

Professional Master's Degree  
Logopedic and Orofacial  
Neurorehabilitation





## Professional Master's Degree Logopedic and Orofacial Neurorehabilitation

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/education/professional-master-degree/master-logopedic-orofacial-neurorehabilitation](http://www.techtute.com/us/education/professional-master-degree/master-logopedic-orofacial-neurorehabilitation)

# Index

01

Introduction

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*p. 4*

02

Objectives

---

*p. 8*

03

Skills

---

*p. 14*

04

Course Management

---

*p. 18*

05

Structure and Content

---

*p. 22*

06

Methodology

---

*p. 42*

07

Certificate

---

*p. 50*

# 01

# Introduction

The voice is a vital instrument for human development. Effective communication and expression is achieved through it, so it is essential to take care of it and treat it in the face of the numerous existing pathologies. In this context, there is a very wide field of action for teachers, since through their training, experience and observation they are in charge of detecting any dysfunction that may occur in a student's voice. However, in order to do this effectively, professional updating is also essential. This is the only way to deliver quality praxis based on the latest scientific findings. It is in this context that justifies the creation of the present program, which brings together the latest advances in Logopedic Neurorehabilitation. Over 12 months, the program provides an opportunity for an academic update, taught with first class didactic material and with the seal of quality and prestige of TECH.





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*Effective collaboration between teachers and speech therapists is fundamental in detecting voice pathologies early. Get up to date with this program, which will give you the keys to offer quality teaching based on the latest scientific findings”*

The role of teachers is fundamental in the development of numerous basic functions in children. Beyond the merely academic, teachers play a vital role in the early detection of numerous disorders in their students. Thanks to their specific training, experience and knowledge of child development, educators can detect dysfunctional developments in instruments such as the voice, becoming key players in effectively treating children and in selecting specific rehabilitation techniques and treatments.

Thus, in order to carry out this work in a specific way, it is necessary to go a step further and keep constantly updated to know the latest advances in areas such as OFT (Orofacial and Myofunctional Therapy). This discipline is responsible for the prevention, assessment, diagnosis and intervention of orofacial alterations or dysfunctions present in the stomatognathic system. Thanks to this knowledge, teachers will be able to intervene in the development of basic functions such as chewing, swallowing, sucking or breathing, simultaneously treating the muscular structures that act synergistically in each of these processes.

Due to this, there is a growing demand for university programs that train speech therapists and teachers to offer a comprehensive and complete educational, health and clinical response. For this reason, and following its commitment to offer quality education adapted to the specific requirements of each field, TECH presents this Professional Master's Degree where, in just 12 months of intensive online learning, the program compiles the latest scientific advances that will allow you to manage the alterations or disorders of a speech-pedagogical nature in the educational context.

Specifically, during the course of the program students will delve into aspects such as the most advanced therapies in vocal rehabilitation, the anatomy and physiology of the voice, the specific treatment in cases of students with ASD (Autism Spectrum Disorder) or the different dietary guidelines for children with autism, among other issues.

Furthermore, this program stands out for its convenient, entirely virtual format, which allows teachers to update their knowledge without having to give up their professional and/or personal projects. And thanks to its design based on the latest educational technology, educators will learn in a simpler way thanks not only to theoretical guides, but also to complementary audiovisual material, real clinical cases and in focus videos, among many other pedagogical resources. All this makes this TECH program the most complete academic option in the university landscape.

This **Professional Master's Degree in Logopedic and Orofacial Neurorehabilitation** contains the most complete and up-to-date program on the market. Its most notable features are:

- ♦ A large number of practical cases presented by experts in logopedic neurorehabilitation
- ♦ 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
- ♦ The latest developments in logopedic neurorehabilitation
- ♦ Practical exercises where self-assessment can be used to improve learning
- ♦ Algorithm-based interactive learning system for decision-making in the situations that are presented to the student
- ♦ With special emphasis on evidence-based methodologies in logopedic neurorehabilitation
- ♦ 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



*A 100% online program that will allow you to learn about the different disorders in infant swallowing and new treatments to approach oropharyngeal and esophageal dysphagia in children"*

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*TECH uses the best pedagogical methodology in its academic programs. Thus, you are ensured a more comfortable and efficient assimilation of knowledge”*

The program's teaching staff includes professionals from the sector who contribute their work experience to this training program, as well as renowned specialists from 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 specialization 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 student will be assisted by an innovative interactive video system created by renowned and experienced experts.

*This practice-oriented study program is a perfect opportunity to learn while optimally balancing your professional development and your personal life.*

*Be part of the global shift toward excellence in the area of speech therapy and education by taking this Professional Master's Degree. Enroll today and start seeing a dramatic change in your professional life.*



02

# Objectives

TECH professionals are fully aware of the importance of speech therapist/teacher collaboration, since it is the only way to ensure early detection of the different vocal dysfunctions in students. For this reason, and with the aim of offering an update of the highest quality, this program has been designed for educators to naturally and progressively update on the latest approaches in speech therapy and orofacial / myofacial / myofunctional therapy. A high-level, qualitative leap that will enable professionals to be at the forefront of this area.







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*If your goal is to be able to effectively detect voice disorders in your students, then welcome, this TECH program is the right place for you”*



## General Objectives

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- ♦ Develop a broad body of knowledge of the anatomical and functional basis of the central and peripheral nervous system
- ♦ Study the anatomy and function of the organs involved in basic functions such as respiration, phonation and swallowing
- ♦ Acquire knowledge in both assessment and speech therapy intervention
- ♦ Delve into rehabilitation techniques supported by clinical practice
- ♦ Develop intervention skills acquired from complementary disciplines such as neuropsychology, physiotherapy and psychology
- ♦ Become proficient in the assessment, diagnosis and treatment of neurofunctional and logopedic disorders in specific groups with neurodevelopmental or syndromic disorders
- ♦ Know various approaches and intervention programs in neurological and speech therapy neurorehabilitation



*A unique program for its eminently practical approach, which will help you position yourself as a first-class teacher in the field of speech therapy”*





## Specific Objectives

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### Module 1. Introduction to Neurorehabilitation I: Fundamentals of Neuroanatomy

- ♦ Know how the brain has been studied throughout history since antiquity
- ♦ Study the basis of the nervous system in order to understand how the brain works
- ♦ Detail the stages of embryological development of the nervous system in general terms
- ♦ Classify the different structures that form the central nervous system
- ♦ Study the structural and functional organization of the cerebral cortex
- ♦ Identify the general characteristics that make up the ascending and descending pathways of the spinal cord
- ♦ Recognize the differences between child and adult populations in clinical practice
- ♦ Study the different functions performed by the autonomic nervous system
- ♦ Know the characteristics that constitute motor control

### Module 2. Introduction to Neurorehabilitation II: Speech Therapy Treatment

- ♦ Know the different brain damage diseases as a basis for neuropsychological exploration
- ♦ Know the basic cognitive functions
- ♦ Know how to conceptualize the functions of attention, memory and perception
- ♦ Know classifications, processes and systems
- ♦ Acquire basic knowledge of the assessment tests used
- ♦ Know the main alterations of the functions studied here
- ♦ Acquire an approach to the knowledge of executive functions and language

- ♦ Know what neuropsychological rehabilitation consists of and how to approach each cognitive function
- ♦ Know different behavior modification techniques (BCT)
- ♦ Develop some basic notions of how to apply BCT
- ♦ Acquire tools to act in the face of behavioral disorders
- ♦ Know how to apply BCT to speech therapy for improved results
- ♦ Know the clinical implication of occupational therapy in speech therapy rehabilitation
- ♦ Know the role of families during the rehabilitation process

### Module 3. Anatomy and Physiology of the Voice

- ♦ Learn how to implement a correct and complete assessment of vocal function in daily clinical practice
- ♦ 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
- ♦ 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

### Module 4. Vocal Rehabilitation

- ♦ Gain in-depth knowledge of the most current diagnostic and treatment techniques
- ♦ Analyze the different possible vocal pathologies and achieve scientific rigor in treatments

- ♦ Solve real case studies with current therapeutic approaches based on scientific evidence
- ♦ Delve into the knowledge and analysis of the results obtained in objective voice assessments
- ♦ Learn about different approaches to the treatment of vocal pathologies
- ♦ Raise awareness of the need for vocal care
- ♦ View the voice as a global ability of the person and not as an exclusive act of the phonatory system

#### **Module 5. Orofacial/Myofunctional Therapy (OMT) and Early Care**

- ♦ Understand oral-facial behavior in children, both innate and acquired
- ♦ Recognize correct motor patterns in swallowing, breathing and sucking
- ♦ Detect functional alteration in diet early
- ♦ Understand the importance of oro-facial growth and vegetative functions development at the pediatric level
- ♦ Detect the signs of proper posture and apply them in different positions for breastfeeding
- ♦ Learn how to use alternative techniques in infant diets
- ♦ Learn to manage the different intervention strategies at the pediatric orofacial level in children with swallowing disorders
- ♦ Know and develop action plans during diet that can be helpful in first instance with a high chance of success
- ♦ Create diet programs adapted and individualized to each case in a preventive, re-educative and rehabilitative way

#### **Module 6. Assessment and Intervention in Dysphagia of Neurological Origin in Adults**

- ♦ Learn the anatomy and physiology of swallowing
- ♦ Provide anatomical and physiological knowledge of the structures involved in normal and pathological swallowing
- ♦ Learn the functional basis of dysphagia to classify it and know the pathologies associated with this disorder



