Professional Master's Degree

Electrotherapy in Physiotherapy

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Professional Master's Degree

Electrotherapy in PhysicalTherapy

Course Modality: **Online**

Duration: **12 months**

Certificate: **TECH Technological University**

Official Nº of hours: **1,500 h.**

Website: **www.techtitute.com/us/physiotherapy/professional-master-degree/master-electrotherapy-physiotherapy**

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01

Introduction

The multiple applications of electrotherapy, as well as the benefits it brings to patients, have made this technique one of the most indispensable in physiotherapy centers today. Technological advances have enabled professionals to improve musculoskeletal pain and inflammation caused by osteoarthritis, cervical pain, lumbar problems or tendinopathies. A transformation in this specialty that requires professionals to be constantly up to date in their knowledge and skills. This Professional Master's Degree was created in response to the demand of physical therapists who wish to be aware of the latest advances in this field such as ultrasound therapy, magnetotherapy or non-invasive brain stimulation. For this purpose, it has innovative multimedia content prepared by a specialized teaching team with extensive experience in this field of healthcare.

With this Professional Master's Degree, you will be able to update your knowledge in the use of Electrotherapy in patients with musculoskeletal injuries in 12 months"

Technology has promoted the appearance of certain electrical devices in physiotherapists' offices, which have gradually demonstrated, based on rigorous scientific studies, their effectiveness and benefits for the treatment of certain pathologies. The dry needling technique, the use of infrared lamps or lasers are now part of the daily routine of a physiotherapist, who has been able to perfectly combine his manual praxis with the most advanced technological tools.

At the same time, the great acceptance of patients in their use has led to an increase in the number of people who trust the professionals who apply them to improve inflammatory processes, reduce pain or achieve neuromuscular potentiation. In this scenario, the professional must go through a path of knowledge updating to be up to date with the latest Electrotherapy applications in his field.

This Professional Master's Degree offers the physiotherapist the opportunity to access a university degree that provides the latest knowledge in high-frequency electrotherapy, the practical applications of infrared to address osteoarthritis, low back pain or fibromyalgia, high frequency analgesic currents or non-invasive brain stimulation. All this with multimedia didactic material that will lead you to renew your knowledge in a much more visual and dynamic way. In addition, the *Relearning* system, used by TECH in all its programs, will allow you to advance in a much more agile way, reducing even the hours of study so frequent in other methodologies.

The professional is, therefore, facing a 100% online and flexible university education. All you need is a computer, tablet or cell phone to access the complete syllabus hosted on the virtual campus. Having the content available from the beginning is also an advantage for those seeking a quality university program that is compatible with the most demanding responsibilities, since students can distribute the course load according to their needs.

This **Professional Master's Degree in Electrotherapy in Physiotherapy** contains the most complete and up-to-date scientific program on the market. The most important features include:

- The development of case studies presented by experts in Electrotherapy in Physiotherapy
- 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
- Practical exercises where self-assessment can be used to improve learning
- Its special emphasis on innovative methodologies in Advanced Practice Nursing
- 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 university program designed for professionals like you, who are looking for the most important innovations in Electrotherapy in a convenient and accessible format"

The library of learning resources will be available 24 hours a day, so you can access the content whenever you want from any device with an internet connection"

Study TENS techniques in depth, including conventional, low frequency and TENS-acupuncture, under the guidance of a highly specialized teaching team.

Access the scientific studies and novelties in High Frequency Electrotherapy with this university degree.

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.

02

Objectives

The syllabus of this university program has been designed with the main objective of ensuring that the physiotherapy professional broadens their knowledge in Electrotherapy. To this end, students will have at their disposal the most exhaustive and advanced content in this field provided by a specialized teaching team. Thereby, upon completion of this program, you will be up to date with the latest techniques for the diagnosis and rehabilitation of patients with musculoskeletal pathology.

TECH provides you with the latest didactic tools to easily study in depth the clinical application of non-invasive brain stimulation"

General Objectives

- Update your knowledge of the rehabilitation professional in the field of Electrotherapy
- Promote work strategies based on a comprehensive approach to the patient as a standard model for achieving excellent care
- Encourage the acquisition of technical skills and abilities, through a powerful audiovisual system, and the possibility of development through online simulation workshops and/or specific training
- Encourage professional stimulation through continuing education and research

With this university education you will be able to broaden your knowledge of invasive electrotherapy applied to tissue regeneration, among other techniques of great interest"

Specific Objectives

Module 1. High-Frequency Electrotherapy

- Up-to-date knowledge about Electrotherapy in the field of patient rehabilitation with neurological pathologies
- Revise the concepts concerning the physiology of Electrotherapy in the neuromusculoskeletal patient

Module 2. Ultrasound Therapy in Physiotherapy

- Identify current and developing therapeutic possibilities in the field of neuromusculoskeletal rehabilitation
- Update your knowledge of nociceptive transmission, as well as its modulation mechanisms by physical means

Module 3. Other Electromagnetic Fields

- Know the muscular contraction and its rehabilitation by physical means, applying Electrotherapy as the main agent
- Master the rehabilitation of neurological injury and its rehabilitation via electrotherapeutic agents

Module 4. General Principles of Electrotherapy

- Learn about new applications of electromagnetic agents in the rehabilitation of neurological patients
- Understand the scope of new invasive electrotherapy applications for pain modulation

Module 5. Electrostimulation for Muscle Strengthening

- Broaden your knowledge of new applications of invasive electrotherapy for tissue regeneration
- Determine new high frequency applications in the rehabilitation of neuromusculoskeletal pathologies

Module 6. Electrostimulation in the Neurological Patient

- Broaden your knowledge of new applications of Ultrasound Therapy in the rehabilitation of neuromusculoskeletal pathologies
- Identify new applications of electromagnetic laser radiation in the rehabilitation of neuromusculoskeletal pathologies

Module 7. Electrotherapy and Analgesia

- Broaden the knowledge of new applications of Electrotherapy in the rehabilitation of urogynecological pathologies
- Study Electrotherapy in depth in the field of patient rehabilitation with musculoskeletal pathologies

Module 8. Transcutaneous Electrical Nerve Stimulation (TENS)

- Analyze the Transcutaneous Electrical Nerve Stimulation (TENS)
- Know the analgesic effects of high frequency TENS

Module 9. Interferential Currents

- Identify the main effects of high frequency
- Discover the latest high frequency applications

Module 10. Invasive Treatment in Electrotherapy

- Describe the dry needling technique
- Understand the importance of post-puncture effects

Module 11. Magnetotherapy in Physiotherapy

- Explore in depth the therapeutic effects of magnetotherapy
- Identify the clinical applications of magnetotherapy

Module 12. Non-Invasive Brain Stimulation

- Mastering stimulation protocols
- Understand the therapeutic applications of non-invasive brain stimulation

Take the step to catch up on the latest developments in Electrotherapy in Physiotherapy"

03

Skills

This Professional Master's Degree offers the physiotherapist the possibility of expanding their competencies and technical skills with the application in their practice of the latest advances in Electrotherapy. This will allow the students to be aware of the different methods of application of each type of current according to the different pathologies, as well as the latest technologies used and that demonstrate the future potential in this field.

