



Postgraduate Diploma

Motor Action in the Cerebral Processes of Learning

» Modality: online

» Duration: 6 months

» Certificate: TECH Technological University

» Dedication: 16h/week

» Schedule: at your own pace

» Exams: online

Website: www.techtitute.com/in/physiotherapy/postgraduate-diploma/postgraduate-diploma-motor-action-cerebral-processes-learning

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tech 06 | Introduction

Science has advanced in the study of the brain as a learning organ in order to help each person develop their cognitive, intellectual and emotional potential to the fullest. Although current education aims at a comprehensive education, it is still focused on cognitive aspects, with little development in terms of emotional aspects; little and/or no management of one's own and others' emotions, scarce self-motivation, self-control and communication skills.

Specialization and education of physiotherapists in neuropsychoeducation is necessary: understanding the brain mechanisms underlying learning, memory, language, sensory and motor systems, attention, emotions and the influence of the environment on all of these

In recent times, neuroscience has become a revolutionary way of understanding almost all fields of human development. Its logic is indisputable: the brain, moderator, organizer and creator of every human development holds the keys to these processes. New scientific procedures for brain exploration have opened the door to a deeper understanding of all these cognitive processes.

The prestigious professors of this program have contributed their specialized and advanced knowledge based on experience and rigorous scientific criteria in the development of this educational program of high scientific and academic rigor.

All modules are accompanied by abundant iconography, with photos and videos by the authors, which are intended to illustrate, in a very practical, rigorous and useful way, advanced knowledge in neuroeducation and physical education for physical therapists.

This **Postgraduate Diploma in Motor Action in the Cerebral Processes of Learning** contains the most complete and up-to-date scientific program on the market. The most important features include:

- Development of 75 case studies presented by experts in Neuroeducation and Physical Education
- The graphic, schematic, and practical contents with which they a re created provide scientific and practical information on the disciplines that are essential for professional practice
- It contains practical exercises where the self-assessment process can be carried out to improve learning
- With special emphasis on innovative methodologies in Neuroeducation and Physical Education
- All of this will be complemented by 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
- Complementary content available in multimedia format



Add to your CV the prestige of a high-level Postgraduate Diploma that will allow you to grow in your profession with the support of proven scientific development"



Motor Action as a driver of cognitive, emotional and personal development processes, in a Postgraduate Diploma designed to adapt to your time and effort needs"

It includes in its teaching staff professionals belonging to the field of Neuroeducation and Physical Education, who pour into this specialization the experience of their work, in addition to recognized specialists belonging to reference societies and prestigious universities.

Thanks to its multimedia content developed with the latest educational technology, it will allow the professional a situated and contextual learning, that is to say, a simulated environment that will provide an immersive learning programmed to prepare in real situations.

