Hybrid Professional Master's Degree

Electrotherapy in Physiotherapy

Endorsed by the NBA

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Hybrid Professional Master's Degree

Electrotherapy in Physiotherapy

- Modality: **Hybrid (Online + Clinical Internship)**
- Duration: **12 months**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/physiotherapy/hybrid-professional-masters-degree/hybrid-professional-electrotherapy-physiotherapy

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Introduction

Physiotherapy is an area of tremendous growth today, as it is partnering with other disciplines to adopt new techniques and treatments to apply to patients. This way, electrotherapy is one of those procedures that has recently been incorporated into the professional practice of physiotherapists and is providing new services to incorporate into their practices. This Certificate offers its students a deep update in this subject, in addition to realization of a stay in a reference center specialized in electrotherapy where they can come into contact with real patients, all this from the hands of the best experts in this technique.

Update yourself with this Hybrid Professional Master's Degree and become a great physiotherapist specialized in electrotherapy"

At present, there are constant scientific and sanitary discoveries and advances that improve existing treatments and techniques. In the field of physiotherapy new procedures are being incorporated into this professional practice and one of the most important is electrotherapy, which is a very useful tool in addressing various injuries and pathologies.

It is therefore advisable to specialize in this area in order to be able to offer patients the most advanced techniques with which to heal all types of locomotor system disorders within the scope of physiotherapy. This Hybrid Professional Master's Degree in Electrotherapy in Physiotherapy is the perfect Certificate to deepen in this area and get an update of knowledge and skills that make professionals are updated on all developments in this field.

In addition, this program has a special feature that makes it unique and very valuable. In addition to its specialized syllabus, taught online, it offers a practical and face-to-face stay in a prestigious institution specialized in electrotherapy for physiotherapists. This stay lasts 3 weeks and follows an intensive schedule from Monday to Friday, 8 hours a day. In this way, students will be able to receive continuous education that will help them improve their skills as physiotherapy professionals.

Therefore, thanks to the combination of innovative and novel theoretical contents and a practical stay in a high-level institution, it is guaranteed that the students of this program will acquire everything they need to perform in their practices with all the guarantees. This way they will be able to increase their reputation as professionals, having access to new patients who will want to enjoy the new services they will be able to offer them in the field of electrotherapy.

This **Hybrid Professional Master's Degree in Electrotherapy in Physiotherapy** contains the most complete and updated scientific program on the market, with the most outstanding features:

- Development of more than 100 clinical cases presented by physiotherapy professionals specialized in electrotherapy
- 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
- An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout course
- Practical clinical guides on approaching different pathologies
- With a special emphasis on evidence-based physical therapy and research methodologies in this field
- All of this will be complemented by theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Availability of content from any fixed or portable device with an Internet connection
- In addition, you will be able to perform a clinical internship in one of the best hospitals in the world

You will be a physiotherapist of enormous prestige when you complete this program"

You will be a great specialist in electrotherapy thanks to the on-site stay offered by this Certificate. Don't miss this opportunity and enroll now"

This Hybrid Professional Master's Degree will allow you to update your skills and offer the best services to your patients.

You will get new patients thanks to your mastery of the electrotherapy technique.

In this Professional Master's Degree proposal, of professional nature and blended learning modality, the program is intended to update physiotherapy professionals who require a high level of qualification. Contents are based on latest scientific evidence, and oriented in a didactic way to integrate theoretical knowledge of the physiotherapy's practice, and theoretical-practical elements will facilitate updating of knowledge and will allow decision making in patient management.

Thanks to its multimedia content developed with latest educational technology, they will allow physiotherapy professionals a situated and contextual learning, that is to say, a simulated environment that will provide an immersive learning programmed to train in real situations. This program's design is based on Problem Based Learning, by means of which the student must try to solve different professional practice situations that will be presented throughout the program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned experts.

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Why Study this Hybrid Professional Master's Degree?