This Professional Master's Degree will allow you to enhance your skills for the rehabilitation of patients with low back pain"

Basic Skills

- Understand the knowledge that provides a basis or opportunity to be original in the development and/or application of ideas, often in a research context
- Solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of study
- 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
- Communicate your knowledge to specialized and non-specialized audiences in a clear and unambiguous way

Specific Skills

- Know the physical bases of the different types of Electrotherapy used in rehabilitation
- Know the physiological characteristics of each type of current
- Know the therapeutic effects of each type of current
- Apply, in a practical way, each type of current in different pathologies
- Refresh the main concepts of each type of current
- Incorporate new technologies into daily practice, knowing their advances, limitations and future potential

The case studies provided by the specialized teachers will bring you closer to real situations in the care of patients with neurological problems"

04

Course Management

TECH has selected a management and teaching team with extensive knowledge in the field of Electrotherapy in Physiotherapy, and with extensive professional experience in reference hospitals. In this way, the professional, who is part of this degree, will have at his disposal a specialized teaching staff that will pour into this teaching their extensive knowledge and will resolve any doubts that may arise about the content throughout the 12 months of duration of this program.

Consult directly with a top physiotherapy teaching team for all your doubts about the latest technical and technological advances in Electrotherapy"

Management

Ms. Sanz Sánchez, Marta

- Physiotherapy Supervisor at the Hospital Universitario 12 de Octubre
- Associate Professor at the Complutense University of Madrid
- Graduate in Physiotherapy from the School of Nursing and Physiotherapy of the University of Comillas (Madrid).
- Degree in Physiotherapy from the School of Nursing and Physiotherapy of the University of Alcalá de Henares.

Mr. Hernández, Leonardo

- Physiotherapy Supervisor at the Hospital Universitario 12 de Octubre
- Physiotherapist at the University Hospital of Guadalajara
- Collaborating Professor at the Complutense University of Madrid
- Postgraduate Certificate in Physiotherapy from the European University of Madrid.
- Degree in Physiotherapy from Comillas Pontifical University
- Professional Master's Degree in Osteopathy Escuela Universitaria Gimbernat

Dr. León Hernández, Jose Vicente

- Doctorate in Physiotherapy from the Rey Juan Carlos University
- Professional Master's Degree in the Study and Treatment of Pain from the Universidad Rey Juan Carlos
- Degree in Chemical Sciences from the Complutense University of Madrid, specializing in Biochemistry.
- Postgraduate Certificate in Physiotherapy from the Universidad Alfonso X el Sabio

Professors

Dr. Cuenca Martínez, Ferrán
- Doctorate in Physiotherapy
- Master's Degree in "Advanced Physiotherapy in Pain Management"
- Degree in Physiotherapy

Mr. Gurdiel Álvarez, Francisco
- Physiotherapist
- Professional Master's Degree in Advanced Physiotherapy in Musculoskeletal Pain Management
- Postgraduate Diploma in Orthopedic Manual Therapy and Myofascial Pain Syndrome
- Degree in Physiotherapy

Mr. Losana Ferrer, Alejandro
- Physiotherapist
- Professional Master's Degree in Advanced Physiotherapy in Musculoskeletal Pain Management
- Postgraduate Diploma in Neuro-Orthopedic Manual Therapy
- University Advanced Training in Therapeutic Exercise and Invasive Physiotherapy for Musculoskeletal Pain

Ms. Merayo Fernández, Lucía
- Physiotherapist
- Degree in Physiotherapy
- Professional Master's Degree in Advanced Physiotherapy in Musculoskeletal Pain Management

Mr. Suso Martí, Luis
- Physiotherapist
- Degree in Physiotherapy
- Master's Degree in "Advanced Physiotherapy in Pain Management"

Mr. Izquierdo García, Juan

- Physiotherapist of the Cardiac Rehabilitation Unit at the Hospital Universitario 12 de Octubre in Madrid
- University Specialist in Heart Failure by the University of Murcia
- Associate Professor of the Department of Radiology, Rehabilitation and Physiotherapy of the Faculty of Nursing, Physiotherapy and Podiatry at the Complutense University of Madrid
- Professional Master's Degree in Health Care Management from Universidad Atlántico Medio
- Postgraduate Diploma in Manual Therapy in Muscular and Neuromeningeal Tissue by the Universidad Rey Juan Carlos
- Postgraduate Certificate in Physiotherapy Universidad Rey Juan Carlos

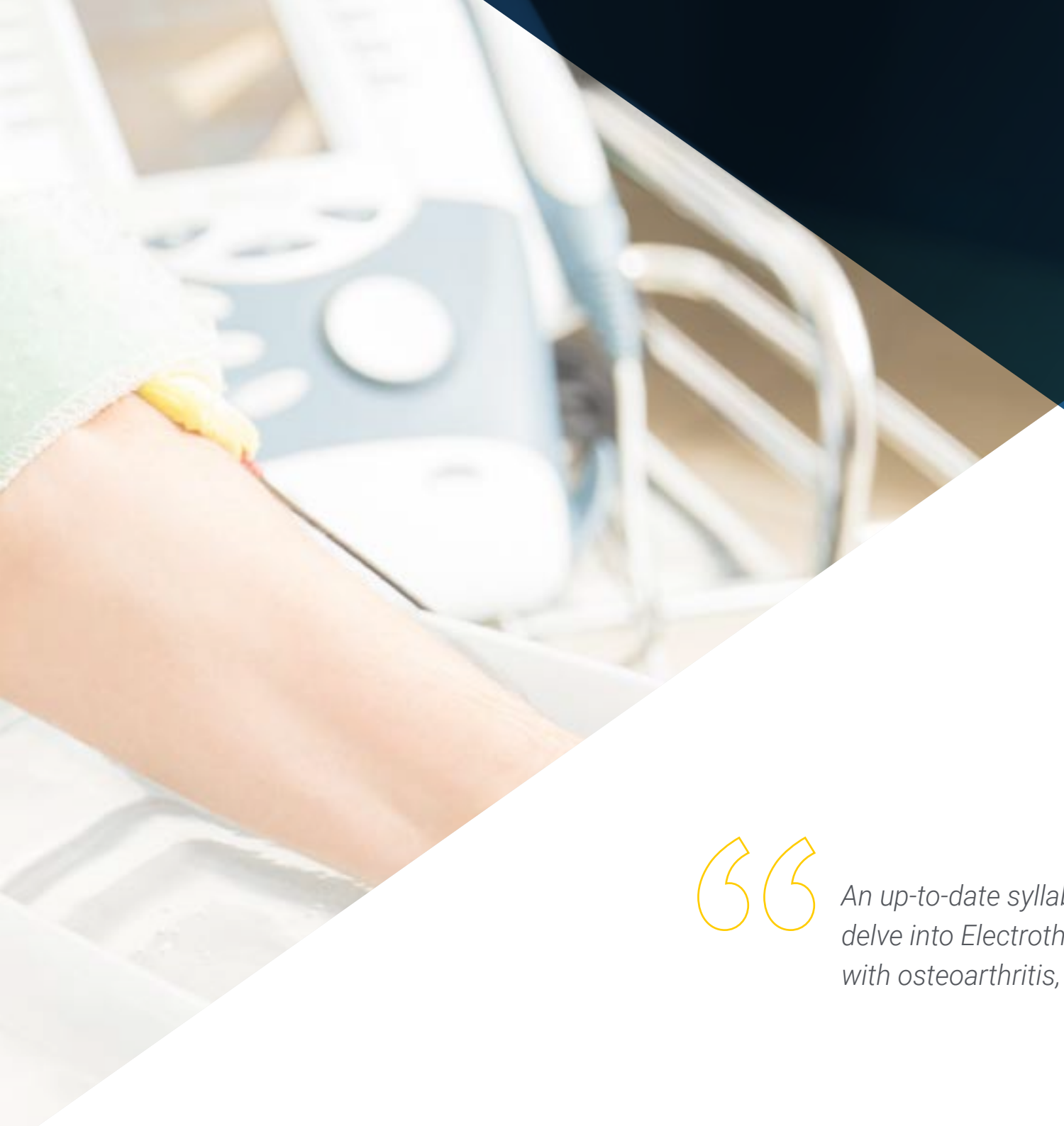
Mr. Román Moraleda, Carlos

- Physiotherapist at the 12 de Octubre University Hospital
- Physiotherapist at the Paseo Imperial Health Center and at the Primary Care Service of the Hospital Universitario La Paz
- Specialist in the Lymphatic Drainage Unit at the Hospital Universitario La Paz
- Physiotherapist at the "José Villarreal" Day Care Center, Madrid
- Associate Professor in the Faculty of Nursing, Physiotherapy and Podiatry. Complutense University of Madrid
- Postgraduate Diploma in Manual Lymphatic Drainage by the European University of Madrid
- Professional Master's Degree in Osteopathy (Eur. Ost DO). Francisco de Vitoria University-School of Osteopathy. FBEO