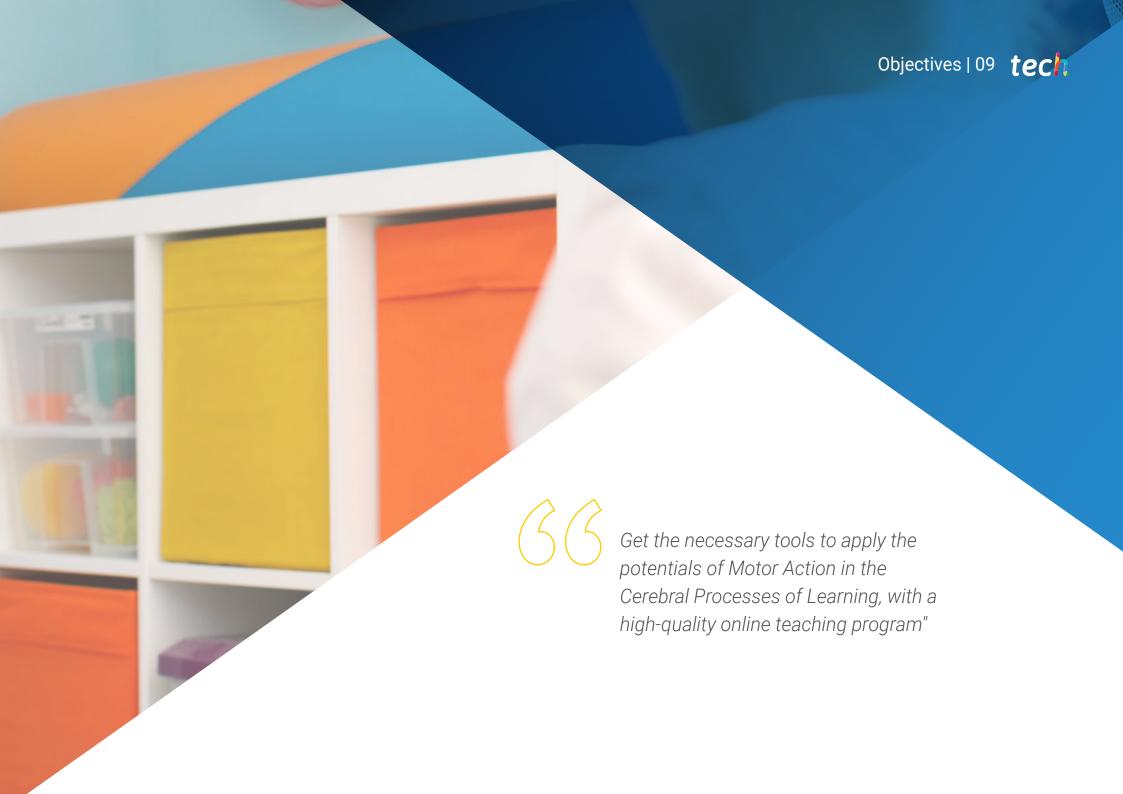
The design of this program is based on Problem-Based Learning, through which the educator must try to solve the different situations of professional practice that arise throughout the entire program. For this, the educator will be assisted by an innovative interactive video system, developed by recognized experts in the field of Neuroeducation and Physical Education with extensive teaching experience.

The best specialists in the sector, belonging to reference companies and universities of proven prestige, have created the educational program of this Postgraduate Diploma. With the highest quality in the education market.

Join the new vision in Physiotherapy supported by neurosciences and work from a new, more holistic and current perspective.







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General Objectives

- Know the basis and main elements of Neuroeducation
- Integrate the new contributions of brain science in the teaching and learning processes
- Discover how to enhance brain development through Motor Action
- Implement the innovations of Neuroeducation in the subject of Physical Education
- Achieve specialized skills as Neuroeducation professionals in the field of Motor Action





Specific Objectives

Module 1. The Social Brain in Motor Action from a Neuroscientific Perspective

- Describe mirror neurons
- Explain complex social functions
- Describe the role of motor action in the development of social health
- Explain the social relationship in personal wellbeing
- Explain the implication of mental health and interpersonal relationships
- Define the relevance of cooperation from a neuroeducational perspective
- Explain the importance of climate in learning environments

Module 2. Impact of Motor Action on Brain Learning Processes and on Health Development

- Explain the main neurotransmitters and hormones related to motor practice and learning ability
- Apply strategies for disease prevention and improvement of quality of life in terms of cardiovascular and other risk diseases
- Describe the different motor practices that have an impact on brain development

Module 3. Educational Models and Assessment in Physical Neuroeducation

- Know the conceptual approach of the terms related to methodology in Physical Education
- Conduct an assessment of the teaching-learning process in Physical Neuroeducation
- Learn about cooperative learning models and apply them in the sports field

Module 4. Methodologies, Methods, Tools and Didactic Strategies favoring Physical Neuroeducation

- Learn about new teaching methodologies through the Flipped Classroom
- Use gamification and ludification strategies to promote children's neurophysical learning
- Know other methods, tools and didactic strategies that would be promoted through Physical Neuroeducation



A developed interactive video system will give you the opportunity to learn in virtual learning environments that will expose you to real situations and cases for hands-on learning"





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Management



Ms. Pellicer Royo, Irene

- Master's Degree in Emotional Education and Well-being
- Postgraduate in Neuroeducation
- Certificate in Management and Administration of Sports Entities
- Degree in Physical Activity and Sports Science Master's Degree in Medical Sciences applied to Physical Activity and Sport

Professors

Dr. De la Serna, Juan Moisés

- Doctor in Psychology Master's Degree in Neurosciences and Behavioral Biology
- University Specialist in Clinical Hypnosis
- Director of the Open Chair in Psychology and Neurosciences
- Diploma in Didactic Methodology Expert in Project Management Occupational Trainer