The discipline of Electrotherapy in Physiotherapy has turned, in recent years, to the scientific research of electromagnetic fields, giving way to innovative treatments and equipment focused on magnetotherapy. This example alone is evidence of the constant evolution of this academic sector. For this reason, TECH has developed this Hybrid Professional Master's Degree in which students will be able to master in a practical and theoretical way the most notorious advances that benefit the rehabilitation and recovery of patients with different ailments.

TECH has enabled an academic modality composed of two distinct study phases. In both, you will have access to the most updated theoretical and practical contents, from the best experts"

1. Updating from the latest technology available

The use of lasers, infrared radiation and magnetotherapy equipment is included in the discipline covered by this Certificate. Upon completion of this program, your students will holistically manage all of these tools and easily determine which one fits each patient's needs.

2. Gaining In-Depth Knowledge from the Experience of Top Specialists

This program, defined by a theoretical phase and an on-site practical phase, brings together the best professionals in the field of Electrotherapy in Physiotherapy. With his personalized guidance, the student will quickly and flexibly master the most comprehensive dynamics, protocols and working methods in this sector.

3. Entering into first class Physiotherapist environments

Based on a careful selection, TECH has identified clinical and therapeutic institutions of high prestige. These centers, which have the most advanced technological equipment and updated personnel, will open their doors to students who wish to expand their practical knowledge by directly dealing with real cases.

4. Combining the Best Theory with State-of-the-Art Practice

Unlike other programs in the educational market, TECH's Hybrid Professional Master's Degree perfectly combines theoretical education with practical professional qualification. For this purpose, it is supported by a 3-week intensive on-site stay in highly renowned institutions for the application of electrotherapies.

5. Expanding the Boundaries of Knowledge

TECH is aware of the need to prepare its students to meet universal criteria for physiotherapeutic intervention. For this reason, it has invited centers located in different latitudes to take part in this Certificate. This way, students will choose the on-site institution that best suits their location and interests.

You will have a total practical immersion in the center of your choice"

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Objectives

The main objective of this Hybrid Professional Master's Degree in Electrotherapy in Physiotherapy is to offer its students a substantial update in their professional knowledge and skills, so that they can give a boost to their career, all thanks to the new competencies they will acquire in their development. Therefore, with this Certificate, students will be able to learn about the latest developments in Electrotherapy applied to Physiotherapy, one of the most demanded areas in the discipline at present.

Your main objective is to progress professionally and with this Hybrid Professional Master's Degree you will achieve it"

General Objective

- The general objectives of this program are to provide the Physiotherapy professionals who take it with the necessary knowledge to use Electrotherapy as a method of healing and rehabilitation, as well as to expand the range of action of the students in their professional environment thanks to the new tools acquired

This refresher program will give you everything you need to stay on top of the latest developments in physiotherapy"

Specific Objectives

Module 1. High Frequency Electrotherapy

- To update your knowledge of Electrotherapy in the field of rehabilitation of patients with neurological pathology
- To renew the concepts about the physiology of Electrotherapy in the neuromusculoskeletal patient

Module 2. Ultrasound Therapy in Physiotherapy

- To identify current and developing therapeutic possibilities in the field of neuromusculoskeletal rehabilitation
- To update the knowledge of nociceptive transmission and its modulation mechanisms by physical means

Module 3. Other Electromagnetic Fields

- To know muscle contraction and its rehabilitation by physical means, applying electrotherapy as the main agent
- To master the rehabilitation of neurological injury and its rehabilitation by means of electrotherapeutic agents

Module 4. General Principles of Electrotherapy

- To learn about new applications of electromagnetic agents in rehabilitation of neurological patients
- To understand the scope of new invasive electrotherapy applications for pain modulation

Module 5. Electrostimulation for Muscle Strengthening

- To broaden the knowledge of new applications of invasive electrotherapy for tissue regeneration
- To determine new high frequency applications in the rehabilitation of neuromusculoskeletal pathologies

