the postgraduate course on Voice Disorders at the Ramon Llul University of Barcelona
- Professor of the Master's Degree in Vocal Disorders at the Catholic University of Murcia
- Member of the main scientific societies in the world related to voice: Voice Foundation, Collegium Medicorum Theatri, European Society of Laryngology, International Association of Phonosurgery and Spanish Society of Otorhinolaryngology and Head and Neck Surgery
- Otorhinolaryngology Department, La Paz hospital, Madrid
- General Vice-Secretary of the Spanish Society of Otorhinolaryngology and Head and Neck Surgery

Dr. Bernáldez Millán, Ricardo

- ENT Assistant in the specialty of Otorhinolaryngology at La Paz university hospital, La Paz
- PhD in Medicine and Surgery from the Autonomous University of Madrid.
- Teaching collaborator for the subject of Otorhinolaryngology at the Faculty of Medicine of the UAM
- More than 30 ENT-related publications in scientific journals
- Author of 15 book chapters on Otolaryngology
- Specialized in Head and Neck Surgery

Dr. Rivera Schmitz, Teresa

- Head and Neck Section of the La Paz university hospital, Madrid
- Specialized in Laryngology
- Degree in Surgery
- She studied at the Autonomous University of Madrid and completed her residency at the Unviersiy Hospital Complex of Vigo
- Fellowship at the Bradford Royal Infirmary Hospital in the United Kingdom, in the field of Otology
- She has published several articles as author or co-author and has participated in some book chapters and papers in recent years In addition, she has participated in lectures and courses as a speaker in the field of voice and dysphagia



Ms. Pozo García, Susana

- Director of the Fisyos Center in Andorra
- Physiotherapist
- Director of the Fisyos Center in Andorra
- Specialist in Osteopathy Extensive training and clinical experience in myofascial induction, dry needling and lymphatic drainage
- Internship tutor at the Health Sciences University School of Zaragoza

Fernández Peñarroya, Raúl

- Director of the Fisyos center in Andorra
- Physiotherapist with extensive training in Rehabilitation
- Manual therapy, fascial treatment and dry needling
- Research activity on aspects of physiotherapy treatment in Parkinson's disease

04

Structure and Content

The contents of this Postgraduate Certificate have been developed by different experts, with a clear purpose: to ensure that our students acquire each and every one of the skills necessary 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.

This Postgraduate Certificate in Vocal Therapy contains the most complete and up-to-date program on the market"