Dr. Navarro Ardoy, Daniel

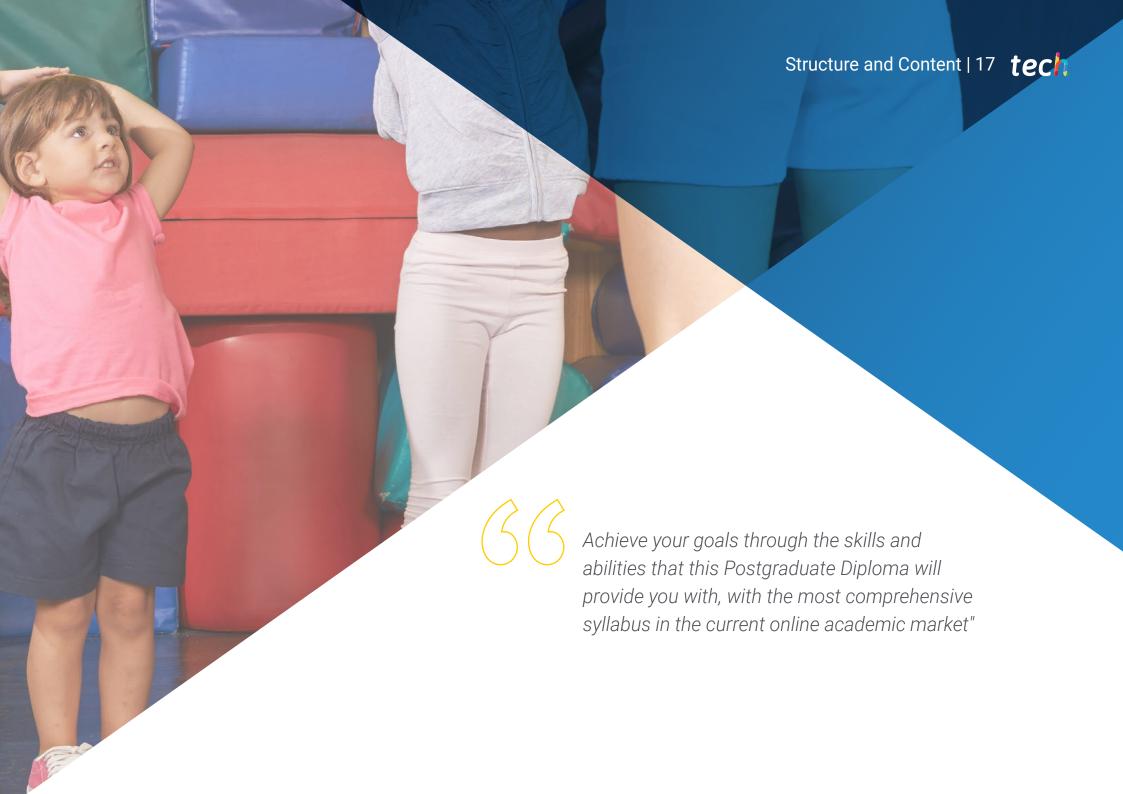
- PhD. Exercise Physiology Applied to Health Physical activity and health program Faculty of Medicine
- Degree in Physical Activity and Sports Science

Ms. Rodríguez Ruiz, Celia

- Specialization in clinical psychology and child psychotherapy
- Specialization in Cognitive Behavioral Therapy in Childhood and Adolescence
- Degree in Pedagogy
- Degree in Psychology







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Module 1. The social brain in motor action from a neuroscientific perspective.