Module 6. Electrostimulation in the Neurological Patient

- To expand knowledge of new ultrasound therapy applications in rehabilitation of neuromusculoskeletal pathologies
- To identify new applications of laser electromagnetic radiation in rehabilitation of neuromusculoskeletal pathologies

Module 7. Electrotherapy and Analgesia

- To broaden the knowledge of new applications of Electrotherapy in the rehabilitation of urogynecological pathologies
- To deepen about electrotherapy in the field of rehabilitation of patients with musculoskeletal pathology

Module 8. Transcutaneous Electrical Nerve Stimulation (TENS)

- To analyze Transcutaneous Electrical Stimulation (TENS)
- To know the analgesic effects of high frequency TENS

Module 9. Interferential Currents

- To identify the main effects of high frequency
- To discover the latest high-frequency applications

Module 10. Invasive Treatment in Electrotherapy

- To describe the dry needling technique
- To understand the importance of postpuncture effects

Module 11. Magnetotherapy in Physiotherapy

- To deepen the therapeutic effects of magnetotherapy
- To identify the clinical applications of magnetotherapy

Module 12. Non-Invasive Brain Stimulation

- To master the stimulation protocols
- To understand the therapeutic applications of non-invasive brain stimulation

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Skills

With the completion of this Hybrid Professional Master's Degree in Electrotherapy in Physiotherapy, students will be able to acquire a series of competencies that will make them progress and acquire great prestige. Therefore, it is worth mentioning the mastery they will have over high frequency electrotherapy, ultrasound therapy or electrostimulation for muscle strengthening, among other issues. With these tools, students will be able to offer new services to their patient users, which will increase their client base and professional reputation.

Your new skills will make you a highly sought-after physiotherapist"

General Skills

- Understand the different forms of application of electrotherapy in the field of physiotherapy
- Integrate into professional practice the different techniques in the area of electrotherapy
- Apply the knowledge acquired during the development of the program in professional practice.Apply the knowledge acquired during the development of the program in Communication Management practice
- Provide a basis or opportunity for originality in the development and/or application of ideas, often in a research context

You will combine theory and professional practice through a demanding and rewarding educational approach"

Specific Skills

- Know the physical bases of the different types of electrotherapy used in rehabilitation
- Master the physiological fundamentals of each type of current
- understand the therapeutic effects of each type of current
- Apply in a practical Shape 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

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Course Management

In order to learn all the keys to Electrotherapy in Physiotherapy, it is advisable to put yourself in the hands of great specialists in this field, and TECH has chosen the best teaching staff for this purpose. This way, professors of this Hybrid Professional Master's Degree in Electrotherapy in Physiotherapy are prestigious professionals in the field of Physiotherapy and know all the keys to the use of this technique as a rehabilitative method, so students have a unique opportunity to learn and then apply what they have learned in their own practices.

Leading professionals in the field of Electrotherapy have been involved in the development of the syllabus of this innovative study program"

Management

Ms. Sanz Sánchez, Marta

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

Mr. Hernández, Leonardo

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

Management

Dr. León Hernández, Jose Vicente

- Expert Physiotherapist in the Study and Pain Treatment and Manual Therapy
- Doctorate in Physiotherapy from the Rey Juan Carlos University
- Master's Degree in the Study and Treatment of Pain from the Rey Juan Carlos University
- Degree in Chemical Sciences from the Complutense University of Madrid, specializing in Biochemistry
- Diploma in Physiotherapy from the Alfonso X el Sabio University
- Member and training coordinator at the Institute of Neuroscience and Movement Sciences

Professors

Mr. Suso Martí, Luis

- Physiotherapist
- Researcher at the Institute for Neurosciences and Movement Sciences
- Contributor to the popular science magazine NeuroRhab News
- Physiotherapy Degree: University of Valencia
- Doctorate, Autonomous University of Madrid
- Degree in Psychology. Open University of Catalonia
- Master's Degree in "Advanced Physiotherapy in Pain Management"