- ♦ Know the scales of assessment, exploration and instrumental techniques
- ♦ Develop strategies to assess dysphagia before, during and after speech therapy intervention
- ♦ Learn how to assess the nutritional status of patients with dysphagia and the consequences of poor hydration and malnutrition
- ♦ Learn compensatory techniques as opposed to rehabilitative techniques
- ♦ Train in the comprehensive approach to dysphagia of neurological origin

### **Module 7. Dentistry and Orofacial Disorder**

- ♦ Know the function of structures involved in breathing, chewing and swallowing
- ♦ Recognize dentomaxillary abnormalities
- ♦ Relate, complement and coordinate the work between dentistry and speech therapy
- ♦ Know orthodontic appliances
- ♦ Know and assess the functions of the orofacial system and their interrelationship
- ♦ Recognize when swallowing is dysfunctional
- ♦ Elaborate orofacial-myofunctional assessment protocols

### **Module 8. Differential Diagnosis of Autism Spectrum Disorder (ASD)**

- ♦ Develop skills that favor the assessment of orofacial system alterations in congenital neurological disorders
- ♦ Favor the quality of life of neurological patients by improving their eating habits
- ♦ Broaden knowledge and consolidate the bases of infantile oral motor functioning
- ♦ Create programs for new habits and routines directly related to special needs student diets in order to improve their quality of life both at a personal and a social level
- ♦ Improve the intake quality in Parent-Child Interaction (PCI) during feeding to offer greater

safety and efficiency in each intake

### **Module 9. Diet in Congenitally Acquired Disorder**

- ♦ Know the concept of ASD and how sensory profiles influence diet
- ♦ Study potential strategies to deal with difficulties during feeding
- ♦ Learn how to develop work programs that enhances feeding function
- ♦ Provide support strategies in terms of understanding the context through visual, tactile and auditory support
- ♦ Generate practical tools to be implemented in natural contexts
- ♦ Promote the creation of individualized, flexible diet programs based on the interests of autistic children

# 03 Skills

With the aim of offering superior educational advancement, TECH has prepared a first-class academic program where not only a review of the physiology and development of the voice is conducted, but also a breakdown of the latest advances in orofunctional therapy, considering other professionals in the process (such as dentists, nurses, speech therapists and the like). This will give teachers a global vision of the profession that will help them to offer quality praxis in school environments. Thanks to this, they will be able to detect different voice dysfunctions, especially in the early stages of a child's growth.





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*This program will enable you to master new methodologies and strategies in speech therapy and orofacial neurorehabilitation, applying them to your daily practice with the efficiency of a specialist”*



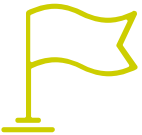
## General Skills

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- ♦ Possess and understand knowledge that provides a basis or opportunity to be original in the development and/or application of ideas, often in a research context
- ♦ Know how to apply acquired knowledge and problem-solving skills in new or unfamiliar environments within broader (or multidisciplinary) contexts related to the area of study
- ♦ Be able to integrate knowledge and face the complexity of making judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities linked to the application of their knowledge and judgments
- ♦ Know how to communicate conclusions, knowledge, and supporting arguments to specialized and non-specialized audiences in a clear and unambiguous way
- ♦ Acquire the learning skills to continue studying in a manner that will be largely self-directed or autonomous







## Specific Skills

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- ♦ Use logopedic terminology in Orofacial Myofunctional Therapy (OMT) and related fields through the use of semiology as a basis for the understanding of all professional activity
- ♦ Detect, evaluate and explore the different orofacial system disorders at a structural level, considering basic and vital functions (breathing, swallowing, chewing and sucking) to re-educate or rehabilitate patients toward optimal neuromuscular function and an adequate muscular balance during growth and development
- ♦ Create work teams during myofunctional intervention, making joint decisions and assessments of the evolution of the case
- ♦ Become aware of the importance of making referrals to different health professionals such as pediatricians, stomatologists, speech therapists, otolaryngologists, neurologists, dentists, physiotherapists, occupational therapists, etc.
- ♦ Create prevention programs for the different orofacial and myofunctional disorders and alterations
- ♦ Explore, assess, diagnose and make a prognosis of the evolution of orofacial alterations from a multidisciplinary approach
- ♦ Study, know and learn to use the different exploration techniques and instruments suitable for functional health, educational or clinical practice
- ♦ Put into practice the different types of orofacial intervention in an optimized way and adapted to each case according to etiology and motor development
- ♦ Develop attitudes capable of advising and guiding families and healthcare, clinical

and educational agents involved in each case Use assertiveness and clarity to obtain optimal interaction

- ♦ Define the profession's limits and competences, and learn well-founded good practices
- ♦ Establish channels of communication, collaboration and coordination with healthcare and social agents
- ♦ Elaborate and write referral reports and speech therapy assessments at orofacial level, in a direct, clear and complete way
- ♦ Perform speech therapy intervention in all the required areas, applying principles of coherent intervention and with professional skill



*Increase your skills in the early detection of voice dysfunctions in the school environment and become a key player in the integral development of your students"*

# 04

# Course Management

For an effective approach to the different voice treatments, interprofessional collaboration is key. TECH is aware of this, so it has chosen for this program a multidisciplinary faculty that will help teachers acquire a global and complete vision of the treatment of different speech therapy and orofacial disorders. A great opportunity in the hands of students, which will allow them to learn from professionals of great importance, whom they would not be able to access otherwise.



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*Learn the latest advances in the approach to Logopedic Neurorehabilitation from leading professionals” Their extensive experience will help you grow and establish yourself as a first-class teacher”*

## Management



### Mr. Borrás Sanchís, Salvador

- Psychologist
- Teacher and Speech Therapist
- Educational counselor at Generalitat Valenciana, Consejería de Educación (Valencian Regional Government)
- Pedagogical Director at the DEIAP Institute



### Ms. Santacruz García, Estefanía

- Social Integrationist and Clinical Speech Therapist
- Specialist in Orofacial and Myofunctional Therapy Uner Clinic, Unit of Integral Neurorehabilitation from Brain Injury
- Teacher at Cefire, Center for Training, Innovation and Educational Resources of the Community of Valencia

## Professors

### Ms. Álvarez Valdés, Paula del Carmen

- ♦ Clinical Speech Therapist Specialist in Myofunctional Therapy
- ♦ Diploma in Psychodiagnosis and Early Care Treatment
- ♦ Direct Collaboration in Dental Office

### Dr. Carrasco Delarriva, Concha

- ♦ Neuropsychologist and Assistant Professor, Department of Psychology, San Antonio Catholic University, Murcia, UCAM
- ♦ Child Neuropsychology
- ♦ Master's Degree in Neuropsychology
- ♦ Spanish Association of Clinical Cognitive-Behavioral Psychology
- ♦ Expert in Child and Cognitive Rehabilitation

### Ms. Gallego Díaz, Mireia

- ♦ Occupational Therapist
- ♦ Speech Therapist Expert in Swallowing Disorders
- ♦ Hospital Speech Therapist

### Ms. Selva Cabañero, Pilar

- ♦ Nurse Specialist in Obstetric-Gynecological Nursing (Midwife)
- ♦ Obstetric-Gynecological Nursing Teaching Unit, University of Murcia Santa Lucía General University Hospital
- ♦ Publication, Ankyloglossia and the Success of Breastfeeding, ISBN13: 978- 84- 695- 5302- 2. 2012

### Ms. Martín Bielsa, Laura

- ♦ Speech Therapist Expert in Speech Pathology, Child Development and Early Childhood Attention
- ♦ Diploma in Teaching and Dean of the Professional Association of Speech Therapists of Aragon
- ♦ Director of the Master's Degree in Vocal Therapy, Cardenal Herrera University

### Ms. García Gómez, Andrea Maria

- ♦ Clinical Speech Therapist Specialized in Brain Damage
- ♦ Neurologopedist in Neurorehabilitation Unit

### Ms. Jiménez Jiménez, Ana

- ♦ Social Worker and Clinical Neuropsychologist
- ♦ Specialized in Brain Injury Neurorehabilitation in clinical settings

### Ms. López Samper, Belén

- ♦ PSG and Clinical Neuropsychologist
- ♦ Specialized in Child and Adult Neurorehabilitation at Centro Integral de Daño Cerebral

### Ms. Muñoz Boje, Rocío

- ♦ Occupational Therapist Specialist in Neurorehabilitation

### Ms. Navarro Maruenda, Laura

- ♦ Neuropsychologist
- ♦ Expert in Clinical Neuropsychology
- ♦ Specialized in Child and Adult Neurorehabilitation at Centro Integral de Daño Cerebral

### Ms. Santacruz García, Raquel

- ♦ Diploma and Degree in Human Nutrition and Dietetics
- ♦ Nutritional Treatment and Counseling in Medical Pathologies

### Mr. Santacruz García, José Luis

- ♦ Psychologist specializing in Congenital and Acquired Brain Injury

### Ms. Sanz Pérez, Nekane

- ♦ Clinical Speech Therapist specialized in Acquired Cerebral Palsy
- ♦ Teacher in Iberocardio for Aspace (Main Confederation and Entity for Cerebral Palsy Care in Spain)

# 05

## Structure and Content

The contents have been structured and designed by a team of professional experts in the field. Intensively collect the latest scientific advances in the area of Logopedic Neurorehabilitation, with special emphasis on the different techniques, procedures and approaches that will not only enable the detection of different orofacial and vocal dysfunctions, but also treatment that will promote effective recovery. All this will be condensed into nine modules that include first-class didactic materials, presented in multimedia format that facilitate expanding one's knowledge in a much more efficient way.