- 1.1. The Human Being: A Social Being.
 - 1.1.1. The Social Nature of the Human Being
 - 1.1.2. Evolution of Human Social Capabilities
 - 1.1.3. Why We Live in Society
 - 1.1.4. The Individual as Part of the Social Group
 - 1.1.5. Social Development: Socialization
 - 1.1.6. The Social and Affective Needs of the Human Being
 - 1.1.7. The Consequences of Social Deprivation
 - 1.1.8. The Development of Identity in Society
 - 1.1.9. Human Societies and Social Groups: Coexistence and Conflicts.
- 1.2. The Social Brain
 - 1.2.1. A Brain Prepared for the Social
 - 1.2.2. How Does the Social Brain Work?
 - 1.2.3. The Autonomic Nervous System
 - 1.2.4. Oxytocin: An Essential Neurochemical Mediator
 - 1.2.5. The Antisocial Capacity: Serotonin and MAO Enzyme
 - 1.2.6. The Dorsal Vagus Nucleus: Responsible for Playful and Welcoming Social Interaction
 - 1.2.7. Face Perception
- 1.3. Mirror Neurons
 - 1.3.1. The Discovery of Mirror Neurons
 - 1.3.2. How do Mirror Neurons Work?
 - 1.3.3. Social Empathy and Mirror Neurons
 - 1.3.4. Identification with Others
 - 1.3.5. Theory of Mind: Representing the Mind of Others
 - 1.3.6. The Educational and Therapeutic Implication of Mirror Neurons.
- 1.4. The Complex Social Functions.
 - 1.4.1. Social Functions
 - 1.4.2. Executive Functions
 - 1.4.3. Self-Control Function
 - 1.4.4. Social Emotions
 - 1.4.5. Altruism and Prosocial Behavior
 - 1.4.6. Conflict, Aggression and Violence
 - 1.4.7. Social relations
 - 1.4.8. Prejudice and Stereotypes
 - 1.4.9. Living Together

- Integral Health from a Social Competence Perspective.
 - 1.5.1. What is Integral Health?
 - 1.5.2. Health and Social Competence as a Component of Integral Health
 - 1.5.3. Adaptive Behaviors that Make Up Social Competence
 - 1.5.4. Maladaptive Behaviors
 - 1.5.5. The Effect of the Absence of Social Competence on Health
 - 1.5.6. How to Promote the Development of Social Competence
- 1.6. Role of Motor Action in the Development of Social Health.
 - 1.6.1. What is Meant by Social Health?
 - 1.6.2. Why is Social Health important?
 - 1.6.3. The Body as an Element of Social and Emotional Health
 - 1.6.4. The Motor Action and the Development of Health
 - 1.6.5. Promotion of the Social Health through the Motor Action
 - 1.6.6. Tools to Promote Motor Action and Social Health Development
- 1.7. Social Relationship in Personal Well-Being.
 - 1.7.1. Social Interactions
 - 1.7.2. Why do Human Beings Need Relationships?
 - 1.7.3. Social Relationships and Individual Needs
 - 1.7.4. The Power of Healthy and Satisfactory Relationships
 - 1.7.5. The Social Role
 - 1.7.6. The Social Relationship and Well-Being
 - 1.7.7. Lack of Relationships and Their Consequences
 - 1.7.8. Social Isolation
- 1.8. Mental Health and Interpersonal Relationships.
 - 1.8.1. Interpersonal Relationships and Their Role
 - 1.8.2. Affective Needs
 - 1.8.3. Social Expectations and Beliefs
 - 1.8.4. The Role of Stereotypes and our Mental Health
 - 1.8.5. The Importance of Social Support for Mental Health (Perceived and Real)
 - 1.8.6. Interpersonal Relationships as a Basis for Well-Being
 - 1.8.7. The Quality of Interpersonal Relationships
 - 1.8.8. The Consequences on Mental Health of the Lack of Relationships

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- 1.9. Relevance of Cooperation from a Neuroeducational Perspective.
 - 1.9.1. What is Cooperation?
 - 1.9.2. The Brain that Learns in a Group
 - 1.9.3. The Role of Cooperation for Development
 - 1.9.4. Oxytocin, the Chemical Element of Cooperation
 - 1.9.5. Reward Processes and Cooperation
 - 1.9.6. Why is Cooperation Important?
- 1.10. Climate in Learning Environments
 - 1.10.1. Climate and Learning
 - 1.10.2. Positive and Negative Climates
 - 1.10.3. Factors that Determine the Type of Climate
 - 1.10.4. The Influence of Climate on the Learning Environment
 - 1.10.5. Elements of a Climate that Favors the Learning Environment
 - 1.10.6. Recognizing Climates in Learning Environments
 - 1.10.7. The Role of the Teacher as a Promoter of a Favorable Climate
 - 1.10.8. Tools to Create Positive and Favorable Climates

Module 2. Impact of Motor Action on Brain Learning Processes and on Health Development