Module 1. Anatomical, Physiological and Biomechanical Basics of the Voice

1.1. Laryngeal Phylogeny and Embryology
- 1.1.1. Laryngeal Phylogeny
- 1.1.2. Laryngeal Embryology

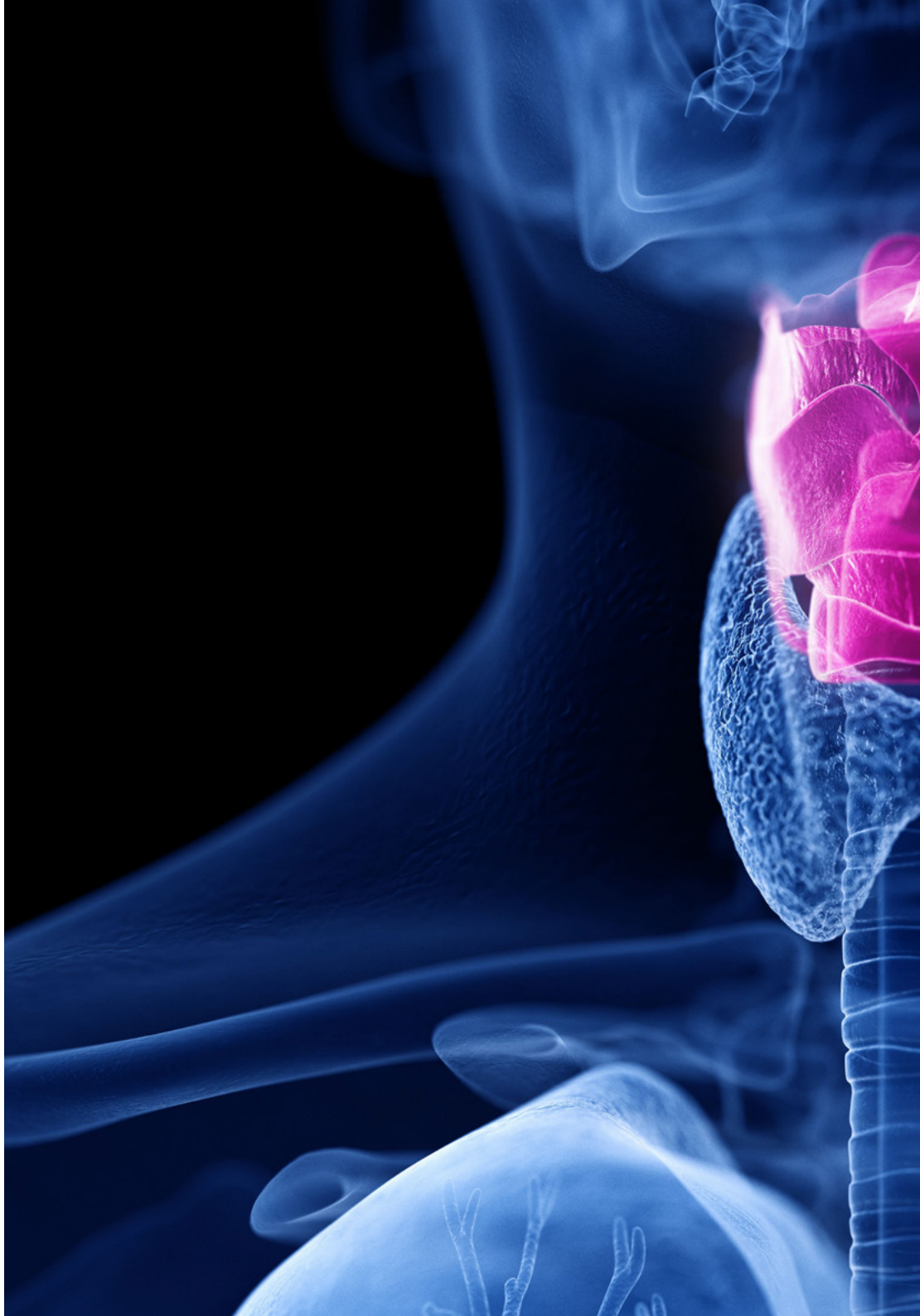