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*In focus videos, case studies, complementary multimedia material and many more resources. Don't miss this opportunity and get up to date in Logopedic Neurorehabilitation with the best didactic material in the university landscape”*

## Module 1. Introduction to Neurorehabilitation I: Fundamentals of Neuroanatomy

- 1.1. History of Brain Discovery
  - 1.1.1. Introduction
  - 1.1.2. Stages in Brain History: Mind vs. Brain
    - 1.1.2.1. From Antiquity to the 2nd Century
    - 1.1.2.2. From the 2nd to the 17th Century
    - 1.1.2.3. From the 19th Century to the Present
  - 1.1.3. A Modern Vision of the Brain
  - 1.1.4. Neuropsychological Rehabilitation
  - 1.1.5. Conclusions
  - 1.1.6. Bibliography
- 1.2. Introduction to the Nervous System
  - 1.2.1. Introduction
  - 1.2.2. Neurons
    - 1.2.2.1. Cell Anatomy
    - 1.2.2.2. Cell Functions
    - 1.2.2.3. Classification of Neurons
    - 1.2.2.4. Support Cells or Glia
  - 1.2.3. Transmitting Information
    - 1.2.3.1. Action Potentials
      - 1.2.3.1.1. Resting Potential
      - 1.2.3.1.2. Action Potential
      - 1.2.3.1.3. Postsynaptic Potential, Local or Graded
  - 1.2.4. Neuronal Circuits
  - 1.2.5. Hierarchical Neural Organization
    - 1.2.5.1. Introduction
    - 1.2.5.2. Features
  - 1.2.6. Brain Plasticity
  - 1.2.7. Conclusions





- 1.3. Neurodevelopment
  - 1.3.1. Introduction
  - 1.3.2. Phases in Brain Development
    - 1.3.2.1. Neurogenesis: Proliferation
    - 1.3.2.2. Cell Migration
    - 1.3.2.3. Cell Differentiation
    - 1.3.2.4. Synaptogenesis
    - 1.3.2.5. Apoptosis: Neuronal Death
    - 1.3.2.6. Myelination
  - 1.3.3. Brain Maturation from Birth to Adolescence
  - 1.3.4. Actuation Systems in Newborns: Reflexes
  - 1.3.5. Warning Signs
  - 1.3.6. Conclusions
  - 1.3.7. Bibliography
- 1.4. Central Nervous System
  - 1.4.1. Introduction
  - 1.4.2. Peripheral Nervous System
  - 1.4.3. Central Nervous System
    - 1.4.3.1. CNS Protection System: Meninges
    - 1.4.3.2. Irrigation of the CNS
    - 1.4.3.3. Spinal Cord
    - 1.4.3.4. Brain
      - 1.4.3.4.1. Introduction
      - 1.4.3.4.2. Structure
        - 1.4.3.4.2.1. Brain Stem
        - 1.4.3.4.2.2. Rhombencephalon or Hindbrain
        - 1.4.3.4.2.3. Mesencephalon or Midbrain
        - 1.4.3.4.2.4. Prosencephalon or Forebrain
  - 1.4.4. Conclusions
  - 1.4.5. Bibliography
- 1.5. Structural and Functional Organization of the Cerebral Cortex
  - 1.5.1. Introduction
  - 1.5.2. Brodmann Map
  - 1.5.3. Cerebral Hemispheres and Cerebral Cortex: Structural Organization
    - 1.5.3.1. Circumvolutions and Main Sulci: Cerebral Lobes
    - 1.5.3.2. Structure of the Cerebral Cortex
    - 1.5.3.3. White Matter
      - 1.5.3.3.1. Association Fibers
      - 1.5.3.3.2. Commissural Fibers
      - 1.5.3.3.3. Projection Fibers
  - 1.5.4. Cortical Areas: Functional Organization
  - 1.5.5. Conclusions
  - 1.5.6. Bibliography
- 1.6. Spinal Cord Pathways
  - 1.6.1. Spinal Cord
  - 1.6.2. Ascending Cord Pathways
  - 1.6.3. Anatomical Organization
  - 1.6.4. Functions and Lesions of the Ascending Pathways
  - 1.6.5. Descending Cord Pathways
  - 1.6.6. Anatomical Organization
  - 1.6.7. Descending Tract Functions
  - 1.6.8. Descending Tract Lesions
  - 1.6.9. Sensory Receptors
  - 1.6.10. Anatomical Types of Receptors
- 1.7. Cranial Nerves
  - 1.7.1. Essential Basic Vocabulary
  - 1.7.2. History
  - 1.7.3. Introduction
  - 1.7.4. Nerve Components
  - 1.7.5. Classification of Cranial Nerves
  - 1.7.6. Pathologies
  - 1.7.7. Summary

- 1.8. Spinal Nerves
  - 1.8.1. Introduction
  - 1.8.2. Components
  - 1.8.3. Dermatomes
  - 1.8.4. Plexus
  - 1.8.5. Cervical Plexus
  - 1.8.6. Brachial Plexus
  - 1.8.7. Lumbar Plexus
  - 1.8.8. Sacral Plexus
  - 1.8.9. Pathologies
- 1.9. Autonomic Nervous System
  - 1.9.1. Basic Vocabulary
  - 1.9.2. General Aspects
  - 1.9.3. ANS Functions
  - 1.9.4. Somatic Nervous System vs. Autonomous Nervous System
  - 1.9.5. Organisation
  - 1.9.6. Sympathetic ANS
  - 1.9.7. Parasympathetic ANS
  - 1.9.8. Enteric Nervous System
  - 1.9.9. ANS Disorders
- 1.10. Motor Control
  - 1.10.1. Somatosensory System
  - 1.10.2. Upper Motor Circuit
  - 1.10.3. Movement
  - 1.10.4. Introduction to Motor Control
  - 1.10.5. Clinical Applications of Motor Control and Learning in Neurorehabilitation
  - 1.10.6. Neurological Impairment
  - 1.10.7. Global Summary

## Module 2. Introduction to Neurorehabilitation II: Speech Therapy Treatment

- 2.1. Etiology of Brain Damage
  - 2.1.1. Introduction
  - 2.1.2. Vascular Disorders
    - 2.1.2.1. Occlusive Syndromes
    - 2.1.2.2. Types of Cerebrovascular Disease
    - 2.1.2.3. Neuropsychological Disorders in CVA
  - 2.1.3. Intracranial Neoplasms
    - 2.1.3.1. General Characteristics
    - 2.1.3.2. Tumor Classification
    - 2.1.3.3. Neuropsychological Disorders in Tumours
  - 2.1.4. Cranioencephalic Trauma (CET)
    - 2.1.4.1. General Characteristics
    - 2.1.4.2. Types of CET
    - 2.1.4.3. CET Disorders
  - 2.1.5. Neurodegenerative Diseases
    - 2.1.5.1. General Characteristics
    - 2.1.5.2. Types and Disorders
  - 2.1.6. Epilepsy
    - 2.1.6.1. General Characteristics
    - 2.1.6.2. Classification
  - 2.1.7. Central Nervous System Infections.
    - 2.1.7.1. General Characteristics
    - 2.1.7.2. Classification
  - 2.1.8. Cerebrospinal Fluid Circulation and Disorders
    - 2.1.8.1. General Characteristics
    - 2.1.8.2. Disorders
  - 2.1.9. Global Summary