- 2.1. Impact of Motor Action on Learning Processes
 - 2.1.1. Concepts Related to Motor Action and Learning
 - 2.1.2. Motor Learning: Phases and Factors
 - 2.1.3. The Information Processing Model: Perception, Decision, Execution, Movement Control and Feedback
 - 2.1.4. Benefits of Motor Action on Brain Learning Processes
- 2.2. Motor Action and Neutrophilic Factors BDNF.
 - 2.2.1. Neurogenesis and Neuroplasticity
 - 2.2.2. Neurotrophins or Neurotrophic Factors What Are They and What are They For?
 - 2.2.3. Prominent Role and Benefits of Motor Action on BDNF
- 2.3. Motor Action, Neurotransmitters and Hormones
 - 2.3.1. The Main Neurotransmitters and Hormones Related to Motor Practice and Learning Abilities
 - 2.3.2. Endorphins
 - 2.3.3. Serotonin
 - 2.3.4. Oxytocin
 - 2.3.5. Dopamine
 - 2.3.6 Adrenaline and Noradrenaline
 - 2.3.7 Glucocorticoids

- 2.4. The Importance of the Cerebellum in Coordination and Cognitive Processes
 - 2.4.1. Structure of the Cerebellum
 - 2.4.2. Functions of the Cerebellum and its Importance in Motor Action
 - 2.4.3. Importance of the Cerebellum in Cognitive Processes
- 2.5. Impact of Motor Action on Memory Processes.
 - 2.5.1. What is Memory and How is it Divided?
 - 2.5.2. In What Part of the Brain is Memory Located?
 - 2.5.3. Prominent Role of the Hippocampus in Memory
 - 2.5.4. Impact of Motor Action on Memory
- 2.6. The Prefrontal Cortex, Seat of the Brain's Executive Functions.
 - 2.6.1. Executive Functions of the Brain
 - 2.6.2. The Four Lobes of Each Cerebral Hemisphere
 - 2.6.3. Frontal Lobe: Executive Director of the Brain
 - 2.6.4. The Prefrontal Cortex: The Orchestra Conductor
 - 2.6.5. Cerebral Structures Connected to the Frontal Lobe.
- 2.7. Impact of Motor Action with Executive Processes: Decision-Making
 - 2.7.1. Somatic Markers
 - 2.7.2. Brain Structures Involved in Decision-Making
 - 2.7.3. The Development of Somatic States
 - 2.7.4. Decision-Making in Sports Practice
- 2.8. Impact of Motor Action with Executive Processes: Pause and Reflection Response.
 - 2.8.1. Regulating Emotions
 - 2.8.2. Conflicts, Inconsistencies and the Prefrontal Cortex
 - 2.8.3. The Relevance of Heart Rate
- 2.9. Motor Action and Predisposition to Learning.
 - 2.9.1. Motor Action and Learning.
 - 2.9.2. How Does Motor Action Predispose to Learning?
 - 2.9.3. How Can the Benefits of Motor Action be Enhanced?
- 2.10. Impact of Motor Action on Neuroprotective Processes.
 - 2.10.1. Conceptualization of Neuroprotection
 - 2.10.2. Effects of Exercise on Brain Protection

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Module 3. Educational Models and Assessment in Physical Neuroeducation

- 3.1. Conceptual Approach of the Terms Related to Methodology in Physical Education
 - 3.1.1. Teaching and Learning
 - 3.1.2. Didactic Intervention
 - 3.1.3. Teaching Technique and Style
 - 3.1.4. Teaching-Learning Based on Direct Instruction
 - 3.1.5. Teaching-Learning Based on Inquiry or Searching
 - 3.1.6. Strategy in Practice
 - 3.1.7. Pedagogical Methods and Models
- 3.2. Assessment of the Teaching-Learning Process in Physical Neuroeducation
 - 3.2.1. Conceptual Clarification of the Terms Related to the Assessment
 - 3.2.2. Assessment Techniques, Procedures and Instruments
 - 3.2.3. Types of Assessment in Physical Education
 - 3.2.4. Moments of Physical Education Assessment
 - 3.2.5. Evaluation-Research Binomial
 - 3.2.6. Neuroevaluation in Physical Education
- 3.3. Assessment of Student Learning with a focus on Physical Neuroeducation.
 - 3.3.1. Competency Assessment
 - 3.3.2. Educational Assessment
 - 3.3.3. Personalized Assessment
 - 3.3.4. Practical Proposals for Assessment in Physical Education from a Neurodidactic Perspective
- 3.4. Cooperative Learning
 - 3.4.1. Description of the Model
 - 3.4.2. Practical Proposals
 - 3.4.3. Recommendations for Implementation
- 3.5. Sports Education Model (SEM)
 - 3.5.1. Description of the Model
 - 3.5.2. Practical Proposals
 - 3.5.3. Recommendations for Implementation
- 3.6. Personal and Social Responsibility Model
 - 3.6.1. Description of the Model
 - 3.6.2. Practical Proposals
 - 3.6.3. Recommendations for Implementation