1.2. Basic Concepts of Physiology
- 1.2.1. Muscle Tissue
- 1.2.2. Types of Muscle Fibers

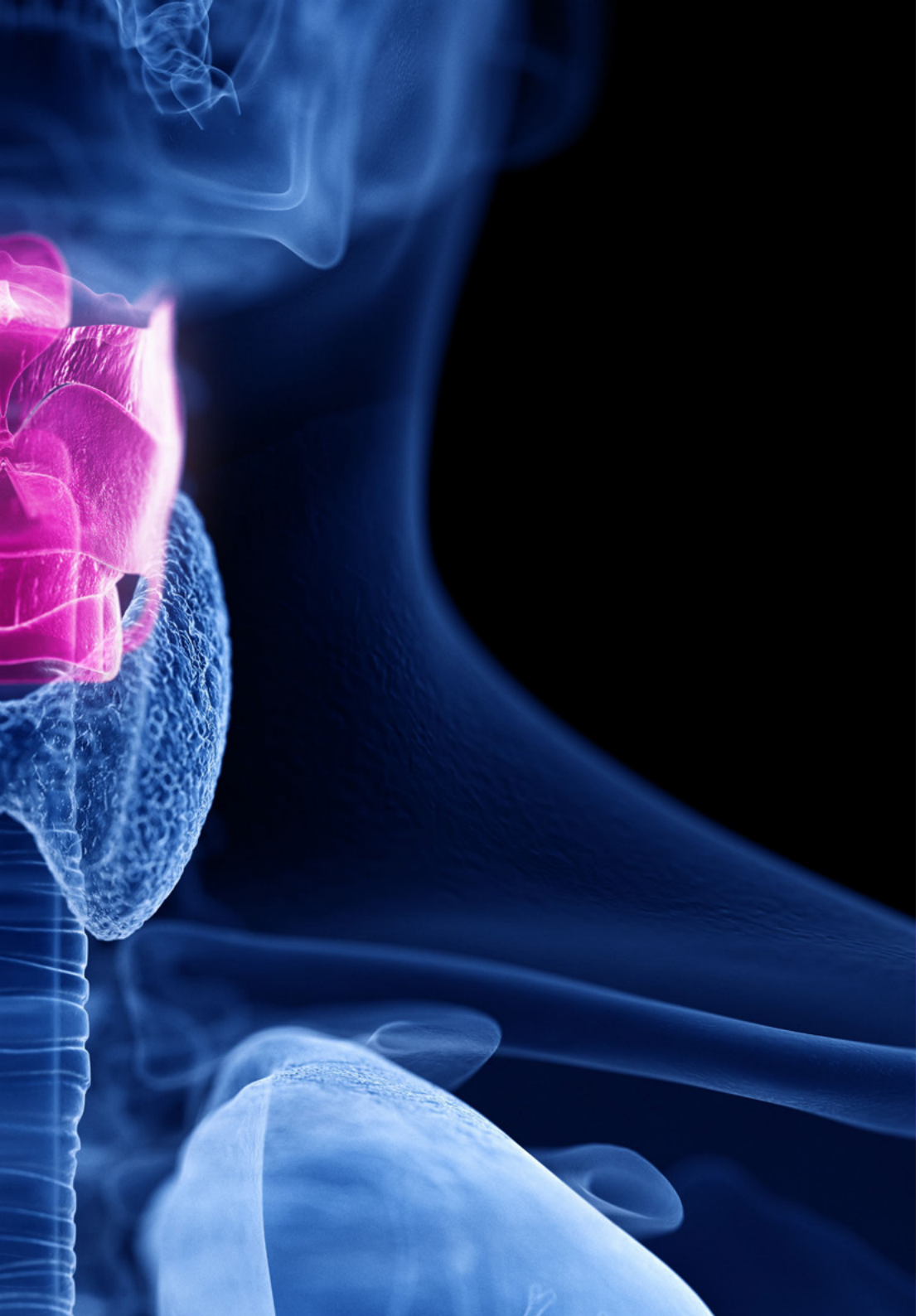
1.3. Respiratory System Structures
- 1.3.1. Chest
- 1.3.2. Airways