## 2.2. Cognitive Functions I: Attention, Perception and Memory

### 2.2.1. Introduction to Cognitive Functions

### 2.2.2. Alertness System

#### 2.2.2.1. Concept

#### 2.2.2.2. Evaluation

#### 2.2.2.3. Disorders

### 2.2.3. Attention

#### 2.2.3.1. Focused/Selective Attention

##### 2.2.3.1.1. Concept

##### 2.2.3.1.2. Evaluation

##### 2.2.3.1.3. Disorders

#### 2.2.3.2. Sustained Attention

##### 2.2.3.2.1. Concept

##### 2.2.3.2.2. Assessment

##### 2.2.3.2.2. Disorders

#### 2.2.3.3. Alternating Attention

##### 2.2.3.3.1. Concept

##### 2.2.3.3.2. Evaluation

##### 2.2.3.3.3. Disorders

#### 2.2.3.4. Divided Attention

##### 2.2.3.4.1. Concept

##### 2.2.3.4.2. Evaluation

##### 2.2.3.4.3. Disorders

### 2.2.4. Memory

#### 2.2.4.1. Concept

#### 2.2.4.2. Process

#### 2.2.4.3. Classification

#### 2.2.4.4. Evaluation

#### 2.2.4.5. Disorders

### 2.2.5. Perception

#### 2.2.5.1. Concept

#### 2.2.5.2. Evaluation

#### 2.2.5.3. Disorders

## 2.3. Cognitive Functions II: Language and Executive Functions

### 2.3.1. Conceptualization of Executive Functions

### 2.3.2. Executive Functions Assessment

### 2.3.3. Executive Function Disorders

### 2.3.4. Dorsolateral Prefrontal Syndrome

### 2.3.5. Orbitofrontal Syndrome

### 2.3.6. Mesial Frontal Syndrome

### 2.3.7. Conceptualization of Language

### 2.3.8. Language Assessment

### 2.3.9. Language Impairment

## 2.4. Neuropsychological Assessment

### 2.4.1. Introduction

### 2.4.2. Neuropsychological Assessment Objectives

### 2.4.3. Assessment Variables

### 2.4.4. Diffuse vs. Local Brain Injury

### 2.4.5. Injury Location and Size

### 2.4.6. Injury Depth

### 2.4.7. Distant Effects of the Injury

### 2.4.8. Disconnection Syndrome

### 2.4.9. Injury Time Evolution

### 2.4.10. Intrinsic Patient-Related Variables

### 2.4.11. Quantitative vs. Qualitative Assessment

### 2.4.12. Stages in Neuropsychological Assessment

### 2.4.13. Clinical History and Establishing Therapeutic Relationships

### 2.4.14. Test Administration and Correction

### 2.4.15. Analyzing and Interpreting Results, Preparing Reports and Returning Information

- 2.5. Neuropsychological Rehabilitation and Speech Therapy Applications
  - 2.5.1. Neuropsychological Rehabilitation I: Cognitive Functions
    - 2.5.1.1. Introduction
  - 2.5.2. Attention and Perception
    - 2.5.2.1. Training Attention Processes
    - 2.5.2.2. Effectiveness
    - 2.5.2.3. Virtual Reality
  - 2.5.3. Memory
    - 2.5.3.1. Basic Principles
    - 2.5.3.2. Memory Strategies
    - 2.5.3.3. Virtual Reality
  - 2.5.4. Praxis
    - 2.5.4.1. Stimulation Strategies
    - 2.5.4.2. Specific Tasks
  - 2.5.5. Language
    - 2.5.5.1. General Advice
    - 2.5.5.2. Specific Tasks
  - 2.5.6. Executive Functions (EF)
    - 2.5.6.1. General Advice
    - 2.5.6.2. EF Stimulation
      - 2.5.6.2.1. Sohlberg and Mateer
      - 2.5.6.2.2. Executive Deficit Treatment Techniques
    - 2.5.6.3. Specific Tasks
    - 2.5.6.4. Effectiveness
  - 2.5.7. Summary
  - 2.5.8. Bibliography
- 2.6. Behavioural Rehabilitation and Speech Therapy Applications
  - 2.6.1. Introduction
    - 2.6.1.1. ERC Reference Model
    - 2.6.1.2. Orientations/Currents
    - 2.6.1.3. Behavior Modification Characteristics
    - 2.6.1.4. Behavior Modification Techniques: General Use/Specific Use
  - 2.6.2. Behavioral Assessment: Observation
    - 2.6.2.1. Define Target Behavior
    - 2.6.2.2. Choose Measurement Methods
    - 2.6.2.3. Record Sheets
    - 2.6.2.4. Contextual Aspects of What Is Observed
  - 2.6.3. Operant Techniques: Behavioral Development
    - 2.6.3.1. Introduction
    - 2.6.3.2. Theoretical Concepts
    - 2.6.3.3. Reinforcement Programs
    - 2.6.3.4. Molding
    - 2.6.3.5. Chaining
    - 2.6.3.6. Fading
    - 2.6.3.7. Negative Reinforcement
    - 2.6.3.8. Scope of Application
  - 2.6.4. Operant Techniques: Behavior Reduction
    - 2.6.4.1. Introduction
    - 2.6.4.2. Extinction
    - 2.6.4.3. Time Off
    - 2.6.4.4. Cost of Response
    - 2.6.4.5. Scope of Application
  - 2.6.5. Operant Techniques: Contingency Organization Systems
    - 2.6.5.1. Introduction
    - 2.6.5.2. Token Economy
    - 2.6.5.3. Behavioral Contracts
    - 2.6.5.4. Scope of Application
  - 2.6.6. Modeling Techniques
    - 2.6.6.1. Introduction
    - 2.6.6.2. Procedure
    - 2.6.6.3. Modeling Techniques
    - 2.6.6.4. Scope of Application

- 2.6.7. Frequent Behavior in Logopedics
  - 2.6.7.1. Impulsiveness
  - 2.6.7.2. Apathy
  - 2.6.7.3. Disinhibition
  - 2.6.7.4. Anger or Aggressiveness
- 2.6.8. Conclusions
- 2.7. Rehabilitation in Occupational Therapy and Speech Therapy Applications
  - 2.7.1. Occupational Therapy
  - 2.7.2. Body Posture in Speech Therapy
  - 2.7.3. Body Posture
  - 2.7.4. Adaptations in Body Posture
  - 2.7.5. Techniques in Neurorehabilitation: Bobath, Affolter, Basal Stimulation
  - 2.7.6. Adaptations/Support Products Useful in Speech Therapy Rehabilitation
  - 2.7.7. Objective of Occupational Therapy as an Integrative Measure
- 2.8. Child Neuropsychology
  - 2.8.1. Introduction
  - 2.8.2. Child Neuropsychology: Definition and General Foundation
  - 2.8.3. Etiology
    - 2.8.3.1. Genetic and Environmental Factors
    - 2.8.3.2. Classification
      - 2.8.3.2.1. Neurodevelopment Disorders
      - 2.8.3.2.2. Acquired Brain Injury
  - 2.8.4. Neuropsychological Assessment
    - 2.8.4.1. General Aspects and Assessment Phase
    - 2.8.4.2. Assessment Tests
  - 2.8.5. Neuropsychological Intervention
    - 2.8.5.1. Family Intervention
    - 2.8.5.2. Educational Intervention
- 2.8.6. Cognitive Function Development
  - 2.8.3.1. First Childhood (0-2 Years of Age)
  - 2.8.3.2. Preschool Period (2-6 Years of Age)
  - 2.8.3.3. School Period (6-12 Years of Age)
  - 2.8.3.4. Adolescence (12-20 Years of Age)
- 2.8.7. Conclusions
- 2.8.8. Bibliography
- 2.9. Family Approach and Therapy
  - 2.9.1. Introduction
  - 2.9.2. Family Care in the Acute and Subacute Phase
    - 2.9.2.1. Acute Phase: Hospital Stay
    - 2.9.2.2. Subacute Phase: Return Home
    - 2.9.2.3. What about after Rehabilitation?
  - 2.9.3. The Family as Part of the Rehabilitation Process
  - 2.9.4. Needs Posed by the Family during the Rehabilitation Process
  - 2.9.5. The Rehabilitation Team
  - 2.9.6. Conclusions
  - 2.9.7. Bibliography
- 2.10. A Transdisciplinary Rehabilitation Example: Clinical Case
  - 2.10.1. Clinical Cases
  - 2.10.2. CET Theories
  - 2.10.3. Broca's Aphasia: Anatomopathological Correlates and Disorders Associated with Broca's Aphasia
  - 2.10.4. Neuropsychological Assessment
  - 2.10.5. Neuropsychological Profile
  - 2.10.6. Results
  - 2.10.7. Deficits and Potentials
  - 2.10.8. Injury Course and Treatment
  - 2.10.9. Specific Objectives for Patients with Broca's Aphasia
  - 2.10.10. Fundamentals of Rehabilitation

### Module 3. Anatomy and Physiology of the Voice

- 3.1. Voice Anatomy
  - 3.1.1. Laryngeal Anatomy
  - 3.1.2. Respiratory Structures Involved in Phonation
    - 3.1.2.1. Chest
    - 3.1.2.2. Airway
    - 3.1.2.3. Respiratory Musculature
  - 3.1.3. Laryngeal Structures Involved in Phonation
    - 3.1.3.1. Laryngeal Skeleton
    - 3.1.3.2. Cartilage
    - 3.1.3.3. Joints
    - 3.1.3.4. Musculature
    - 3.1.3.5. Innervation
  - 3.1.4. Structures of the Vocal Tract Involved in Phonation
    - 3.1.4.1. Linear Source-Filter Model
    - 3.1.4.2. Non-Linear Source-Filter Model
- 3.2. Voice Physiology
  - 3.2.1. Histology of Vocal Folds
  - 3.2.2. Biomechanical Properties of the Vocal Folds
  - 3.2.3. Myoelastic Mucocondulatory Theory and Aerodynamic Theory
- 3.3. Pathological Voice
  - 3.3.1. Euphonia vs Dysphonia
  - 3.3.2. Vocal Fatigue
  - 3.3.3. Acoustic Signs of Dysphonia
  - 3.3.4. Classification of Dysphonia
- 3.4. Medical- Surgical Treatment
  - 3.3.1. Phonosurgery
  - 3.3.2. Laryngeal Surgery
  - 3.3.3. Medication in Dysphonia
- 3.5. Physical and Acoustic Aspects
  - 3.5.1. Physical Aspects of the Voice
    - 3.5.1.1. Types of Waves
    - 3.5.1.2. Physical Properties of Sound Waves: Amplitude and Frequency
    - 3.5.1.3. Transmission of Sound
  - 3.5.2. Acoustic Voice Aspects
    - 3.5.2.1. Intensity
    - 3.5.2.2. Pitch
    - 3.5.2.3. Quality
- 3.6. Objective Voice Assessment
  - 3.6.1. Morphofunctional Exploration
  - 3.6.2. Electroglottography
  - 3.6.3. Aerodynamic Measures
  - 3.6.4. Electromyography
  - 3.6.5. Videochemography
  - 3.6.6. Acoustic Analysis
- 3.7. Perceptual Assessment
  - 3.7.1. GRBAS
  - 3.7.2. RASAT
  - 3.7.3. GBR Score
  - 3.7.4. CAPE-V
  - 3.7.5. VPAS
- 3.8. Functional Assessment
  - 3.8.1. Fundamental Frequency
  - 3.8.2. Phonetogram
  - 3.8.3. Maximum Phonatory Times
  - 3.8.4. Velo-Palatine Efficiency
  - 3.8.5. VHI
- 3.9. Assessing Vocal Quality
  - 3.9.1. Vocal Quality
  - 3.9.2. High Quality Voice vs. Low Quality Voice
  - 3.9.3. Vocal Quality Assessment in Voice Professionals

- 3.10. Medical History
  - 3.10.1. The Importance of Medical History
  - 3.10.2. Characteristics of the Initial Interview
  - 3.10.3. Medical History Sections and Voice Implications
  - 3.10.4. Proposal of a Model of Anamnesis for Vocal Pathology