- 3.7. Compressive Model of Sport Initiation (TGfU)
 - 3.7.1. Description of the Model
 - 3.7.2. Practical Proposals
 - 3.7.3. Recommendations for Implementation
- 3.8. Ludotechnical Model
 - 3.8.1. Description of the Model
 - 3.8.2. Practical Proposals
 - 3.8.3. Recommendations for Implementation
- 3.9. Adventure Education Model
 - 3.9.1. Description of the Model
 - 3.9.2. Practical Proposals
 - 3.9.3. Recommendations for Implementation
- 3.10. Other Models.
 - 3.10.1. Motor Literacy
 - 3.10.2. Attitudinal Model
 - 3.10.3. Self-Construction of Materials
 - 3.10.4. Health Education
 - 3.10.5. Hybridization of Models

Module 4. Methodologies, Methods, Tools and Didactic Strategies Favoring Physical Neuroeducation

- 4.1. Flipped Classroom or Inverted Classroom
 - 4.1.1. Description
 - 4.1.2. Practical Proposals
 - 4.1.3. Recommendations for Implementation
- 4.2. Problem and Challenge Based Learning
 - 4.2.1. Description
 - 4.2.2. Practical Proposals
 - 4.2.3. Recommendations for Implementation
- 4.3. Project-Based Learning
 - 4.3.1. Description
 - 4.3.2. Practical Proposals
 - 4.3.3. Recommendations for Implementation
- 4.4. Case Method and Service Learning

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- 4.5. Learning Environments.
 - 4.5.1. Description
 - 4.5.2. Practical Proposals
 - 4.5.3. Recommendations for Implementation
- 4.6. Motor Creativity or Corporal Synectics
 - 4.6.1. Description
 - 4.6.2. Practical Proposals
 - 4.6.3. Recommendations for Implementation
- 4.7. Game-Based Learning.
 - 4.7.1. Description
 - 4.7.2. Practical Proposals
 - 4.7.3. Recommendations for Implementation
- 4.8. Ludification or Gamification
 - 4.8.1. Description
 - 4.8.2. Practical Proposals
 - 4.8.3. Recommendations for Implementation
- 4.9. Other Methods, Tools and Didactic Strategies Favoring Physical Neuroeducation
 - 4.9.1. Case Method
 - 4.9.2. Didactic Contract
 - 4.9.3. Corner Work
 - 4.9.4. Aronson's Puzzle
 - 4.9.5. Interactive Methodology
 - 4.9.6. Technologies for Learning and Knowledge (TAC)
 - 4.9.7. Portfolio
- 4.10. Methodological Guidelines and Recommendations for the Design of Programs, Units and Sessions Based on Physical Neuroeducation
 - 4.10.1. Methodological Orientations According to Physical Neuro-Education
 - 4.10.2. Recommendations for the Design of Programs, Didactic Units and Sessions based on Physical Neuroeducation
 - 4.10.3. Examples of Units and Sessions Based on Physical Neuroeducation