Ms. Merayo Fernández, Lucía

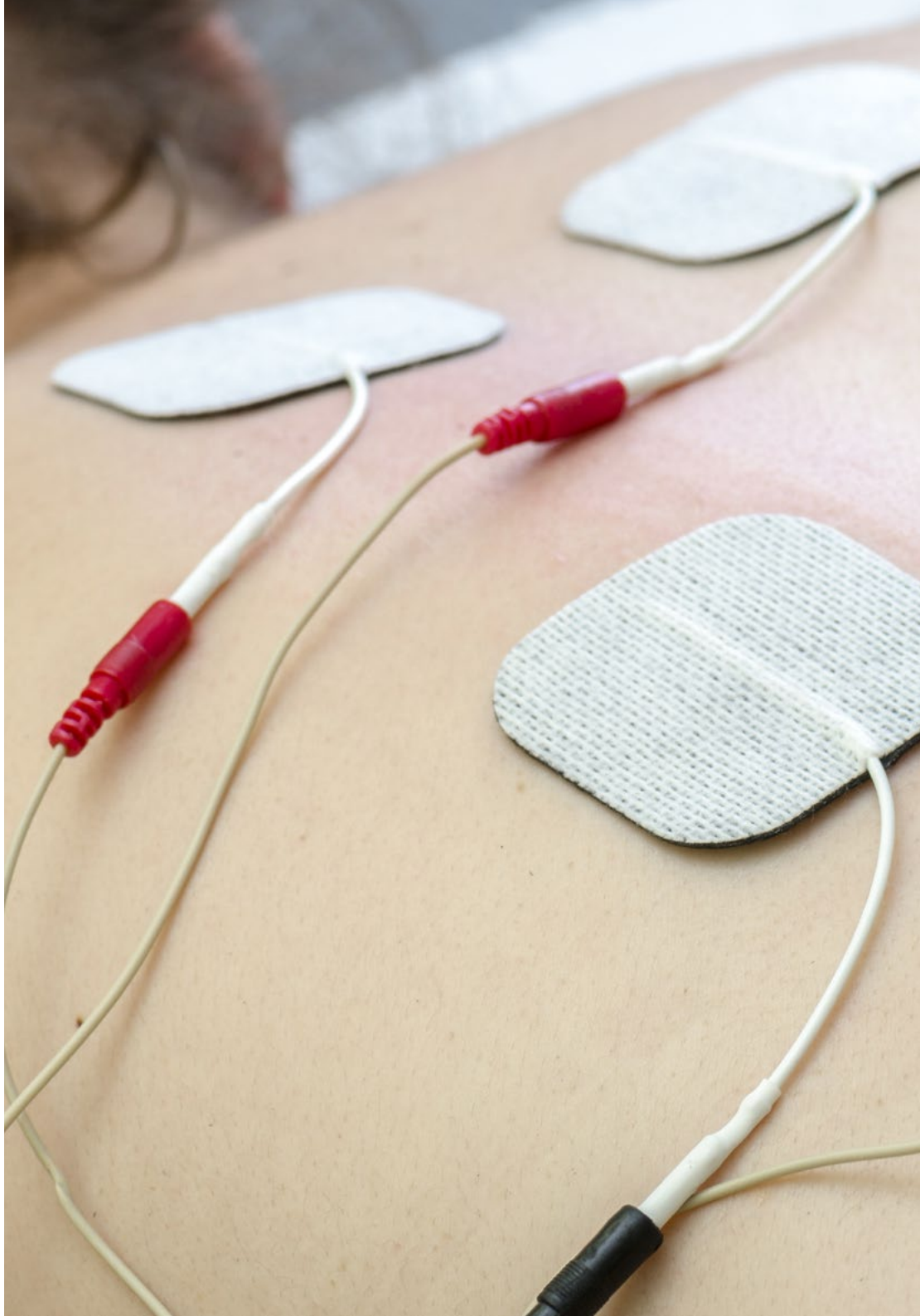
- Expert Physiotherapist in Pain Treatment
- Physiotherapist in the Navarra Health Service
- Physiotherapist. Doctor San Martin Ambulatory
- Degree in Physiotherapy
- Professional Master's Degree in Advanced Physiotherapy in Musculoskeletal Pain Management