05

Structure and Content

The syllabus of this Professional Master's Degree has been developed by a teaching team, well-versed in Electrotherapy in Physiotherapy. Their extensive knowledge in this field is reflected in the syllabus that makes up this program structured in 12 modules. Detailed videos, video summaries or clinical cases are just some of the didactic resources that the professional will find to update their knowledge in electrostimulation for muscle strengthening, the application in neurological patients or magnetotherapy in Physiotherapy.



An up-to-date syllabus that will allow you to delve into Electrotherapy applied to patients with osteoarthritis, myalgia or tendinopathies"

Module 1. High Frequency Electrotherapy

1.1. Physical Fundamentals of High Frequency
1.2. Physiological Effects of High Frequency
  1.2.1. Athermal Effects
  1.2.2. Thermal Effects
1.3. Therapeutic Effects of High Frequency
  1.3.1. Athermal Effects
  1.3.2. Thermal Effects
1.4. Shortwave Fundamentals
  1.4.1. Shortwave: Capacitive Application Mode
  1.4.2. Shortwave: Inductive Application Mode.
  1.4.3. Shortwave: Pulsed Emission Mode
1.5. Practical Applications of Shortwave
  1.5.1. Practical Applications of Continuous Shortwave
  1.5.2. Practical Applications of Pulsed Shortwave
  1.5.3. Practical Shortwave Applications: Pathology Phase and Protocols
1.6. Contraindications of Shortwave
  1.6.1. Absolute Contra-indications
  1.6.2. Relative Contra-indications
  1.6.3. Precautions and Safety Measures
1.7. Practical Applications of the Microwave
  1.7.1. Microwave Basics
  1.7.2. Practical Microwave Considerations
  1.7.3. Practical Applications of Continuous Microwave
  1.7.4. Practical Applications of Pulsed Microwave
  1.7.5. Microwave Treatment Protocols
1.8. Contraindications of the Microwave
  1.8.1. Absolute Contra-indications
  1.8.2. Relative Contra-indications
1.9. Fundamentals of TECAR Therapy
  1.9.1. Physiological Effects of TECAR Therapy
  1.9.2. Dosage of the TECAR Therapy treatment
1.10. Practical Applications of TECAR Therapy
  1.10.1. Arthrosis
  1.10.2. Myalgia
  1.10.3. Muscle Fibrillar Rupture
  1.10.4. Post-puncture Pain of Myofascial Trigger Points
  1.10.5. Tendinopathy
  1.10.6. Tendon Rupture (Postoperative Period)
  1.10.7. Wound Healing
  1.10.8. Keloid Scars
  1.10.9. Edema Drainage
  1.10.10. Post-Exercise Recovery
1.11. Contraindications of TECAR Therapy
  1.11.1. Absolute Contra-indications
  1.11.2. Relative Contra-Indications

Module 2. Ultrasound Therapy in Physiotherapy

2.1. Physical Principles of Ultrasound Therapy
  2.1.1. Definition of Ultrasound Therapy
  2.1.2. Main Physical Principles of Ultrasound Therapy
2.2. Physiological Effects of Ultrasound Therapy
  2.2.1. Mechanisms of Action of Therapeutic Ultrasound
  2.2.2. Therapeutic Effects of Ultrasound Therapy
2.3. Main Parameters of Ultrasound Therapy
2.4. Practical Applications
  2.4.1. Ultrasound Treatment Methodology
  2.4.2. Practical Applications and Indications of Ultrasound Therapy
  2.4.3. Ultrasound Therapy Research Studies
2.5. Ultrasonophoresis
  2.5.1. Definition of Ultrasonophoresis
  2.5.2. Mechanisms of Ultrasonophoresis
  2.5.3. Factors on Which the Effectiveness of Ultrasonophoresis Depends
  2.5.4. Ultrasonophoresis Considerations to Take into Account
  2.5.5. Research Studies on Ultrasonophoresis

2.6. Contraindications to Ultrasound Therapy
- 2.6.1. Absolute Contra-Indications
- 2.6.2. Relative Contra-Indications
- 2.6.3. Precautions
- 2.6.4. Recommendations
- 2.6.5. Contraindications to Ultrasonophoresis

2.7. High Frequency Ultrasound Therapy. High Frequency Pressure Waves (HFPW)
- 2.7.1. Definition of HFPW Therapy
- 2.7.2. Parameters of HFPW Therapy and HIFU Therapy

2.8. Practical Applications of High Frequency Ultrasound Therapy
- 2.8.1. Indications for HFPW and HIFU Therapy
- 2.8.2. HFPW and HIFU Therapy Research Studies

2.9. Contraindications to High Frequency Ultrasound Therapy

Module 3. Other Electromagnetic Fields

3.1. Laser. Physical principles |
- 3.1.1. Laser. Definition
- 3.1.2. Laser Parameters
- 3.1.3. Laser. Classification
- 3.1.4. Laser. Physical principles |

3.2. Laser. Physiological Effects
- 3.2.1. Interrelationship between Laser and Living Tissues
- 3.2.2. Biological Effects of Low and Medium Power Lasers
- 3.2.3. Direct Effects of Laser Application
  - 3.2.3.1. Photothermal Effect
  - 3.2.3.2. Photochemical Effect
  - 3.2.3.3. Photoelectric Stimulus
- 3.2.4. Indirect Effects of Laser Application
  - 3.2.4.1. Microcirculation Stimulation
  - 3.2.4.2. Trophism Stimulus and Repair

3.3. Laser. Therapeutic Effects
- 3.3.1. Analgesia
- 3.3.2. Inflammation and Edema
- 3.3.3. Reparation
- 3.3.4. Dosimetry
  - 3.3.4.1. Recommended Treatment Dose in Low Level Laser Therapy Application according to WALT Guidelines

3.4. Laser. Clinical Applications
- 3.4.1. Laser Therapy in Osteoarthritis
- 3.4.2. Laser Therapy in Chronic Low Back Pain
- 3.4.3. Laser Therapy in Epicondylitis
- 3.4.4. Laser Therapy in Rotator Cuff Tendinopathy
- 3.4.5. Laser Therapy in Cervicalgias
- 3.4.6. Laser Therapy in Musculoskeletal Disorders
- 3.4.7. Other Practical Laser Therapy Applications
- 3.4.8. Conclusions