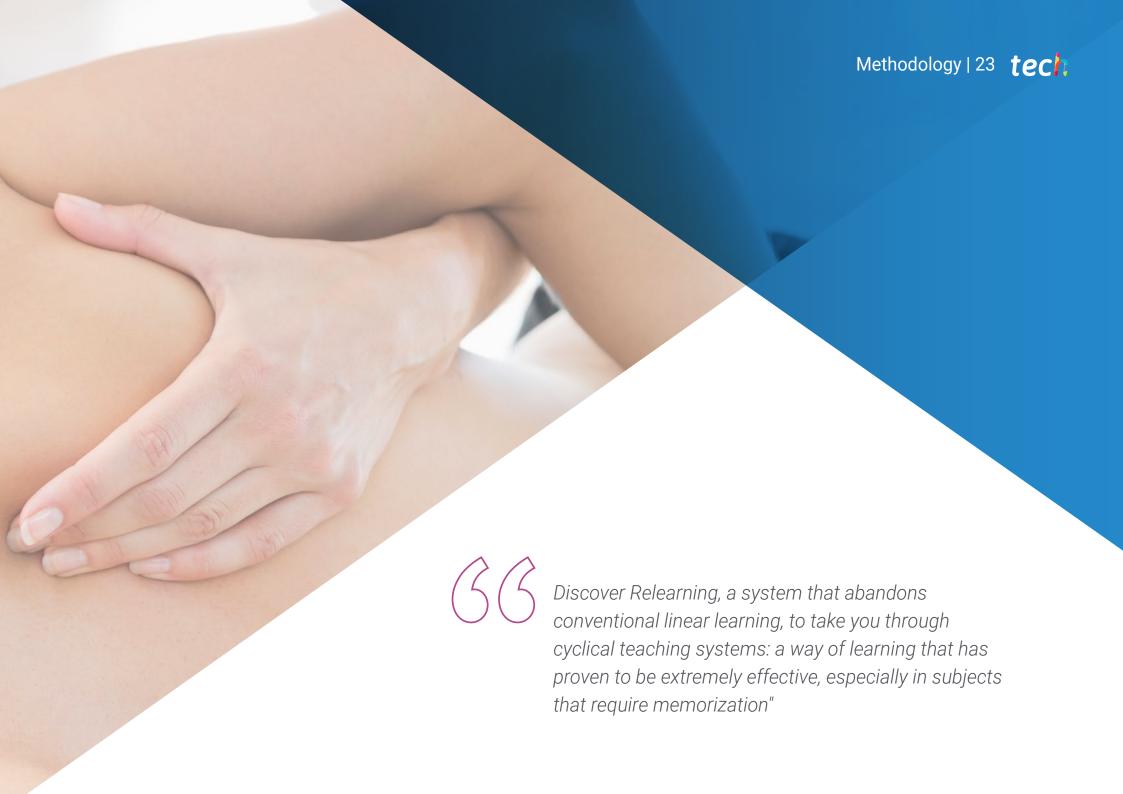


A unique, key, and decisive educational experience to boost your professional development"



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.



tech 24 | Methodology

At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Physiotherapists/kinesiologists learn better, faster, and more sustainably over time.

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



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions of professional physiotherapy practice.



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

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

- 1. Physiotherapists/kinesiologists who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
- 2. The learning process has a clear focus on practical skills that allow the physiotherapist/kinesiologist to better integrate into the real world.
- 3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
- **4.** Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.





Relearning Methodology

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

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

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



Methodology | 27 tech

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

With this methodology we trained more than 65,000 physiotherapists/kinesiologists with unprecedented success in all clinical specialties, regardless of the workload. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

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

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

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

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



Study Material

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

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



Physiotherapy Techniques and Procedures on Video

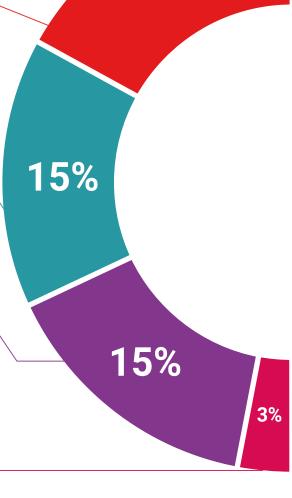
TECH brings students closer to the latest techniques, the latest educational advances and to the forefront of current Physiotherapy techniques and procedures. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch them as many times as you want.



Interactive Summaries

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

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





Additional Reading

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



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.

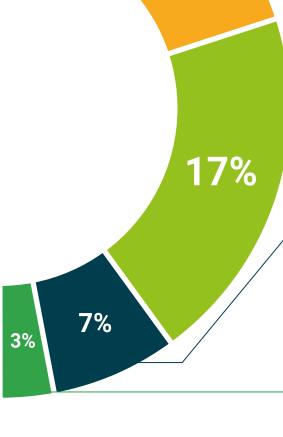
The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



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.





20%





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This **Postgraduate Diploma in Motor Action in the Cerebral Processes of Learning** contains the most complete and up-to-date scientific program on the market.

After the student has passed the evaluations, they will receive their corresponding **certificate** issued by **TECH Technological University** via tracked delivery*.

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

Title: Postgraduate Diploma in Motor Action in the Cerebral Processes of Learning

Official N° of Hours: 600 h.

Endorsed by the NBA





June 17, 2020

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



Postgraduate Diploma

Motor Action in the Cerebral Processes of Learning

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