Dr. Cuenca - Martínez, Ferrán

- Expert Physiotherapist in Pain Treatment
- Physiotherapist at FisioCranioClinic
- Physiotherapist at the Institute of Functional Rehabilitation La Salle
- Researcher at the Centro Superior de Estudios Universitarios CSEU La Salle
- Researcher at EXINH Research Group
- Researcher in Motion in Brans Research Group of the Institute of Neuroscience and Movement Sciences (INCIMOV)
- Editor-in-Chief of The Journal of Move and Therapeutic Science
- Editor and publisher of NeuroRehab News magazine
- Author of Multiple articles Scientific in national and international journals
- PhD in Medicine and Surgery from the Autonomous University of Madrid.
- Graduate in Physiotherapy from University of Valencia
- Professional Master's Degree in Advanced Physiotherapy in the Treatment of Pain by UAM

Mr. Losana Ferrer, Alejandro

- Clinical Physiotherapist and New Rehabilitation Technologies Trainer at Rebiotex
- Physiotherapist at Clínica CEMTRO
- Professional Master's Degree in Advanced Physiotherapy in Musculoskeletal Pain Management
- Expert in Neuroorthopedic Manual Therapy
- Higher University Education in Therapeutic Exercise and Invasive Physiotherapy for Musculoskeletal Pain
- Graduate in Physiotherapy at La Salle



Dr. Gurdiel Álvarez, Francisco

- Physiotherapist at Powerexplosive
- Physiotherapist at Clínica Fisad
- Physiotherapist for Sociedad Deportiva Ponferradina
- D. in Health Sciences from the Universidad Rey Juan Carlos, Spain
- Degree in Physiotherapy by the University of Leon
- Degree in Psychology from UNED
- Professional Master's Degree in Advanced Physiotherapy in Treatment of Musculoskeletal Pain from the Universidad Autónoma de Madrid.
- Expert in Orthopedic Manual Therapy and Myofascial Pain Syndrome by the Universidad Europea

Mr. Izquierdo García, Juan

- Physiotherapist of the Cardiac Rehabilitation Unit at the Hospital Universitario 12 de Octubre
- Postgraduate Certificate in Physiotherapy from the Universidad Rey Juan Carlos
- University Specialist in Heart Failure by the University of Murcia.
- 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
- Member of: Physiotherapist of the Cardiac Rehabilitation Unit at the Hospital Universitario 12 de Octubre

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
- Primary at La Paz University Hospital
- Specialist in the Lymphatic Drainage Unit at the Hospital Universitario La Paz
- Physiotherapist at the "José Villarreal" Day Care Center, 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

With the help of the teachers of this Certificate, you will become an expert in the use of the most updated and complex technologies for the application of Electrotherapies in patients with physiotherapeutic needs"

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Educational Plan

The syllabus of this Hybrid Professional Master's Degree in Electrotherapy in Physiotherapy has been designed by leading specialists in the field and contains all the essential elements necessary to obtain updated knowledge in this type of procedure. Therefore, this Syllabus has been designed with professional practice in mind at all times, so that everything students learn here can be directly applied in their own practices.