3.5. Laser. Contraindications
- 3.5.1. Precautions
- 3.5.2. Contraindications
  - 3.5.2.1. Conclusions

3.6. Infrared Radiation. Physical principles |
- 3.6.1. Introduction
  - 3.6.1.1. Definition
  - 3.6.1.2. Classification
- 3.6.2. Infrared Radiation Generation
  - 3.6.2.1. Luminous Emitters
  - 3.6.2.2. Non-Luminous Emitters
- 3.6.3. Physical Properties

3.7. Infrared Physiological Effects
- 3.7.1. Physiological Effects on the Skin
- 3.7.2. Infrared and Chromophores in Mitochondria
- 3.7.3. Radiation Absorption in Water Molecules
- 3.7.4. Infrared at the Cell Membrane
- 3.7.5. Conclusions

3.8. Therapeutic Effects of Infrared
- 3.8.1. Introduction
- 3.8.2. Local Effects of Infrared
  - 3.8.2.1. Erythematous
  - 3.8.2.2. Anti-inflammatory
  - 3.8.2.3. Scarring
  - 3.8.2.4. Sweating
  - 3.8.2.5. Relaxation
  - 3.8.2.6. Analgesia
- 3.8.3. Infrared Systemic Effects
  - 3.8.3.1. Cardiovascular System Benefits
  - 3.8.3.2. Systemic Muscle Relaxation
- 3.8.4. Dosimetry and Infrared Application
  - 3.8.4.1. Infrared Lamps
  - 3.8.4.2. Non-Luminous Lamps
  - 3.8.4.3. Luminous Lamps
  - 3.8.4.4. Monochromatic Infrared Energy (MIRE)
- 3.8.5. Conclusions

3.9. Practical Applications
- 3.9.1. Introduction
- 3.9.2. Clinical Applications
  - 3.9.2.1. Osteoarthritis and Infrared Radiation
  - 3.9.2.2. Lumbago and Infrared Radiation
  - 3.9.2.3. Fibromyalgia and Infrared
  - 3.9.2.4. Infrared Saunas in Cardiopathies
- 3.9.3. Conclusions

3.10. Infrared Contraindications
- 3.10.1. Precautions/Adverse Effects
  - 3.10.1.1. Introduction
  - 3.10.1.2. Consequences of Poor Infrared Dosing
  - 3.10.1.3. Precautions
  - 3.10.1.4. Formal Contraindications
- 3.10.2. Conclusions

Module 4. General Principles of Electrotherapy

4.1. Physical Basis of Electric Current
- 4.1.1. Brief Historical Recollection
- 4.1.2. Definition and Physical Basics of Electrotherapy
  - 4.1.2.1. Potential Concepts

4.2. Main Parameters of the Electric Current
- 4.2.1. Parallelism Pharmacology/Electrotherapy
- 4.2.2. Main Wave Parameters: Waveform, Frequency, Intensity and Pulse Width
- 4.2.3. Other Concepts: Voltage, Current and Resistance

4.3. Classification of Frequency-Dependent Currents
- 4.3.1. Classification according to Frequency: High, Medium and Low
- 4.3.2. Properties of Each Type of Frequency
- 4.3.3. Choice of the Most Suitable Current in Each Case

4.4. Classification of Waveform-dependent Currents
- 4.4.1. General Classification: Direct and Alternating or Variable currents
- 4.4.2. Classification of the Variable Currents: Interrupted and Uninterrupted
- 4.4.3. Spectrum Concept

4.5. Current Transmission: Electrodes
- 4.5.1. General Information on Electrodes
- 4.5.2. Importance of Tissue Impedance
- 4.5.3. General Precautions

4.6. Types of Electrodes
- 4.6.1. Brief Recollection of the Historical Evolution of Electrodes
- 4.6.2. Considerations on Maintenance and Use of Electrodes
- 4.6.3. Main Types of Electrodes
- 4.6.4. Electrophoretic Application

4.7. Bipolar Application
- 4.7.1. Bipolar Application Overview
- 4.7.2. Electrode Size and Area to be Treated
- 4.7.3. Application of More Than Two Electrodes

4.8. Four-pole Application
- 4.8.1. Possibility of Combinations
- 4.8.2. Application in Electrostimulation
- 4.8.3. Tetrapolar Application in Interferential Currents
- 4.8.4. General Conclusions

4.9. Importance of Polarity Alternation
- 4.9.1. Brief Introduction to Galvanism
- 4.9.2. Risks Derived from Load Accumulation
- 4.9.3. Polar Behavior of Electromagnetic Radiation

Module 5. Electrostimulation for Muscle Strengthening

5.1. Principles of Muscle Contraction
- 5.1.1. Introduction to Muscle Contraction
- 5.1.2. Types of Muscles
- 5.1.3. Muscle Characteristics
- 5.1.4. Muscle Functions
- 5.1.5. Neuromuscular Electrostimulation

5.2. Sarcomere Structure
- 5.2.1. Introduction
- 5.2.2. Sarcomere Functions
- 5.2.3. Sarcomere Structure
- 5.2.4. Sliding Filament Theory

5.3. Motor Plate Structure
- 5.3.1. Motor Unit Concept
- 5.3.2. Concept of Neuromuscular Junction and Motor Plate
- 5.3.3. Structure of the Neuromuscular Junction
- 5.3.4. Neuromuscular Transmission and Muscle Contraction

5.4. Type of Muscle Contraction
- 5.4.1. Concept of Muscle Contraction
- 5.4.2. Types of Contraction
- 5.4.3. Isotonic Muscle Contraction
- 5.4.4. Isometric Muscle Contraction
- 5.4.5. Relationship between Strength and Endurance in Contractions.
- 5.4.6. Auxotonic and Isokinetic Contractions

5.5. Types of Muscle Fibers
- 5.5.1. Types of Muscle Fibers
- 5.5.2. Slow-Twitch Fibers or Type I Fibers
- 5.5.3. Fast-Twitch Fibers or Type II Fibers

5.6. Main Neuromuscular Injuries
- 5.6.1. Concept of Neuromuscular Disease
- 5.6.2. Etiology of Neuromuscular Diseases
- 5.6.3. Neuromuscular Junction Injury and NMD
- 5.6.4. Major Neuromuscular Injuries or Diseases

5.7. Principles of Electromyography
- 5.7.1. Electromyography Concept
- 5.7.2. Development of Electromyography
- 5.7.3. Electromyographic Study Protocol
- 5.7.4. Electromyography Methods

5.8. Main Excitomotor Currents. Neo-Faradic Currents
- 5.8.1. Definition of Excitomotor Current and Main Types of Excitomotor Currents
- 5.8.2. Factors Influencing the Neuromuscular Response
- 5.8.3. Exitomotor Currents Most Commonly Used. Neo-Faradic Currents

5.9. Excitomotor Interferential Currents. Kotz Currents
- 5.9.1. Kotz Currents or Russian Currents
- 5.9.2. Most Relevant Parameters in Kotz Currents
- 5.9.3. Strengthening Protocol Described with Russian Current
- 5.9.4. Differences between Low Frequency and Medium Frequency Electrostimulation

5.10. Electrostimulation Applications in Urogynecology
- 5.10.1. Electrostimulation and Urogynecology
- 5.10.2. Types of Electrostimulation in Urogynecology
- 5.10.3. Placement of Electrodes
- 5.10.4. Mechanism of Action

5.11. Practical Applications
- 5.11.1. Recommendations for the Application of Excitomotor currents
- 5.11.2. Techniques of Application of Excitomorphic Currents
- 5.11.3. Examples of Work Protocols Described in Scientific Literature

5.12. Contraindications
- 5.12.1. Contraindications for the Use of Electrostimulation for Muscle Strengthening
- 5.12.2. Recommendations for Safe Electrostimulation Practice