1.4. Respiratory System Musculature
- 1.4.1. Inspiratory Muscles
- 1.4.2. Expiratory Muscles

1.5. Respiratory System Physiology
- 1.5.1. Respiratory System Function
- 1.5.2. Lung Capacities and Volumes
- 1.5.3. Lung Nervous System
- 1.5.4. Breathing at Rest VS Breathing in Phonation

1.6. Laryngeal Anatomy and Physiology
- 1.6.1. Laryngeal Skeleton
- 1.6.2. Laryngeal Cartilages
- 1.6.3. Ligaments and Membranes
- 1.6.4. Joints
- 1.6.5. Musculature
- 1.6.6. Vascularization
- 1.6.7. Laryngeal Innervation
- 1.6.8. Lymphatic System





1.7. Structure and Function of the Vocal Cords
- 1.7.1. Histology of the Vocal Cords
- 1.7.2. Biomechanical Properties of the Vocal Cords
- 1.7.3. Phases of the Vibration Cycle
- 1.7.4. Fundamental Frequency

1.8. Anatomy and Physiology of the Vocal Tract
- 1.8.1. Nasal Cavity
- 1.8.2. Oral Cavity
- 1.8.3. Laryngeal Cavity
- 1.8.4. Linear and Non-Linear Source and Filter Theory

1.9. Voice Production Theory
- 1.9.1. Historical Recap
- 1.9.2. Edald's Primitive Myoelastic Theory
- 1.9.3. Husson's Neuro-Chronaxial Theory
- 1.9.4. Completed Mucoondulatory Theory and Aerodynamic Theory
- 1.9.5. Neurooscillatory Theory
- 1.9.6. Oscillo-Impedial Theory
- 1.9.7. Mass-Spring Models

1.10. The Physiology of Phonation
- 1.10.1. Neurological Control of Phonation
- 1.10.2. Pressure
- 1.10.3. Thresholds
- 1.10.4. Beginnings and Endings of the Vibration Cycle
- 1.10.5. Laryngeal Adjustments for Phonation