This educational program will expand your knowledge and professional horizons with the support of innovative didactic methods such as Relearning"

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 Techartherapy
  1.9.1. Physiological Effects of Techarterapy
  1.9.2. Dosage of Tecartherapy Treatment
1.10. Practical Applications of Techartherapy
  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 (Post-Surgical 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 Techartherapy
  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 Najar 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 Basis of Electrotherapy
  - 4.1.2.1. Potential Concepts

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

4.3. Frequency-Dependent Classification of 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. Waveform-Dependent Current Classification
- 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 Uro-Gynecologic
- 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. Nociceptor Classification
  - 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. Nociceptor Functioning

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. APME Neuron Characteristics
- 7.4.3. Rexed 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. Modulatory 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 Control Gate
7.7.3. Post-Excitatory Depression of 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. Electrotherapy Effects
7.8.2. Dosage in Electrotherapy

Module 8. Transcutaneous Electrical Nerve 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. Anti-Nociceptive System: Gate Theory
8.1.2.1. Introduction to Current Type used in TENS
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 both Central and Peripheral Analgesia

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. Interferential Currents

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 from 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
  - 10.13.1.2. Effect on the Nervous System
- 10.13.2. Therapeutic Effects of Iontophoresis
  - 10.13.2.1. Penetration and Elimination 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 Emitters 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. 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. Review of Literature on Bone Consolidation
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. 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

07

Clinical Internship

After completing the online learning process, students are provided with a specialized clinical internship in electrotherapy applied to the field of physiotherapy. Therefore, these internships are carried out through a 3-week on-site stay in a reference center for this discipline. Students will have access to real cases, which they will be able to observe and monitor together with experts from the center itself, who will guide them at all times throughout the practical learning process.

Stay in a high-level specialized center and become a great expert in electrotherapy".

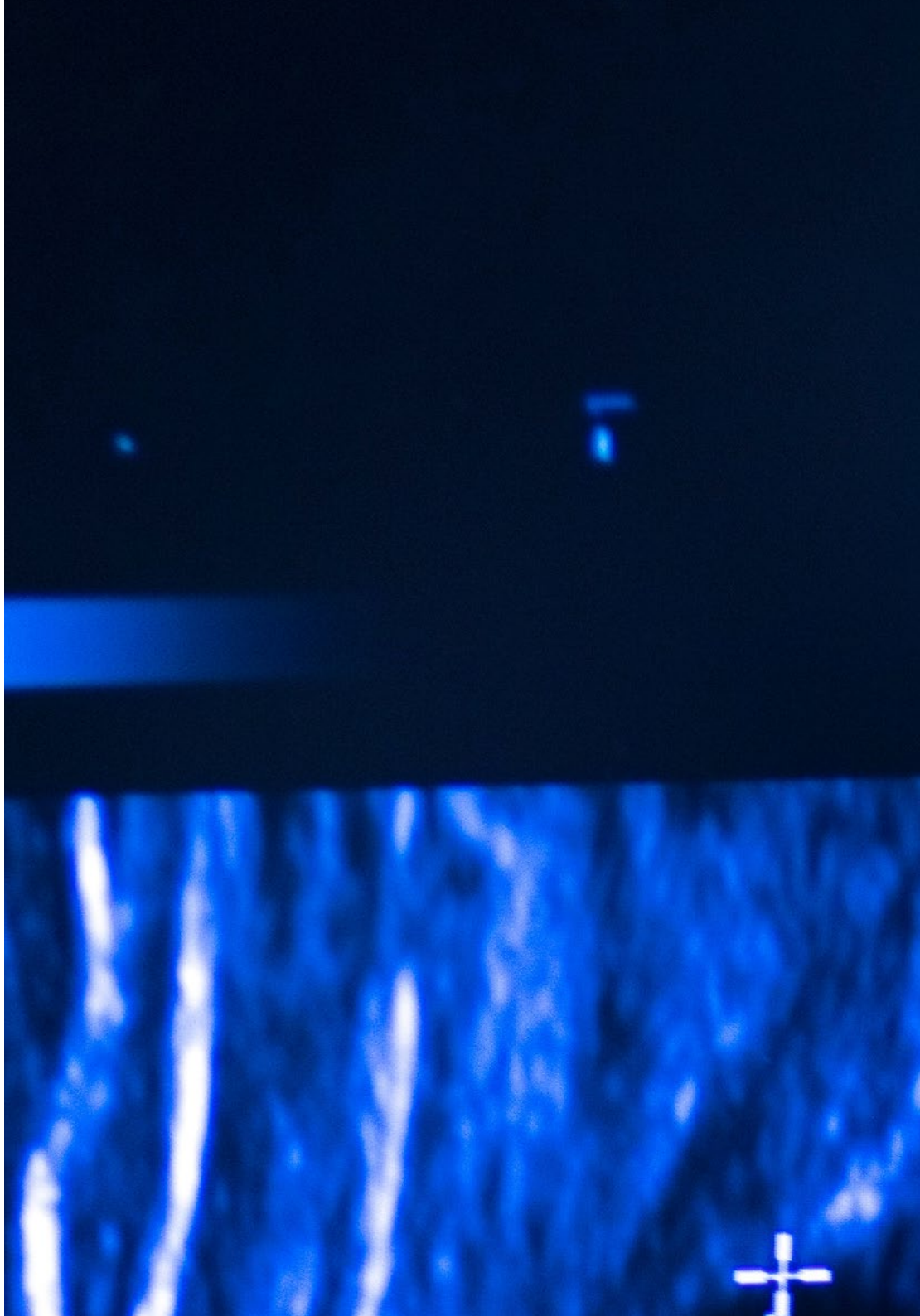
This Hybrid Professional Master's Degree in Electrotherapy in Physiotherapy includes an intensive stay in a reference institution in order to put into practice the newly acquired knowledge. This stay will last 3 weeks, with a continuous schedule from Monday to Friday, 8 hours a day. This ensures that students internalize the competencies developed throughout the Certificate.