Module 6. Electrostimulation in the Neurological Patient

6.1. Assessment of Nerve Injury. Principles of Muscle Innervation
6.2. Intensity/Time (I/T) and Amplitude/Time (A/T) Curves
6.3. Main Trends in Neurological Rehabilitation
6.4. Electrotherapy for Motor Rehabilitation in the Neurological Patient
6.5. Electrotherapy for Somatosensory Rehabilitation in the Neurologic Patient
6.6. Practical Applications
6.7. Contraindications

Module 7. Electrotherapy and Analgesia

7.1. Definition of Pain. Concept of Nociception
- 7.1.1. Definition of Pain
  - 7.1.1.1. Characteristics of Pain
  - 7.1.1.2. Other Concepts and Definitions Related to Pain
  - 7.1.1.3. Types of Pain
- 7.1.2. Concept of Nociception
  - 7.1.2.1. Peripheral Part Nociceptive System
  - 7.1.2.2. Central Part Nociceptive System

7.2. Main Nociceptive Receptors
- 7.2.1. Classification of Nociceptors
  - 7.2.1.1. According to Driving Speed
  - 7.2.1.2. According to Location
  - 7.2.1.3. According to Stimulation Modality
- 7.2.2. How Nociceptors Function

7.3. Main Nociceptive Pathways
- 7.3.1. Basic Structure of the Nervous System
- 7.3.2. Ascending Spinal Pathways
  - 7.3.2.1. Spinothalamic Tract (STT)
  - 7.3.2.2. Spinoreticular Tract (SRT)
  - 7.3.2.3. Spinomesencephalic Tract (SRT)
- 7.3.3. Trigeminal Ascending Pathways
  - 7.3.3.1. Trigeminothalamic Tract or Trigeminal Lemniscus
- 7.3.4. Sensitivity and Nerve Pathways
  - 7.3.4.1. Exteroceptive Sensitivity
  - 7.3.4.2. Proprioceptive Sensitivity
  - 7.3.4.3. Interoceptive Sensitivity
  - 7.3.4.4. Other Fascicles Related to Sensory Pathways

7.4. Transmitter Mechanisms of Nociceptive Regulation
- 7.4.1. Transmission at the Spinal Cord Level (PHSC)
- 7.4.2. Characteristics of PHSC Neurons
- 7.4.3. Redex Lamination
- 7.4.4. Biochemistry of Transmission at the PHSC Level.
  - 7.4.4.1. Presynaptic and Postsynaptic Channels and Receptors
  - 7.4.4.2. Transmission at the Level of Ascending Spinal Tract
  - 7.4.4.3. Spinothalamic Tract (STT)
  - 7.4.4.4. Transmission at the Level of the Thalamus
  - 7.4.4.5. Ventral Posterior Nucleus (VPN)
  - 7.4.4.6. Medial Dorsal Nucleus (MDN)
  - 7.4.4.7. Intralaminar Nuclei
  - 7.4.4.8. Posterior Region
  - 7.4.4.9. Transmission at the Level of the Cerebral Cortex
  - 7.4.4.10. Primary Somatosensory Area (S1)
  - 7.4.4.11. Secondary Somatosensory or Association Area (S2)
- 7.4.5. *Gate Control*
  - 7.4.5.1. Modulation Segmental Level
  - 7.4.5.2. Suprasegmental Modulation
  - 7.4.5.3. Considerations
  - 7.4.5.4. *Gate Control* Theory Review
- 7.4.6. Descending Routes
  - 7.4.6.1. Brainstem Modulatory Centers
  - 7.4.6.2. Diffuse Noxious Inhibitory Control (DNIC)

7.5. Modulating Effects of Electrotherapy
- 7.5.1. Pain Modulation Levels
- 7.5.2. Neuronal Plasticity
- 7.5.3. Sensory Pathway Theory of Pain
- 7.5.4. Electrotherapy Models

7.6. High Frequency and Analgesia
- 7.6.1. Heat and Temperature
- 7.6.2. Effects
- 7.6.3. Application Techniques
- 7.6.4. Dosage

7.7. Low Frequency and Analgesia
- 7.7.1. Selective Stimulation
- 7.7.2. TENS and *Gate Control*
- 7.7.3. Post-Excitatory Depression of the Orthosympathetic Nervous System
- 7.7.4. Theory of Endorphin Release
- 7.7.5. TENS Dosage

7.8. Other Parameters Related to Analgesia
- 7.8.1. Effects of Electrotherapy
- 7.8.2. Dosage in Electrotherapy

Module 8. Transcutaneous Electrical Stimulation (TENS)

8.1. Fundamentals of Current Type used in TENS
- 8.1.1. Introduction
  - 8.1.1.1. Theoretical Framework: Neurophysiology of Pain
    - 8.1.1.1.1. Introduction and Classification of Nociceptive Fibers
    - 8.1.1.1.2. Characteristics of Nociceptive Fibers
    - 8.1.1.1.3. Stages of the Nociceptive Process
- 8.1.2. Antinociceptive System: Gate Theory
  - 8.1.2.1.Introduction to TENS Type Current
  - 8.1.2.2. Basic Characteristics of TENS Type of Current (Pulse Shape, Duration, Frequency and Intensity)

8.2. Classification of Current Type used in TENS
- 8.2.1. Introduction
  - 8.2.1.1. Types of Electrical Current Classification
  - 8.2.1.2. According to Frequency (Number of Pulses Emitted per Second)
- 8.2.2. Classification of Current Type used in TENS
  - 8.2.2.1. Conventional TENS
  - 8.2.2.2. TENS-Acupuncture
  - 8.2.2.3. Low-Rate Burst TENS (*Low-Rate Burst*)
  - 8.2.2.4. Brief or Intense TENS (*Brief Intense*)
- 8.2.3. Mechanisms of Action of the TENS Current Type

8.3. Transcutaneous Electrical Nerve Stimulation (TENS)

8.4. Analgesic Effects of High-Frequency TENS
- 8.4.1. Introduction
  - 8.4.1.1. Main Reasons for the Wide Clinical Application of Conventional TENS
- 8.4.2. Hypoalgesia Derived from Conventional/High Frequency TENS
  - 8.4.2.1. Mechanism of Action
- 8.4.3. Neurophysiology of Conventional TENS
  - 8.4.3.1. *Gate Control*
  - 8.4.3.2. The Metaphor
- 8.4.4. Failure of Analgesic Effects
  - 8.4.4.1. Main Mistakes
  - 8.4.4.2. Main Problem of Hypoalgesia by Conventional TENS

8.5. Analgesic Effects of Low-Frequency TENS
- 8.5.1. Introduction
- 8.5.2. Mechanisms of Action of TENS-mediated Hypoalgesia Acupuncture: Endogenous Opioid System
- 8.5.3. Mechanism of Action
- 8.5.4. High-Intensity and Low-Frequency
  - 8.5.4.1. Parameters.
  - 8.5.4.2. Fundamental Differences from Conventional TENS Current

8.6. Analgesic Effects of *Burst-Type* TENS
- 8.6.1. Introduction
- 8.6.2. Description
  - 8.6.2.1. *Burst-Type* TENS Current Details
  - 8.6.2.2. Physical Parameters
  - 8.6.2.3. Sjölund and Eriksson
- 8.6.3. Summary so far of the Physiological Mechanisms of Analgesia, both Central and Peripheral

8.7. Importance of Pulse Width
- 8.7.1. Introduction
  - 8.7.1.1. Physical Characteristics of Waves
    - 8.7.1.1.1. Definition of a Wave
    - 8.7.1.1.2. Other General Characteristics and Properties of a Wave
- 8.7.2. Impulse Shape