05

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**

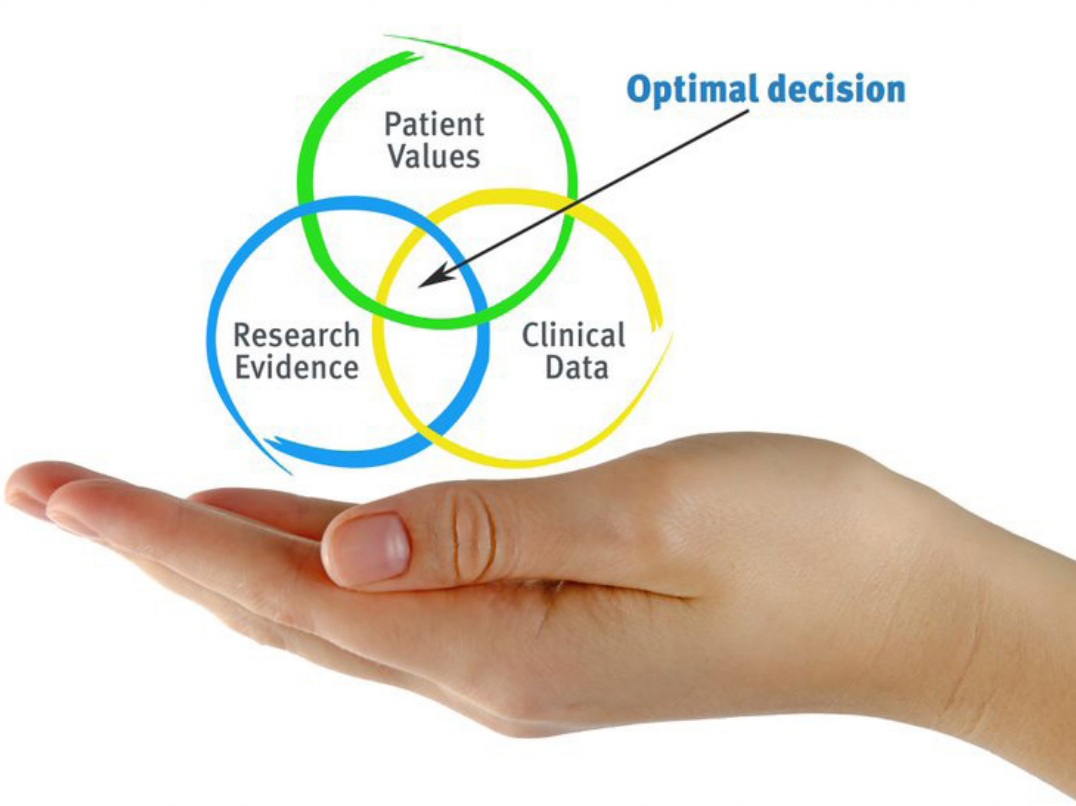
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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. Specialists learn better, faster, and more sustainably over time.

With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.



According to Dr. 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 in the physician's professional practice.

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

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

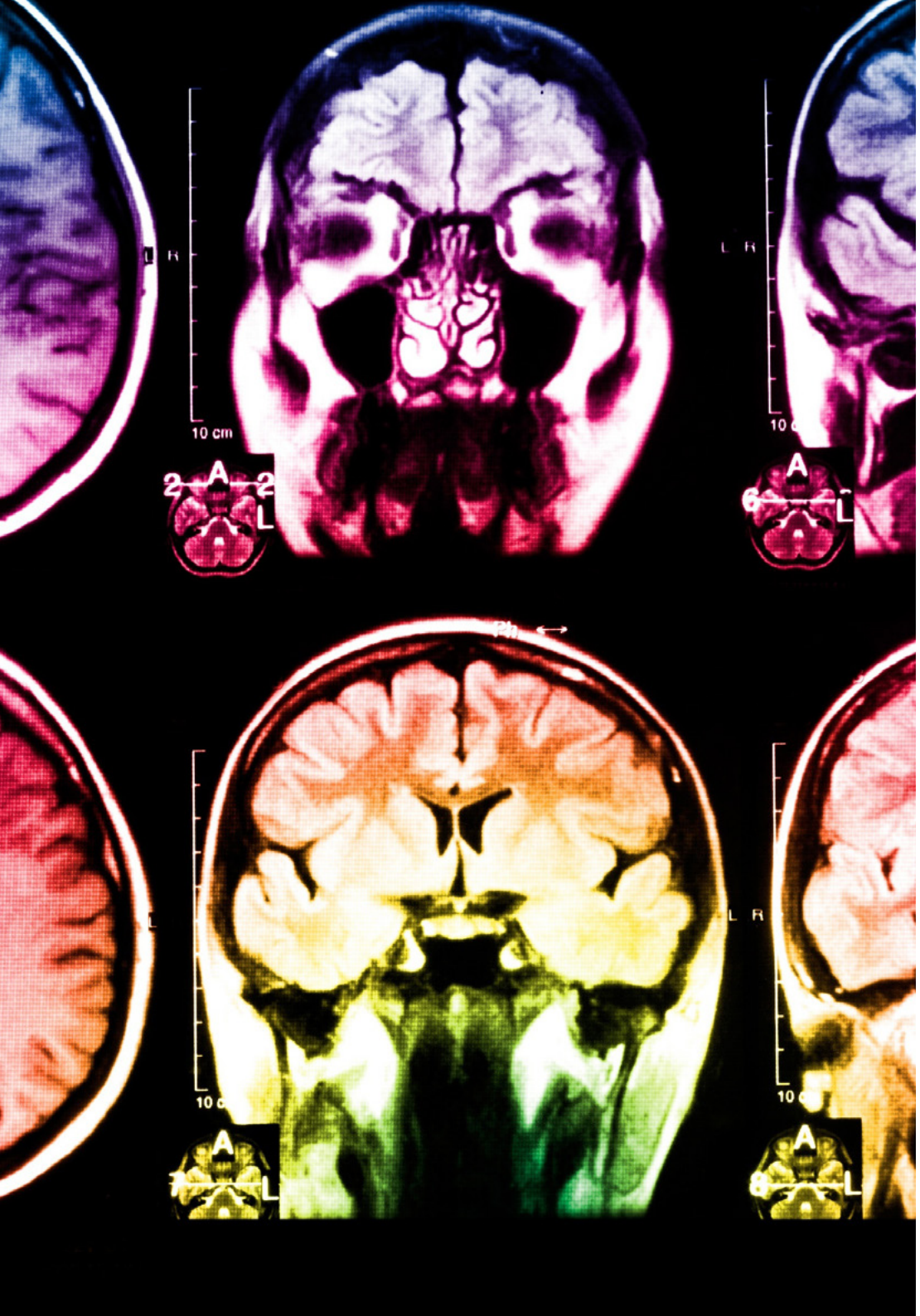
1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.