## Module 4. Vocal Rehabilitation

- 4.1. Speech Therapy Treatment for Functional Dysphonias
  - 4.1.1. Type I: Isometric Laryngeal Disorder
  - 4.1.2. Type II: Glottic and Supraglottic Lateral Contraction
  - 4.1.3. Type III: Anteroposterior Supraglottic Contraction
  - 4.1.4. Type IV: Conversion Aphonia/Dysphonia and Psychogenic Dysphonia with Arched Vocal Cords
  - 4.1.5. Transitional Adolescent Dysphonia
- 4.2. Speech Therapy Treatment for Organic Dysphonias
  - 4.2.1. Introduction
  - 4.2.2. Speech Therapy in Congenital Origin Dysphonias
  - 4.2.3. Speech Therapy in Acquired Origin Dysphonias
- 4.3. Speech Therapy Treatment for Organic-Functional Dysphonias
  - 4.3.1. Introduction
  - 4.3.2. Objectives in the Rehabilitation of Organic-Functional Pathologies
  - 4.3.3. Proposal of Exercises and Techniques according to the Rehabilitation Objective
- 4.4. Voice in Acquired Neurological Problems
  - 4.4.1. Dysphonias of Neurological Origin
  - 4.4.2. Speech Therapy Treatment
- 4.5. Child Dysphonia
  - 4.5.1. Anatomical Characteristics
  - 4.5.2. Vocal Characteristics
  - 4.5.3. Intervention
- 4.6. Hygiene Therapy
  - 4.6.1. Introduction
  - 4.6.2. Harmful Habits and Their Effect on the Voice
  - 4.6.3. Preventive Measures

- 4.7. Semi-Occluded Vocal Tract Exercises
  - 4.7.1. Introduction
  - 4.7.2. Justification
  - 4.7.3. TVSO
- 4.8. Estill Voice Training
  - 4.8.1. Jo Estill and the Creation of the Model
  - 4.8.2. Principles of Estill Voice Training
  - 4.8.3. Description

## Module 5. Orofacial/Myofunctional Therapy (OMT) and Early Care

- 5.1. Neonatal Development
  - 5.1.1. Neonatal Development
  - 5.1.2. NBAS: Neonatal Behavioral Assessment
  - 5.1.3. Early Diagnosis
  - 5.1.4. Neurologic Diagnosis
  - 5.1.5. Habituation
  - 5.1.6. Oral Motor Reflexes
  - 5.1.7. Body Reflexes
  - 5.1.8. Vestibular System
  - 5.1.9. Social and Interactive Media
  - 5.1.10. Use of NBAS in High-Risk Newborns
- 5.2. Eating Disorders in Children
  - 5.2.1. Feeding Processes
  - 5.2.2. Pediatric Swallowing Physiology
  - 5.2.3. Phases in Skill Acquisition
  - 5.2.4. Deficits
  - 5.2.5. Multidisciplinary Work
  - 5.2.6. Warning Symptomatology
  - 5.2.7. Premature Orofacial Development
  - 5.2.8. Feeding Methods: Parenteral, Enteral, Tube, Gastrectomy, Oral (Modified or Unmodified Diet)
  - 5.2.9. Gastroesophageal Reflux

- 5.3. Neurodevelopment and Infant diets
  - 5.3.1. Embryonic Development
  - 5.3.2. Appearance of Main Primary Functions
  - 5.3.3. Risk Factors
  - 5.3.4. Evolutionary Milestones
  - 5.3.5. Synaptic Function
  - 5.3.6. Immaturity
  - 5.3.7. Neurological Maturity
- 5.4. Brain-Motor Skills
  - 5.4.1. Innate Orofacial Motor Skills
  - 5.4.2. Evolution of Orofacial Motor Patterns
  - 5.4.3. Reflex Swallowing
  - 5.4.4. Reflex Breathing
  - 5.4.5. Reflex Suction
  - 5.4.6. Assessing Infant Oral Reflexes
- 5.5. Nursing
  - 5.5.1. Early Start
  - 5.5.2. Impact at the Orofacial Level
  - 5.5.3. Exclusivity
  - 5.5.4. Optimal Nutrition
  - 5.5.5. Spontaneous Maturation of Oral Musculature
  - 5.5.6. Muscle Mobility and Synergy
  - 5.5.7. Position
  - 5.5.8. Therapeutic Recommendations
  - 5.5.9. Intellectual Development
  - 5.5.10. Intervention Program





- 5.6. Early Feeding Techniques
  - 5.6.1. Newborn Feeding
  - 5.6.2. Positioning Techniques
  - 5.6.3. Signs of Good Positioning
  - 5.6.4. Key Therapeutic Recommendations
  - 5.6.5. Milk and Non-Milk Formulas
  - 5.6.6. Classification of Formulas
  - 5.6.7. Bottle Feeding Techniques
  - 5.6.8. Spoon Techniques
  - 5.6.9. Techniques for Low-Cut Cup Use
  - 5.6.10. Techniques Tube Use or Alternative Feeding Systems
- 5.7. Speech Therapy Intervention in Neonates
  - 5.7.1. Primary Functions Assessment
  - 5.7.2. Re-Education of Primary Neuromotor Dysfunctions
  - 5.7.3. Primary Intervention
  - 5.7.4. Individual Treatment Planning and Coordination
  - 5.7.5. Oral Motor Exercise Program I
  - 5.7.6. Oral Motor Exercise Program II
  - 5.7.7. Intervention with Families
  - 5.7.8. Early Motor Activation
- 5.8. Child Swallowing Disorders I
  - 5.8.1. Intake Analysis
  - 5.8.2. Undernourishment
  - 5.8.3. Respiratory Infections: Airway Unit
  - 5.8.4. Complementary Explorations
  - 5.8.5. Quantitative Explorations
  - 5.8.6. Nutritional Treatment
  - 5.8.7. Adaptive Treatment: Posture, Texture, Materials
  - 5.8.8. Performance Program

- 5.9. Rehabilitative Treatment of Infant Oropharyngeal and Esophageal Dysphagia
  - 5.9.1. Symptoms
  - 5.9.2. Etiology
  - 5.9.3. Neurological Damage in Children: High Probability of Presenting a Disorder
  - 5.9.4. Infant Dysphagia
  - 5.9.5. Phases of Normalized Swallowing in Pediatrics vs. Pathological Swallowing
  - 5.9.6. Neurological Maturity: Cognitive, Emotional and Motor Coordination Status
  - 5.9.7. Impossibility of Oral Feeding
  - 5.9.8. Early Care: High Probability of Recovering
- 5.10. Child Swallowing Disorders II
  - 5.10.1. Types Neuroanatomical and Behavior-Based Classification
  - 5.10.2. Functional Maturational Dysphagia
  - 5.10.3. Degenerative Diseases
  - 5.10.4. Cardiorespiratory Pathologies
  - 5.10.5. Congenital Brain Damage
  - 5.10.6. Childhood Acquired Brain Injury (CABI)
  - 5.10.7. Craniofacial Syndromes
  - 5.10.8. Autism Spectrum Disorders

## Module 6. Assessment and Intervention in Dysphagia of Neurological Origin in Adults

- 6.1. Swallowing: Definition and Anatomy
  - 6.1.1. Definition of Swallowing
  - 6.1.2. Swallowing Anatomy: Structures
    - 6.1.2.1. Oral Cavity
    - 6.1.2.2. Pharynx
    - 6.1.2.3. Larynx.
    - 6.1.2.4. Oesophageal
  - 6.1.3. Swallowing Anatomy: Neurological Control
    - 6.1.3.1. Central Nervous System
    - 6.1.3.2. Cranial Nerves
    - 6.1.3.3. Autonomic Nervous System

- 6.2. Swallowing: The Swallowing Process
  - 6.2.1. Phases of Swallowing
    - 6.2.1.1. Preoral Phase
    - 6.2.1.2. Oral Phase
      - 6.2.1.2.1. Oral Preparatory Phase
      - 6.2.1.2.2. Oral Transport Phase
    - 6.2.1.3. Pharyngeal Phase
    - 6.2.1.4. Esophageal Phase
  - 6.2.2. Valve System
  - 6.2.3. Biomechanics of Swallowing
    - 6.2.3.1. Swallowing Liquids
    - 6.2.3.2. Swallowing Semi-Solids
    - 6.2.3.3. Swallowing Solids: Chewing
  - 6.2.4. Breathing-Swallowing Coordination
- 6.3. Introduction to Dysphagia
  - 6.3.1. Definition
  - 6.3.2. Etiology and Prevalence
    - 6.3.2.1. Functional Causes
    - 6.3.2.2. Organic Causes
  - 6.3.3. Classification
    - 6.3.3.1. Types of Dysphagia
    - 6.3.3.2. Severity of Dysphagia
  - 6.3.4. Structural vs. Neurogenic Dysphagia
  - 6.3.5. Signs and Symptoms of Dysphagia
  - 6.3.6. Safety and Efficacy Concepts
    - 6.3.6.1. Safety Complications
    - 6.3.6.2. Efficacy Complications
  - 6.3.7. Brain Damage Dysphagia
  - 6.3.8. Dysphagia in the Elderly
- 6.4. Medical Assessment of Dysphagia
  - 6.4.1. Medical Anamnesis
  - 6.4.2. Scales of Assessment and Screening
    - 6.4.2.1. EAT-10
    - 6.4.2.2. V-VST. Volume-Viscosity Swallow Test
      - 6.4.2.2.1. How to Perform the V-VST
      - 6.4.2.2.2. Useful Tips when Using V-VST
  - 6.4.3. Instrumental Tests
    - 6.4.3.1. Fibroendoscopy (FEES)
    - 6.4.3.2. Videofluoroscopy (VFS)
    - 6.4.3.3. Fibroendoscopy vs. Videofluoroscopy
    - 6.4.3.4. Pharyngoesophageal Manometry
- 6.5. Speech Therapy Assessment of Dysphagia
  - 6.5.1. Anamnesis
  - 6.5.2. General Patient Assessment
    - 6.5.2.1. Physical Exploration
    - 6.5.2.2. Cognitive Examination
  - 6.5.3. Clinical Patient Exploration
    - 6.5.3.1. Structural Assessment
    - 6.5.3.2. Oral Motor and Sensory Examination
    - 6.5.3.3. Cranial Nerves Assessment
    - 6.5.3.4. Reflex Assessment
    - 6.5.3.5. Exploring Swallowing by Phases (without Bolus)
    - 6.5.3.6. Using Auscultation and Sound Assessment
    - 6.5.3.7. Respiratory and Phonation Assessment
  - 6.5.4. Tracheostomy Patient Assessment
  - 6.5.5. Severity and Quality of Life Scales