8.8. Electrodes. Types and Application
- 8.8.1. Introduction
  - 8.8.1.1. The TENS Current Device
- 8.8.2. Electrodes
  - 8.8.2.1. General Characteristics
  - 8.8.2.2. Skin Care
  - 8.8.2.3. Other Types of Electrodes

8.9. Practical Applications
- 8.9.1. TENS Applications
- 8.9.2. Impulse Duration
- 8.9.3. Impulse Shape
- 8.9.4. Intensity
- 8.9.5. Frequency (F)
- 8.9.6. Electrode Type and Placement

8.10. Contraindications
- 8.10.1. Contraindications to the use of TENS Therapy
- 8.10.2. Recommendations for Safe TENS Practice

Module 9. High Frequency Analgesic Currents. Interferential

9.1. Fundamentals of Interferential Currents
- 9.1.1. Interferential Current Concept
- 9.1.2. Main Properties of Interferential Currents
- 9.1.3. Characteristics and Effects of Interferential Currents

9.2. Main Parameters of Interferential Currents
- 9.2.1. Introduction to the Different Parameters
- 9.2.2. Types of Frequencies and Effects Produced
- 9.2.3. Relevance of Application Time
- 9.2.4. Types of Applications and Parameters

9.3. Effects of High Frequency
- 9.3.1. Concept of High Frequency in Interferential Streams
- 9.3.2. Main Effects of High Frequency
- 9.3.3. Application of High Frequency

9.4. Concept of Accommodation. Importance and Adjustment of the Frequency Spectrum
- 9.4.1. Low-Frequency Concept in Interferential Currents
- 9.4.2. Main Effects of Low Frequency
- 9.4.3. Low-Frequency Application

9.5. Electrodes. Types and Application
- 9.5.1. Main Types of Electrodes in Interferential Currents
- 9.5.2. Relevance of Electrode Types in Interferential Currents
- 9.5.3. Application of Different Types of Electrodes

9.6. Practical Applications
- 9.6.1. Recommendations for the Application of Interferential Currents
- 9.6.2. Techniques for the Application of Interferential Currents

9.7. Contraindications
- 9.7.1. Contraindications to the Use of Interferential Currents
- 9.7.2. Recommendations for Safe Practice Using Interferential Currents

Module 10. Invasive Application of Current

10.1. Invasive Treatment in Physical Therapy for Analgesic Purposes
- 10.1.1. General Aspects
- 10.1.2. Types of Invasive Treatment
- 10.1.3. Infiltration Versus Puncture

10.2. Fundamentals of Dry Needling
- 10.2.1. Myofascial Pain Syndrome
- 10.2.2. Myofascial Trigger Points
- 10.2.3. Neurophysiology of Myofascial Pain Syndrome and Trigger Points

10.3. Post-puncture Treatments
- 10.3.1. Adverse Effects of Dry Needling
- 10.3.2. Post-puncture Treatments
- 10.3.3. Combination of Dry Needling and TENS

10.4. Electrotherapy as an Adjunct to Dry Needling
- 10.4.1. Non-Invasive Approach
- 10.4.2. Invasive Approach
- 10.4.3. Types of Electropuncture

10.5. Percutaneous Electrical Nerve Stimulation: PENS
- 10.5.1. Neurophysiological Fundamentals of PENS Application
- 10.5.2. Scientific Evidence for the Application of PENS
- 10.5.3. General Considerations for PENS Implementation

10.6. Advantages of PENS Over TENS
- 10.6.1. Current Status of PENS Implementation
- 10.6.2. Application of PENS in Lower Back Pain
- 10.6.3. Application of PENS in Other Regions and Pathologies

10.7. Use of Electrodes
- 10.7.1. General Information on the Application of Electrodes
- 10.7.2. Variations in the Application of Electrodes
- 10.7.3. Multipole Application

10.8. Practical Applications
- 10.8.1. Justification for the Implementation of the PENS
- 10.8.2. Applications in Lower Back Pain
- 10.8.3. Upper Quadrant and Lower Limb Applications

10.9. Contraindications
- 10.9.1. Contraindications Derived from TENS
- 10.9.2. Contraindications Derived from Dry Needling
- 10.9.3. General Considerations

10.10. Invasive Treatments for Regenerative Purposes
- 10.10.1. Introduction
  - 10.10.1.1. Electrolysis Concept
- 10.10.2. Intratissue Percutaneous Electrolysis
  - 10.10.2.1. Concept
  - 10.10.2.2. Effects
  - 10.10.2.3. Review of the *State-of-the-Art*
  - 10.10.2.4. Combination with Eccentric Exercises

10.11. Physical Principles of Galvanism
- 10.11.1. Introduction
  - 10.11.1.1. Physical Characteristics of Direct Current
- 10.11.2. Galvanic Current
  - 10.11.2.1. Physical Characteristics of Galvanic Current
  - 10.11.2.2. Chemical Phenomena of Galvanic Current
  - 10.11.2.3. Structure
- 10.11.3. Iontophoresis
  - 10.11.3.1. Leduc's Experiment
  - 10.11.3.2. Physical Properties of Iontophoresis

10.12. Physiological Effects of Galvanic Current
- 10.12.1. Physiological Effects of Galvanic Current
- 10.12.2. Electrochemical Effects
  - 10.12.2.1. Chemical Behavior
- 10.12.3. Electrothermal Effects
- 10.12.4. Electrophysical Effects

10.13. Therapeutic Effects of Galvanic Current
- 10.13.1. Clinical Application of Galvanic Current
  - 10.13.1.1. Vasomotor Action
    - 10.13.1.1.1. Effect on the Nervous System
- 10.13.2. Therapeutic Effects of Iontophoresis
  - 10.13.2.1 Penetration and Removal of Cations and Anions
  - 10.13.2.2. Drugs and Indications
- 10.13.3. Therapeutic Effects of Intratissue Percutaneous Electrolysis

10.14. Types of Percutaneous Application of Galvanic Currents
- 10.14.1. Introduction to Application Techniques
  - 10.14.1.1. Classification According to Electrode Placement
    - 10.14.1.1.1. Direct Galvanizing
- 10.14.2. Indirect Galvanizing
- 10.14.3. Classification According to the Technique Applied
  - 10.14.3.1. Intratissue Percutaneous Electrolysis
  - 10.14.3.2. Iontophoresis
  - 10.14.3.3. Galvanic Bath

10.15. Application Protocols
- 10.15.1. Galvanic Current Application Protocols
- 10.15.2. Intratissue Percutaneous Electrolysis Application Protocols
  - 10.15.2.1. Procedure
- 10.15.3. Iontophoresis Application Protocols
  - 10.15.3.1. Procedure

10.16. Contraindications
- 10.16.1. Contraindications of Galvanic Current
- 10.16.2. Contraindications, Complications and Precautions of Galvanic Current

Module 11. Magnetotherapy in Physiotherapy

11.1. Physical Principles of Magnetotherapy
- 11.1.1. Introduction
- 11.1.2. History of Magnetotherapy
- 11.1.3. Definition
- 11.1.4. Principles of Magnetotherapy
  - 11.1.4.1. Magnetic Fields on Earth
  - 11.1.4.2. Physical Principles |
- 11.1.5. Biophysical Interactions with Magnetic Fields