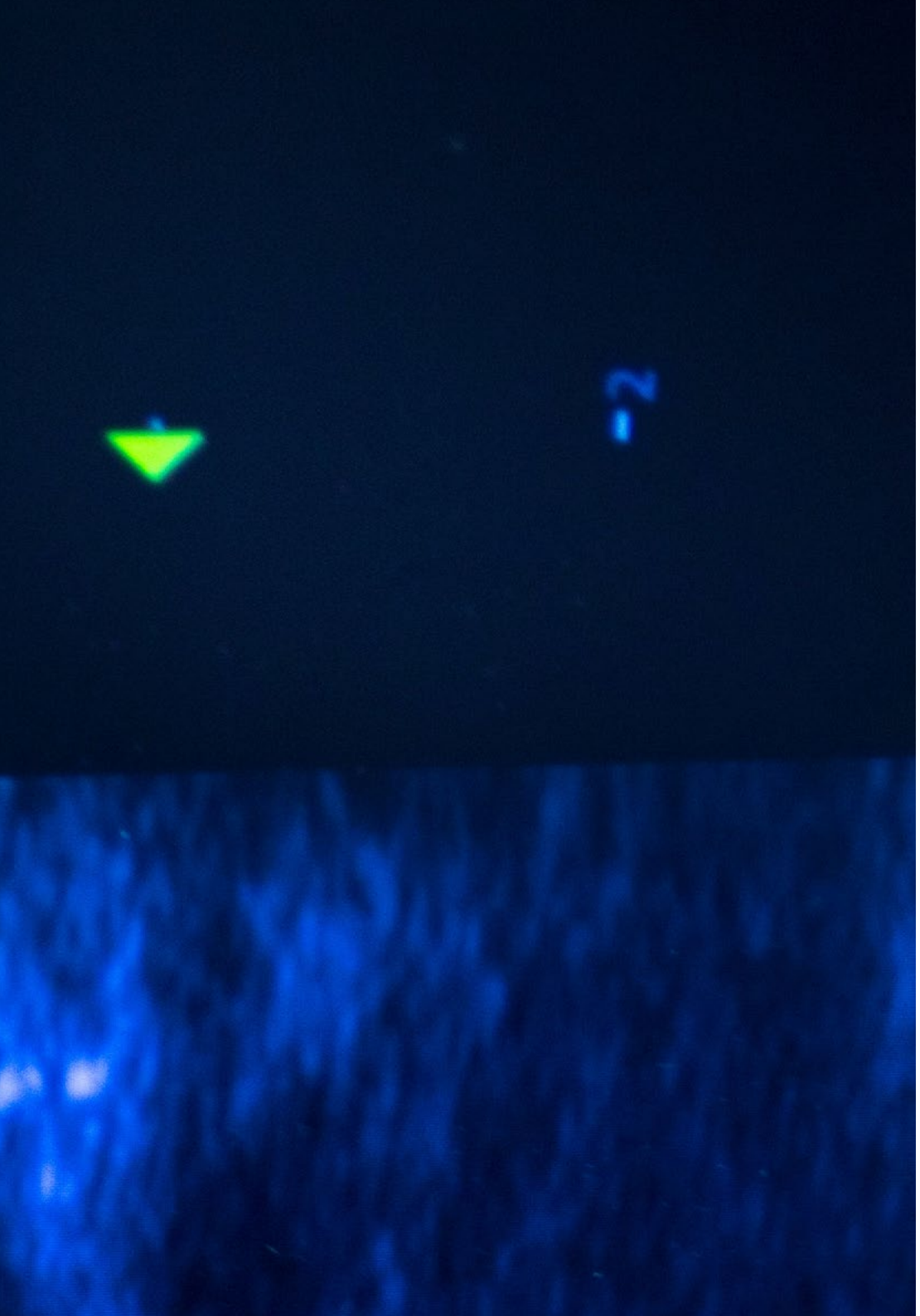
The on-site stay at the center will allow professionals to complete a minimum number of practical activities in their physiotherapy service, always accompanied by a qualified expert from the center itself, so that at the end of the course the student will have become a specialist in Electrotherapy.