- 6.6. Assessment of Nutritional Status
  - 6.6.1. Importance of Nutrition
  - 6.6.2. Screening Scales in Nutrition
    - 6.6.2.1. Malnutrition Universal Screening Tool (MUST)
    - 6.6.2.2. Mini Nutritional Assessment (MNA)
    - 6.6.2.3. Nutritional Risk Screening 2002 (NRS 2002)
  - 6.6.3. Nutritional Assessment
  - 6.6.4. Undernourishment
  - 6.6.5. Dehydration
  - 6.6.6. Nutritional Supplements
  - 6.6.7. Alternatives to Oral Feeding
    - 6.6.7.1. Enteral Nutrition
      - 6.6.7.1.1. Naso/Oroenteral Tube Nutrition
      - 6.6.7.1.2. Nutrition by Gastrostomy
      - 6.6.7.1.3. Comparing Types of Enteral Nutrition
    - 6.6.7.2. Parenteral Nutrition
- 6.7. Dysphagia Rehabilitation Using Compensatory Techniques
  - 6.7.1. Rehabilitation Treatment Objectives
  - 6.7.2. Postural Techniques
  - 6.7.3. Consistency Modifications
  - 6.7.4. Modifying Intake Volume and Speed
  - 6.7.5. Modifying Food at the Perceptual Level
  - 6.7.6. New Textures
  - 6.7.7. Adapting Utensils for Intake
  - 6.7.8. Guidelines for Patients and Family
    - 6.7.8.1. Adaptation to Surroundings
    - 6.7.8.2. Drug Administration
    - 6.7.8.3. Oral Hygiene
- 6.8. Dysphagia Rehabilitation Using Rehabilitation Techniques I
  - 6.8.1. Inclusion/Exclusion Criteria in Treatments Using Rehabilitation Techniques
  - 6.8.2. Swallowing Maneuvers
  - 6.8.3. Techniques to Exercise Swallowing Musculature
    - 6.8.3.1. Orofacial Myofunctional Therapy
      - 6.8.3.1.1. Soft Tissues Manipulation
      - 6.8.3.1.2. Sensory Enhancement Techniques
      - 6.8.3.1.3. Specific Exercises
        - 6.8.3.1.3.1. Tongue
        - 6.8.3.1.3.2. Lips/Buccinator Muscles
        - 6.8.3.1.3.3. Masticatory Muscles
        - 6.8.3.1.3.4. Palatal Veil
    - 6.8.3.2. Techniques to Stimulate Swallowing Reflex
    - 6.8.3.3. Bolus Propulsion Exercises
    - 6.8.3.4. Laryngeal Elevation (Hyoid Excursion) Exercises
    - 6.8.3.5. Exercises to Improve Glottic Closure
- 6.9. Dysphagia Rehabilitation Using Rehabilitation Techniques II
  - 6.9.1. Dysphagia Treatment based on Symptomatology
  - 6.9.2. Breathing Treatment
  - 6.9.3. Positioning
  - 6.9.4. Diet Implementation
  - 6.9.5. Use of Botulinum Toxin
  - 6.9.6. Neuromuscular Bandaging
    - 6.9.6.1. Rigid Bandages
    - 6.9.6.2. Flexible Bandages
  - 6.9.7. Electrotherapy in Swallowing
  - 6.9.8. New Technologies
- 6.10. Useful Content for Speech Therapists Working in Dysphagia
  - 6.10.1. CPR in Diet
  - 6.10.2. Diet Rheology
  - 6.10.3. Additional Information

## Module 7. Dentistry and Orofacial Disorder

- 7.1. Dentition
  - 7.1.1. Introduction
  - 7.1.2. Tooth Growth and Development
  - 7.1.3. Classification
  - 7.1.4. Primary Dentition
  - 7.1.5. Mixed Dentition
  - 7.1.6. Permanent Dentition
  - 7.1.7. Tooth Formation and Development
- 7.2. Normal/Typical and Pathological Pattern
  - 7.2.1. Introduction
  - 7.2.2. Apparatus
  - 7.2.3. Dentolabial Deformities
  - 7.2.4. Eruptive Abnormalities
  - 7.2.5. Pathologic Patterns and Congenital Disorders
  - 7.2.6. Clinical Assessment and Examination
  - 7.2.7. Clinical Intervention
  - 7.2.8. Multidisciplinary Perspective
- 7.3. Clinical Examination and Radiographic Analysis
  - 7.3.1. Introduction
  - 7.3.2. Overview
  - 7.3.3. Teleradiography
  - 7.3.4. Ricketts' Circular Analysis
  - 7.3.5. Steiner's Cephalometric Analysis
  - 7.3.6. Bone Radiography
  - 7.3.7. Bibliography
- 7.4. Evaluation
  - 7.4.1. Introduction
  - 7.4.2. Orofacial System Functions
  - 7.4.3. Aesthetic/Biofacial Analysis
  - 7.4.4. Anatomical-Functional Assessment
  - 7.4.5. Orofacial System Functions Assessment
  - 7.4.6. Atypical Swallowing
  - 7.4.7. Myofunctional Assessment Protocol
  - 7.3.8. Bibliography
- 7.5. Function and Form
  - 7.5.1. Introduction
  - 7.5.2. Breathing and Swallowing Disorders
  - 7.5.3. Breathing and Swallowing
  - 7.5.4. Bruxism
  - 7.5.5. Joint and Jaw Examination I
  - 7.5.6. Joint and Jaw Examination II
  - 7.5.7. Mandibular Dynamics Study
  - 7.5.8. Bibliography
- 7.6. Speech Therapy Intervention
  - 7.6.1. Introduction
  - 7.6.2. Mouth Breathing
  - 7.6.3. Oral Dysfunction
  - 7.6.4. Speech Therapy Intervention in Oral Breathing
  - 7.6.5. Atypical Swallowing
  - 7.6.6. Speech Therapy Intervention in Atypical Swallowing
  - 7.6.7. Temporomandibular Joint (TMJ)
  - 7.6.8. Speech Therapy Intervention in TMJ
  - 7.6.9. Bibliography

- 7.7. Occlusion and Malocclusion
  - 7.7.1. Introduction
  - 7.7.2. Temporal Occlusion
  - 7.7.3. Temporal Occlusion Development
  - 7.7.4. Permanent Occlusion
  - 7.7.5. Permanent Occlusion Development
  - 7.7.6. Physiological and Non-Physiological Occlusion
  - 7.7.7. Static and Dynamic Occlusion
  - 7.7.8. Multidisciplinary Treatment
  - 7.7.9. Bibliography
- 7.8. Main Occlusion Classification
  - 7.8.1. Introduction
  - 7.8.2. Features
  - 7.8.3. Anteroposterior Classification
  - 7.8.4. Transversal Syndrome I
  - 7.8.5. Transversal Syndrome II
  - 7.8.6. Vertical Syndromes
  - 7.8.7. Etiopathogenesis of Malocclusions
  - 7.8.8. Bibliography
- 7.9. Dentistry and Speech Therapy
  - 7.9.1. Introduction
  - 7.9.2. Multidisciplinary Work
  - 7.9.3. Extraoral Examination
  - 7.9.4. Intraoral Examination
  - 7.9.5. Functional Examination
  - 7.9.6. Dentistry and Oral Function
  - 7.9.7. Bibliography
  - 7.9.8. Speech Therapy Intervention in Orofacial Disorder

- 7.10. Case Studies
  - 7.10.1. Introduction
  - 7.10.2. Case Study 1
  - 7.10.3. Case Study 2
  - 7.10.4. Case Study 3
  - 7.10.5. Case Study 4
  - 7.10.6. Bibliography

## **Module 8. Dietary Alteration in Congenital Neurological Disorder. Cerebral Palsy in Children (CPC)**

- 8.1. Main Vital Functions Assessment
  - 8.1.1. Breathing
  - 8.1.2. Respiratory Pattern and Classification
  - 8.1.3. Airway Analysis
  - 8.1.4. Chewing
  - 8.1.5. Swallowing
  - 8.1.6. Stomatognathic System Structures Involved in Swallowing
  - 8.1.7. Neurological Structures Involved in Swallowing
  - 8.1.8. Neurological Control of Swallowing
  - 8.1.9. Neurogenic Dysphagia
  - 8.1.10. Relation between Breathing and Swallowing: Importance of Breathing-Swallowing Coordination during Swallowing
- 8.2. Structural Assessment Implicated in Vital Functions
  - 8.2.1. Neurological Disorders and Stomatognathic Development
  - 8.2.2. Cranial Nerve Assessment
  - 8.2.3. Oral Function Development
  - 8.2.4. Facial Structure Growth
  - 8.2.5. Orofacial System Disorders
  - 8.2.6. Orofacial Maturation
  - 8.2.7. Respiratory Structures
  - 8.2.8. Facial Musculature
  - 8.2.9. Oral Musculature
  - 8.2.10. Laryngeal Musculature