11.2. Physiological Effects of Magnetotherapy
- 11.2.1. Effects of Magnetotherapy on Biological Systems
  - 11.2.1.1. Biochemical Effects
- 11.2.1.2.Cellular Effect
  - 11.2.1.2.1. Effects on Lymphocytes and Macrophages
  - 11.2.1.2.2. Effects on the Cell Membrane
  - 11.2.1.2.3. Effects on the Cytoskeleton
  - 11.2.1.2.4. Effects on Cytoplasm
- 11.2.1.3.Conclusion on the Effect on the Cell
- 11.2.1.4.Effect on Bone Tissue

11.3. Therapeutic Effects of Magnetotherapy
- 11.3.1. Introduction
- 11.3.2. Inflammation
- 11.3.3. Vasodilatation
- 11.3.4. Analgesia
- 11.3.5. Increased Calcium and Collagen Metabolism
- 11.3.6. Reparation
- 11.3.7. Muscle Relaxation

11.4. Main Magnetic Field Parameters
- 11.4.1. Introduction
- 11.4.2. Magnetic Field Parameters
  - 11.4.2.1. Intensity
  - 11.4.2.2. Frequency (F)
- 11.4.3. Dosimetry of Magnetic Fields
  - 11.4.3.1. Frequency of Application
  - 11.4.3.2. Application Time

11.5. Types of Electrodes and their Application
- 11.5.1. Introduction
- 11.5.2. Electromagnetic Fields
  - 11.5.2.1. *Total Body Application*
  - 11.5.2.2. Regional Application
- 11.5.3. Local Magnetic Fields Induced with Magnets
  - 11.5.3.1. Conclusions

11.6. Magnetotherapy. Clinical Applications
- 11.6.1. Introduction
- 11.6.2. Arthrosis
  - 11.6.2.1. Electromagnetic Fields and Chondrocyte Apoptosis
  - 11.6.2.2. Early-Stage Knee Osteoarthritis
  - 11.6.2.3. Advanced Stage Osteoarthritis
  - 11.6.2.4. Conclusion on Osteoarthritis and Pulsed Electromagnetic Fields
- 11.6.3. Bone Consolidation
  - 11.6.3.1. Bone Literature Review
  - 11.6.3.2. Bone Consolidation in Long Bone Fractures
  - 11.6.3.3. Bone Consolidation in Short Bone Fractures

11.6.4. Shoulder Pathology
11.6.4.1. Shoulder *Impingement*
11.6.4.2. Rotator Cuff Tendinopathy
11.6.4.2.1. Rheumatoid Arthritis.
11.6.4.2.2. Conclusions
11.7. Magnetotherapy. Contraindications
11.7.1. Introduction
11.7.2. Possible Adverse Effects Studied
11.7.3. Precautions
11.7.4. Formal Contraindications
11.7.5. Conclusions

Module 12. Non-Invasive Brain Stimulation

12.1. Non-Invasive Brain Stimulation: Introduction
12.1.1. Introduction to Non-Invasive Brain Stimulation
12.1.2. Transcranial Magnetic Stimulation
12.1.2.1. Introduction to Transcranial Magnetic Stimulation
12.1.2.2. Mechanisms of action
12.1.2.3. Stimulation Protocols
12.1.2.3.1. Transcranial Magnetic Stimulation with Single and Paired Pulses
12.1.2.3.2. Location of the Stimulation Site "*Hot Spot*".
12.1.2.3.3. Repetitive Transcranial Magnetic Stimulation
12.1.2.3.4. Simple Repetitive Pattern Stimulation
12.1.2.3.5. Theta-*Burst* Stimulation (TBS)
12.1.2.3.6. Quadripulse Stimulation (QPS)
12.1.2.3.7. Paired Associative Stimulation (PAS)
12.1.2.4. Security/Safety
12.1.2.5. Therapeutic Applications
12.1.3. Conclusions
12.1.4. Bibliography
12.2. Transcranial Direct Current
12.2.1. Transcranial Direct Current
12.2.1.1. Introduction to Transcranial Direct Current
12.2.1.2. Mechanism of Action
12.2.1.3. Security/Safety
12.2.1.4. Procedures
12.2.1.5. Applications
12.2.1.6. Other Forms of Transcranial Electrical Stimulation
12.2.2. Transcranial Neuromodulation Combined with other Therapeutic Interventions
12.2.3. Conclusions
12.2.4. Bibliography

A program designed to keep you up to date with the latest advances in magnetic field therapy in Physiotherapy"

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 we use the Case Method

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

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

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

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

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

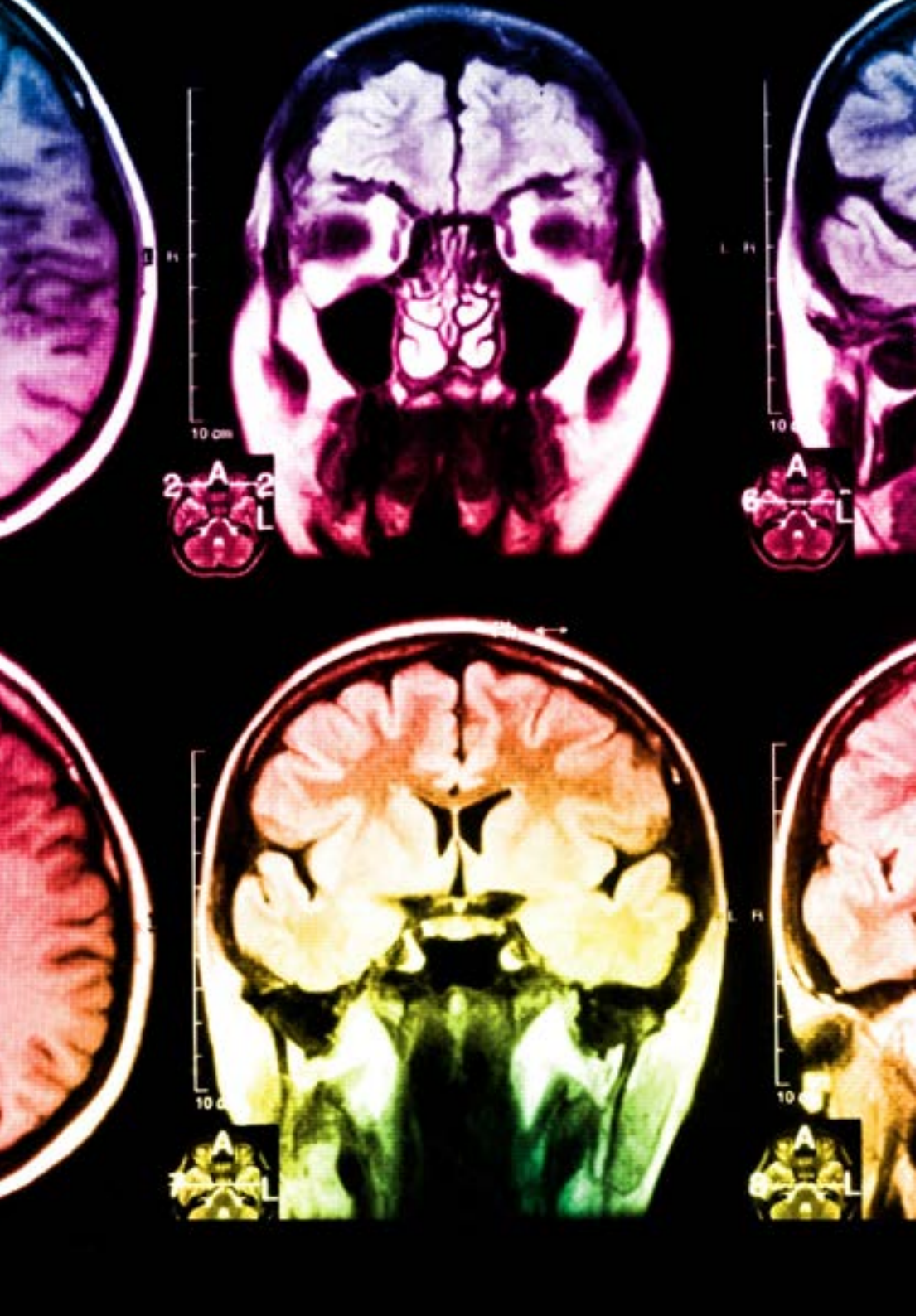
1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better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