Professionals will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.



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

With this methodology, more than 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.

This program offers the best educational material, prepared with professionals in mind:

Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.

Surgical Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.

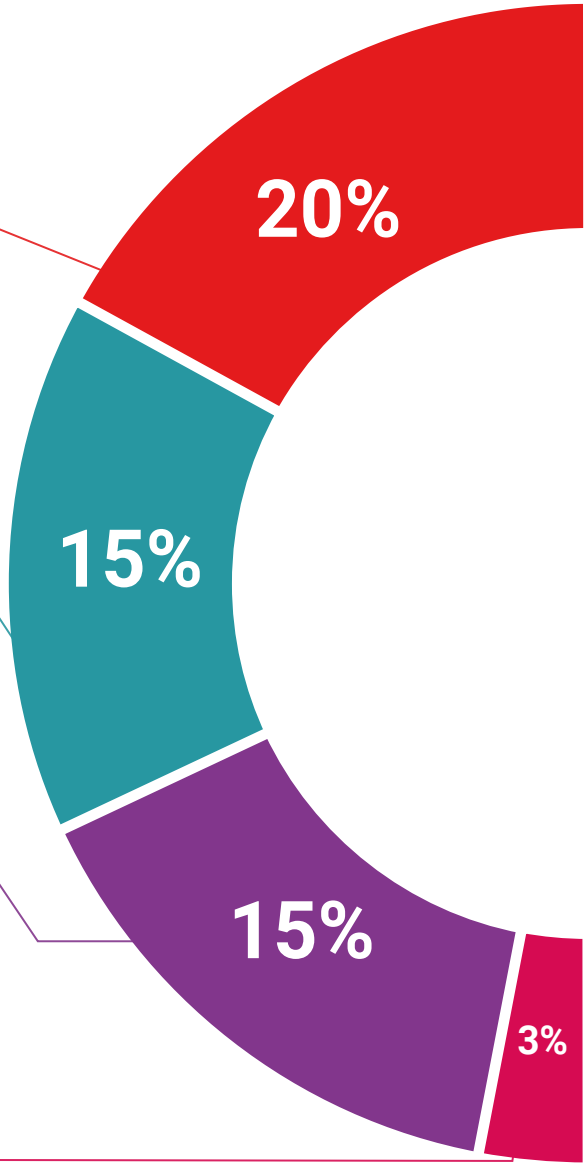
Interactive Summaries

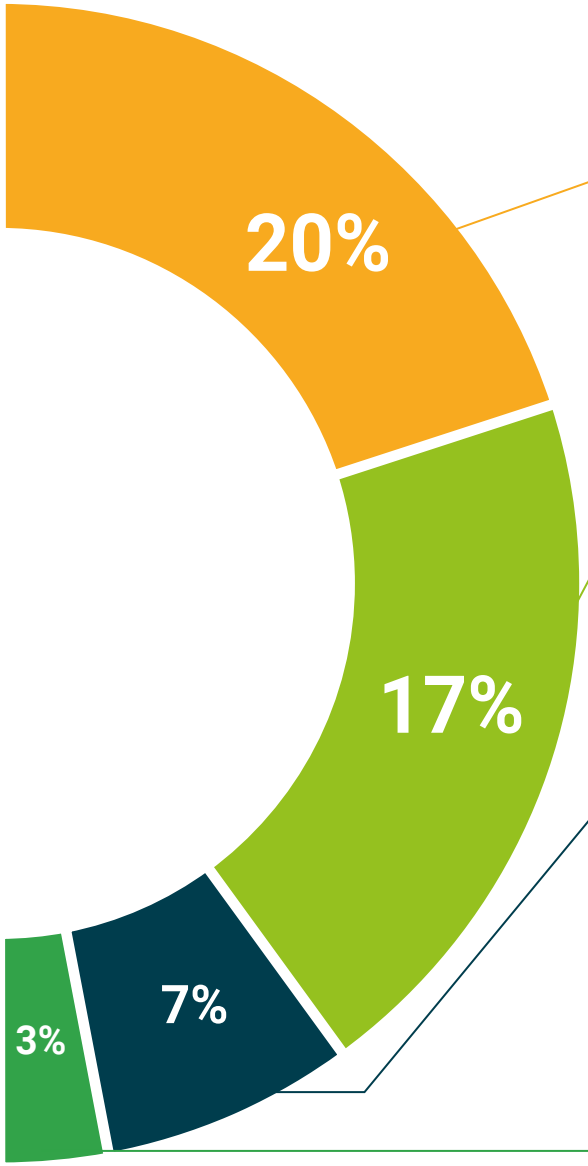
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.

Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

Classes

There is scientific evidence on the 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 Anatomy, Physiology, and Biomechanics of the Voice in Medicine 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 Anatomy, Physiology, and Biomechanics of the Voice in Medicine** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra (***official bulletin***). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

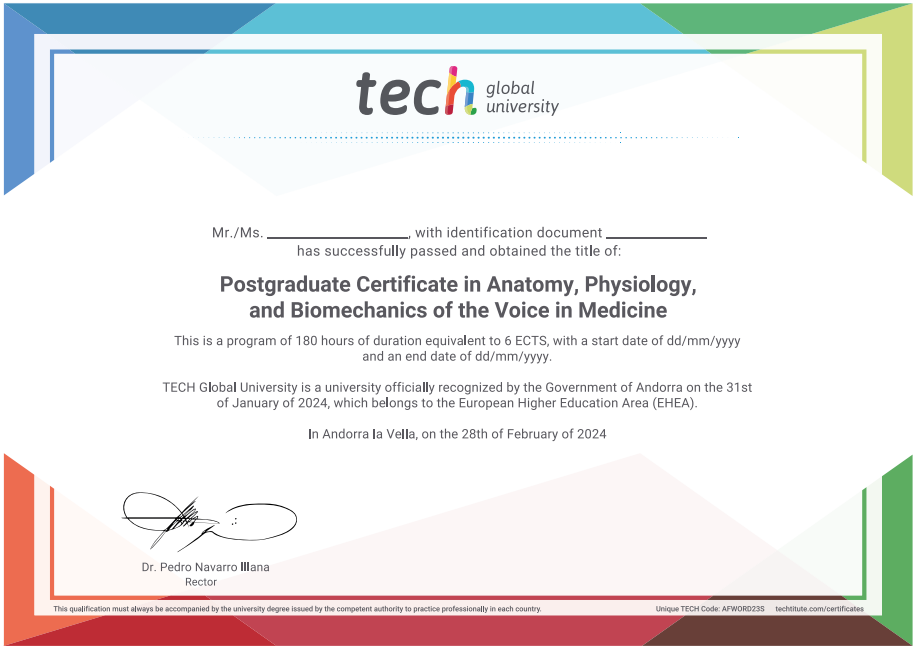
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Anatomy, Physiology, and Biomechanics of the Voice in Medicine**

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 Anatomy, Physiology, and Biomechanics of the Voice in Medicine

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

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.

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