- 8.3. Functional Intake Assessment
  - 8.3.1. Individualized Assessment for Diet Characteristics
  - 8.3.2. Oral Reflexes Assessment
  - 8.2.3. Diet and Cerebral Palsy, Main Associated Problems
  - 8.3.3. Safety and Efficacy Disorders
  - 8.3.4. Clinical Examination of Swallowing: What Tests Are Most Appropriate for People with CP?
  - 8.3.5. Physical Examination - Gross Motor Function and Nutrition
  - 8.3.6. Instrumental Examination
  - 8.3.7. Which Diagnostic Test is the Most Effective for Diagnosing Dysphagia in People with CP?
  - 8.3.8. Importance of Interdisciplinary Work in the Assessment of Dysphagia
    - 8.3.8.1. How to Deal with the Assessment of Swallowing in People with CP?
    - 8.3.8.2. When Should I Refer the Patient?
  - 8.3.9. Procedure for Action in the Event of a Swallowing and/or Nutritional Problem
- 8.4. Congenital Neurological Disorder
  - 8.4.1. Definition
  - 8.4.2. Main Characteristics
  - 8.4.3. Speech Therapy Intervention and Treatment
  - 8.4.4. Multidisciplinary Neurorehabilitation Treatment
  - 8.4.5. Symptoms
  - 8.4.6. Muscular Dysfunction
  - 8.4.7. Active Control
  - 8.4.8. Case Analysis
- 8.5. Acquired Neurological Disorder
  - 8.5.1. Definition
  - 8.5.2. Main Characteristics
  - 8.5.3. Speech Therapy Intervention and Treatment
  - 8.5.4. Multidisciplinary Neurorehabilitation Treatment
  - 8.5.5. Symptoms
  - 8.5.6. Muscular Dysfunction
  - 8.5.7. Active Control
- 8.5.8. Case Analysis
- 8.6. Feeding Programs
  - 8.6.1. First Phase: Postural, Oral and Nasal Hygiene
  - 8.6.2. Implementing New Oral Habits
  - 8.6.3. Creating Routines and Neuromotor Behaviors with High Frequency and Minimal Intensity
  - 8.6.4. Second Phase: Intervention Program based on Structure Analysis
  - 8.6.5. Creating Individualized Programs
  - 8.6.6. Selecting Favorable Oral Motor Exercises
  - 8.6.7. Third Phase: Feeding Strategies and Competences
  - 8.6.8. Positioning
  - 8.6.9. Developing Strategies for Adequate Oral Feeding
  - 8.6.10. Enteral Feeding
- 8.7. Developing Strategies and Action Plans
  - 8.7.1. Type of Diet
  - 8.7.2. Texture and Consistency Adaptation
  - 8.7.3. Volume Modification
  - 8.7.4. Anticipation: Sensitive Strategies
  - 8.7.5. Postural Adaptation Assessment
  - 8.7.6. Importance of Food Taste and Appearance without Forgetting the Safety Factor - Textured Food
  - 8.7.7. Meal Environment and Duration
  - 8.7.8. Adequate Nutritional Value
  - 8.7.9. Diet-Related Support Systems and Support Products
  - 8.7.10. Case Analysis and Decision-Making
- 8.8. Adaptations and Assistance from Occupational Therapists
  - 8.8.1. Functional Positioning Importance of the "Eater" and "Feeder"
  - 8.8.2. Technical Positioning Aids for Feeders
  - 8.8.3. Technical Positioning Aids for CP People during Feeding
  - 8.8.4. Support Products related to Feeding
  - 8.8.5. Creating Adaptations
  - 8.8.6. Importance of Posture in People on Enteral Nutrition: Relevant Aspects
  - 8.8.7. Participatory Feeding and Autonomy during Feeding



- 8.8.8. Occupational Therapy and Speech Therapy
- 8.9. Oropharyngeal Dysphagia in CPC
  - 8.9.1. Referrals and Multidisciplinary Team
  - 8.9.2. Adapting Feeding
  - 8.9.3. Family and Medical Intervention
  - 8.9.4. Assessing Swallowing Process
  - 8.9.5. Individualized Intervention
  - 8.9.6. Texture and Volume Modification as Fundamental Aspects
  - 8.9.7. Sensory Enhancement Techniques
  - 8.9.8. How to Deal with Oral Sensitivity Problems
  - 8.9.9. Postural Changes and Swallowing Facilitating Maneuvers
  - 8.9.10. Drug Intake Aids/Oral Hygiene Products
  - 8.9.11. Importance of Maintaining Intraoral Stimulation in People on Enteral Nutrition
- 8.10. Nutrition and Cerebral Palsy
  - 8.10.1. Concept of Nutrition: Growth and Development
  - 8.10.2. Relation between Nutrition and Brain Damage, Main Associated Problems
  - 8.10.3. Importance of Maintaining an Adequate Nutritional Intake
  - 8.10.4. Malnutrition, Undernutrition and Dehydration Concepts and Consequences
  - 8.10.5. Basic and Necessary Nutrients
  - 8.10.6. Importance of Nutritional Monitoring and Assessment in CP People
  - 8.10.7. Techniques to Achieve Adequate Nutritional Support; Increased Caloric Density, Oral Modules, Oral Supplementation and Enteral Nutrition
  - 8.10.8. Importance of Person-Centered Nutrition: Individualized Plans

8.10.9. Enteral Nutrition

## Module 9. Feeding Problems in Pervasive Developmental Disorders: Autism

- 9.1. Definition and History
  - 9.1.1. Introduction
  - 9.1.2. Conceptual Review
    - 9.1.2.1. History
    - 9.1.2.2. Prevalence
    - 9.1.2.3. DSM Inclusion
  - 9.1.3. Current Classification
    - 9.1.3.1. Change from DSM-IV to DSM-V
    - 9.1.3.2. Autism Spectrum Disorder 299.00 (F84.0)
    - 9.1.3.3. Conclusions
    - 9.1.3.4. Bibliography
- 9.2. Early Detection and Diagnosis
  - 9.2.1. Introduction
  - 9.2.2. Social Communication and Interaction
  - 9.2.3. Communication Skills
  - 9.2.4. Social Interaction Skills
  - 9.2.5. Behavioral and Thought Flexibility
  - 9.2.6. Sensory Processing
  - 9.2.7. Scales and Instruments
  - 9.2.8. Conclusions
  - 9.2.9. Bibliography
- 9.3. Heterogeneity in Autism
  - 9.3.1. Introduction
  - 9.3.2. Age-Related Factors
  - 9.3.3. Onset of Signs
  - 9.3.4. Autism in Preschool
  - 9.3.5. Autism in School
  - 9.3.6. Autism in Adolescence
  - 9.3.7. Autism in Adulthood
  - 9.3.8. Sex-Related Factors
  - 9.3.9. Etiology-Related Factors
  - 9.3.10. Conclusions
- 9.4. Comorbidity
  - 9.4.1. Introduction
  - 9.4.2. Expressive Language Disorders
  - 9.4.3. Most Prevalent Comorbid Disorders
  - 9.4.4. ADHD
  - 9.4.5. Anxiety and Depression
  - 9.4.6. Obsessions and Compulsions
  - 9.4.7. Dyssomnias and Parasomnias
  - 9.4.8. Movement Abnormalities
  - 9.4.9. Tourette Syndrome
  - 9.4.10. Disorders Associated with ASD in Childhood
  - 9.4.11. High-Functioning Autism
  - 9.4.12. Family and Environment
  - 9.4.13. Conclusions
- 9.5. Family and Environment Intervention
  - 9.5.1. Introduction
  - 9.5.2. Intervention with Families
  - 9.5.3. Referents to Adapt Family Situation
  - 9.5.4. Environmental Intervention
  - 9.5.5. Family Therapy
  - 9.5.6. Conclusions
- 9.6. Nutrition in Children with Autism
  - 9.6.1. Introduction
  - 9.6.2. Specific Diet Characteristics
  - 9.6.3. Metabolism
  - 9.6.4. Enzyme Deficiency



- 9.6.5. Food
- 9.7. Specific Problems and Inappropriate Intervention Patterns
  - 9.7.1. Not Accepting Spoon Feeding
  - 9.7.2. Leaving Food in the Mouth
  - 9.7.3. Chewing
  - 9.7.4. Hyperselectivity
  - 9.7.5. Crying
  - 9.7.6. Inadequate Guidelines
  - 9.7.7. Recommendations
  - 9.7.8. Conclusions
- 9.8. Dietary Problems in Children with Autism
  - 9.8.1. Introduction
  - 9.8.2. Strategies
  - 9.8.3. Leading National Work Teams
  - 9.8.4. Intervention Guidelines
  - 9.8.5. Recommendations
  - 9.8.6. Order of Food Introduction
  - 9.8.7. Conclusions
- 9.9. Clinical Cases: Solid Food Refusal
  - 9.9.1. Medical History Qualitative Assessment of Communication and Language
  - 9.9.2. Structural and Functional Orofacial Assessment
    - 9.9.2.1. Intervention Strategies
  - 9.9.3. Intervention Programs
  - 9.9.4. Respiratory Function
    - 9.9.4.1. Awareness and Control of Respiratory Functions
      - 9.9.4.1.1. Nasal Hygiene
      - 9.9.4.1.2. Postural Hygiene
    - 9.9.4.2. Nasal Breathing and Nasal Murmur
    - 9.9.4.3. Enhancing Olfactory Sensory Response
  - 9.9.5. Dietary Function
  - 9.9.6. Oral Sensitivity
    - 9.9.6.1. Oral Hygiene