Relearning Methodology

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

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

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



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

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

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

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

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

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

Study Material

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

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

Surgical Techniques and Procedures on Video

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

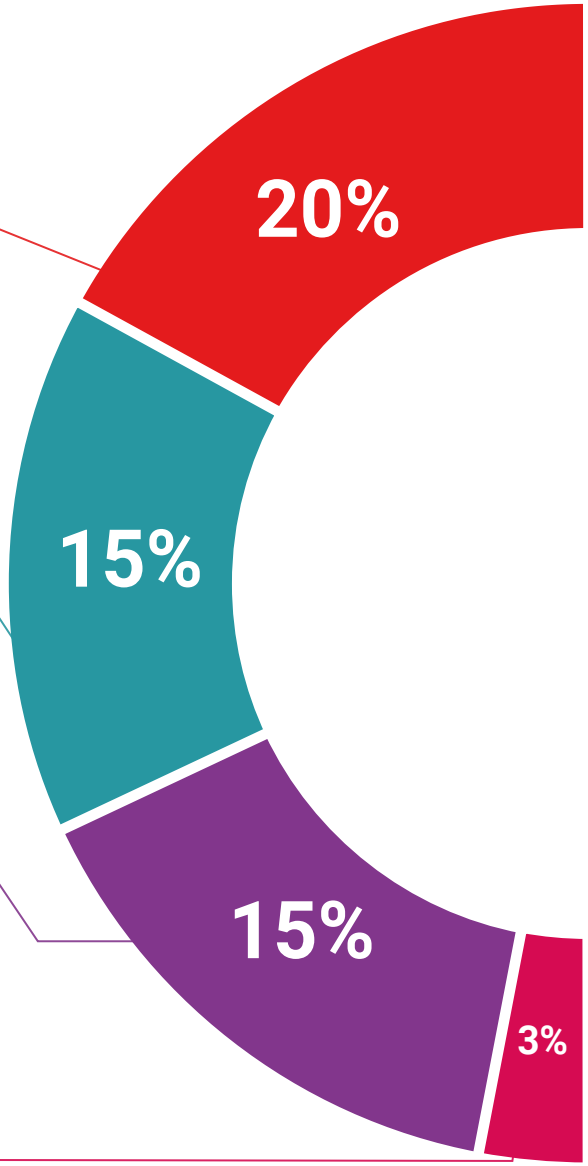
Interactive Summaries

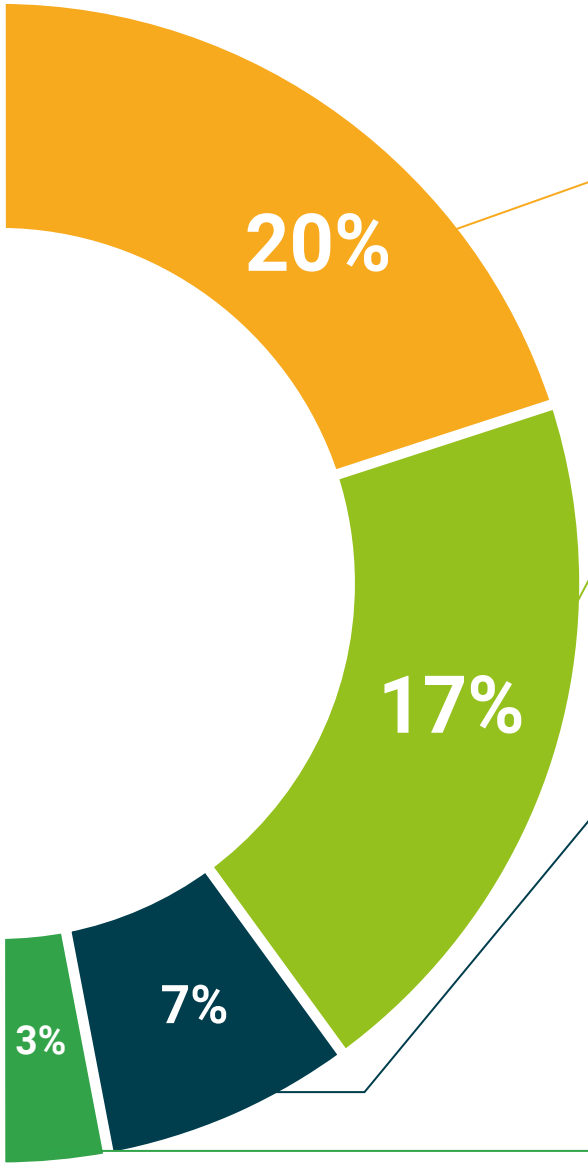
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

Additional Reading

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





Expert-Led Case Studies and Case Analysis

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

Testing & Retesting

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

Classes

There is scientific evidence on the usefulness of learning by observing experts. The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.

07

Certificate

The Professional Master's Degree in Electrotherapy in Physiotherapy guarantees you, in addition to the most rigorous and updated training, access to a Professional Master's Degree issued by TECH Technological University.

Successfully complete this program and receive your university degree without travel or laborious paperwork”

This **Professional Master's Degree in Electrotherapy in Physiotherapy** contains the most complete and updated scientific program on the market.

After the student has passed the assessments, they will receive their corresponding **Professional Master's Degree** 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 Electrotherapy in Physiotherapy**

Official Nº of hours: **1,500 h.**


tech technological university

Awards the following

DIPLOMA

to

Mr./Ms. _____, with identification number _____.

For having successfully passed and accredited the following program

PROFESSIONAL MASTER'S DEGREE

in

Electrotherapy in Physiotherapy

This is a qualification awarded by this University, equivalent to 1,500 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro
Dean

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


Professional Master's Degree in Electrotherapy in Physiotherapy

Subject type	Hours
Compulsory (CO)	1,500
Optional (OP)	0
External Work Placement (WP)	0
Master's Degree Thesis (MDT)	0
	Total 1,500

General Structure of the Syllabus

Year	Subject	Hours	Type
1º	High-Frequency Electrotherapy	125	CO
1º	Ultrasound Therapy in Physiotherapy	125	CO
1º	Other Electromagnetic Fields	125	CO
1º	General Principles of Electrotherapy	125	CO
1º	Electrostimulation for Muscle Strengthening	125	CO
1º	Electrostimulation in the Neurological Patient	125	CO
1º	Electrotherapy and Analgesia	125	CO
1º	Transcutaneous Electrical Nerve Stimulation (TENS)	125	CO
1º	Interferential Currents	125	CO
1º	Invasive Treatment in Electrotherapy	125	CO
1º	Magnetotherapy in Physiotherapy	125	CO
1º	Non-Invasive Brain Stimulation	125	CO

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*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
Electrotherapy in Physical Therapy

Course Modality: **Online**
Duration: **12 months.**
Certificate: **TECH Technological University**
Official Nº of hours: **1,500 h.**

Professional Master's Degree

Electrotherapy in Physiotherapy

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