- 9.9.6.2. Oral Stimulation
- 9.9.7. Oral Motor Skills
  - 9.9.7.1. Oral Stereognosia
  - 9.9.7.2. Gag Reflex Inhibition
  - 9.9.7.3. Taste Stimulation
- 9.9.8. Masticatory Muscle Relaxation
- 9.9.9. Chewing without Food
- 9.9.10. Chewing with Food
- 9.9.11. Conclusions on Speech Therapy Intervention
- 9.10. Aetiopathogenesis
  - 9.10.1. Introduction
  - 9.10.2. Endocrine System
  - 9.10.3. Genetics and Heritability
  - 9.10.4. Functional Magnetic Resonance Imaging
  - 9.10.5. Oxytocinergic System
  - 9.10.6. Conclusions
  - 9.10.7. Bibliography



*A unique academic opportunity where you will have access to an essential reference guide in the speech therapy field, which you can download and review at your convenience”*

06

# 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 Education School we use the Case Method

In a given situation, what should a professional do? Throughout the program, students will be presented with multiple simulated cases based on real situations, where they will have to investigate, establish hypotheses and, finally, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method.

*With TECH, educators can experience a learning methodology that is shaking the foundations of traditional universities around the world.*



*It is a technique that develops critical skills and prepares educators to make decisions, defend their arguments, and contrast opinions.*

“

*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. Educators 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 is solidly focused on practical skills that allow educators to better integrate the knowledge into daily practice.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life teaching.
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

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.

*Educators 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 have trained more than 85,000 educators with unprecedented success in all specialties. 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 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 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 specialist educators who teach the course, specifically for the course, so that the teaching content is really specific and precise.

These contents are then adapted in 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.



#### Educational Techniques and Procedures on Video

TECH introduces students to the latest techniques, with the latest educational advances, and to the forefront of Education. All this, first-hand, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, students can watch them as many times as they want.



#### Interactive Summaries

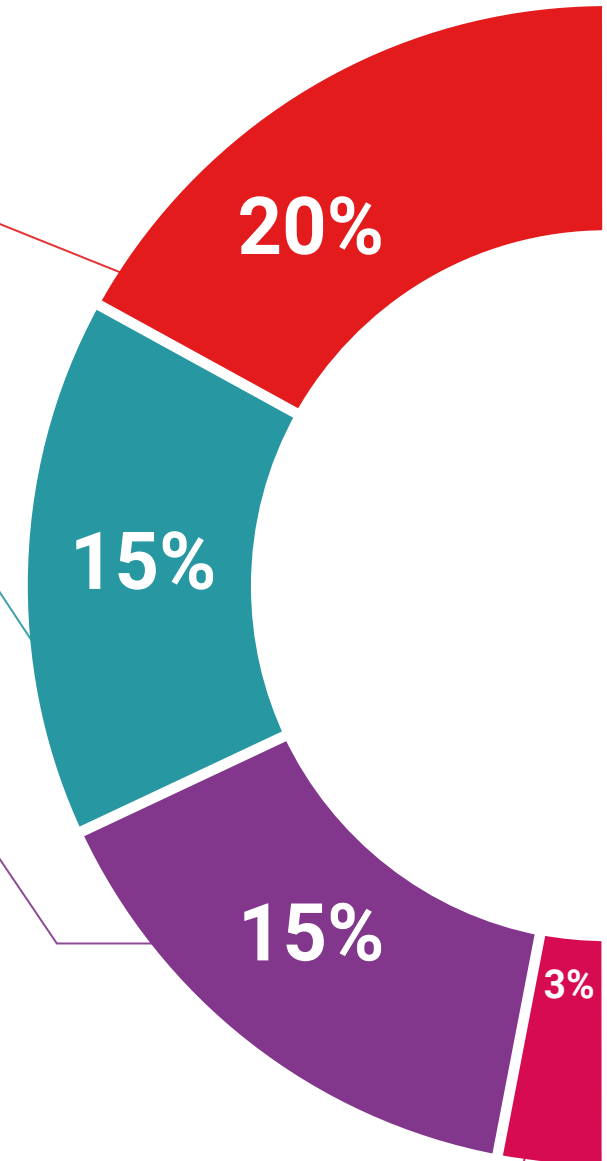
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

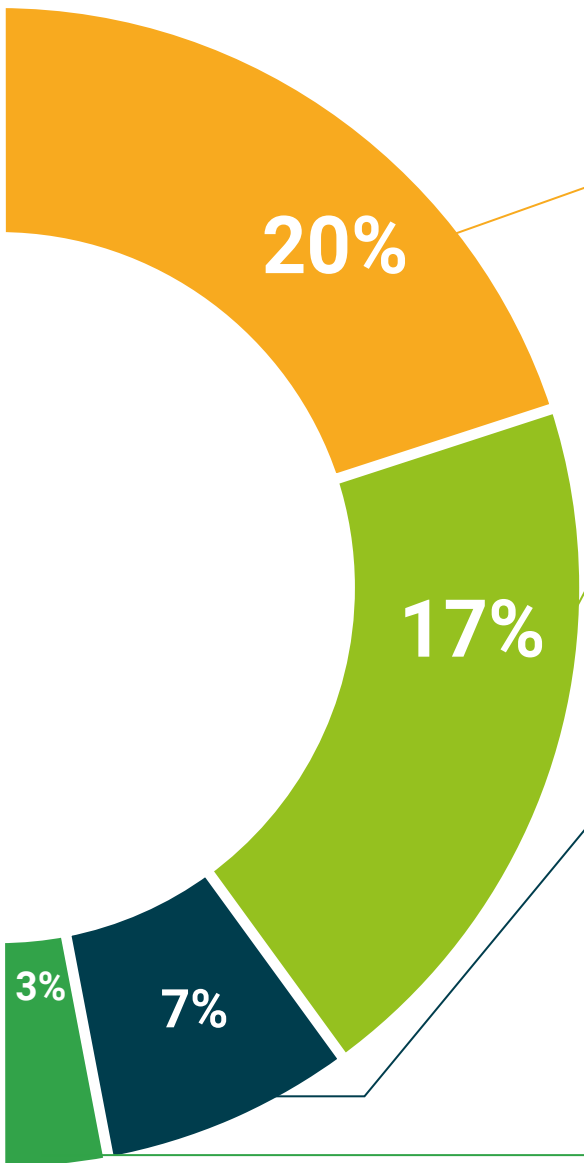


#### Additional Reading

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 suggesting that observing third-party experts can be useful.  
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.



07

# Certificate

The Professional Master's Degree in Logopedic and Orofacial Neurorehabilitation guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree issued by TECH Technological University.





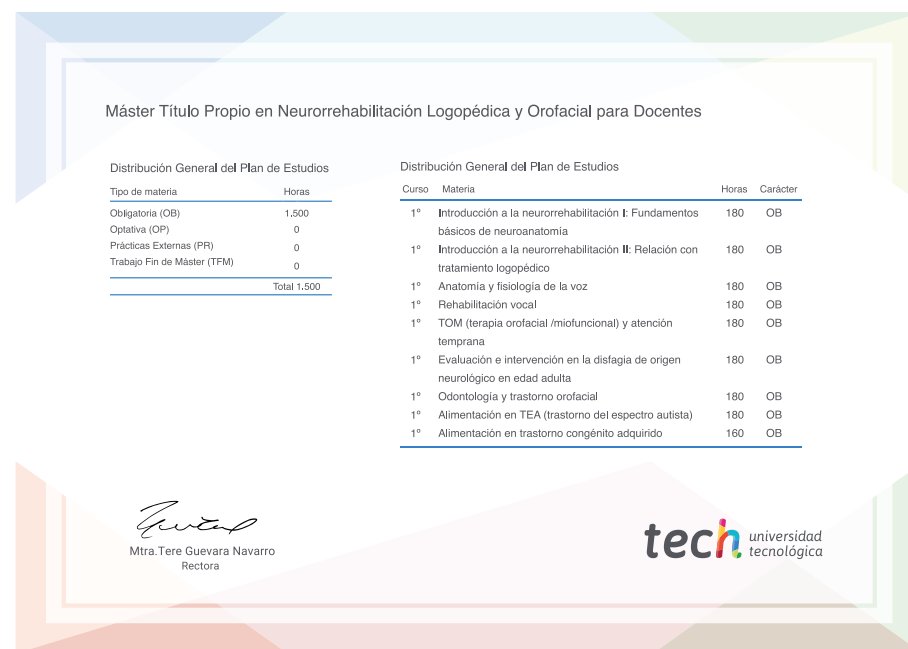
*Successfully complete this program  
and receive your university qualification  
without having to travel or fill out laborious  
paperwork"*

This **Professional Master's Degree in Logopedic and Orofacial Neurorehabilitation** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Professional Master's Degree** diploma issued by **TECH Technological University** via tracked delivery.

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

Title: **Professional Master's Degree in Logopedic and Orofacial Neurorehabilitation**  
 Official Number of Hours: **1,500**



\*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.



## Professional Master's Degree

### Logopedic and Orofacial Neurorehabilitation

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

# Professional Master's Degree

Logopedic and Orofacial  
Neurorehabilitation