Practical education will be carried out with student's active participation performing activities and procedures of each area of competence (learning to learn and learning to do), with accompaniment and guidance of teachers and other fellow students that facilitate teamwork and multidisciplinary integration as transversal competencies for Clinical Nursing praxis (learning to be and learning to relate).

Procedures described below will be basis of practical part of the program, and their

A great reference center is waiting for you to do your clinical internship"





implementation will be subject to the center's own availability and workload, with proposed activities being the following:

Module	Practical Activity
Methodologies for Electrotherapy and High Frequency Analgesic Currents	Analyze physical fundamentals of high and low frequency.
	Assessment of physiological and therapeutic effects of high frequency.
	Apply shortwave, microwave and tecartherapy practices.
	Implement different types of electrodes
Techniques and tools for Electrotherapy	Perform ultrasound therapies using state-of-the-art equipment.
	Developing electrostimulation in the neurological patient
	Assessment of nerve lesions and their muscular innervation by electrotherapies.
	Evaluate electromyography methods to stimulate muscle strengthening.
Invasive applications of electric current in Physical Therapy	Perform dry needling and post puncture treatments, with Electrotherapy as an adjuvant
	Implement evaluation in percutaneous electrical stimulation: PENS
	Develop invasive treatments for regenerative purposes in low back, upper quadrant and lower limb pain.
Magnetotherapy scope in Physiotherapy and other electromagnetic fields.	Analyze physiological effects of magnetotherapy (biochemical, cellular and bone tissue) in real patients.
	Develop different clinical applications of magnetotherapy in osteoarthritis, bone consolidation and shoulder pathology.
	Perform therapeutic evaluations using infrared radiation
	Implement clinical laser applications in cases of varying complexity.

Civil Liability Insurance

This institution's main concern is to guarantee the safety of the trainees and other collaborating agents involved in the internship process at the company. Among the measures dedicated to achieve this is the response to any incident that may occur during the entire teaching-learning process.

For this purpose, this educational entity is committed to acquire a liability insurance that covers any eventuality that may arise during the stay.

This liability policy for interns will have broad coverage and will be taken out prior to the start of the practical training period. This way, the professional will not have to worry in case they have to deal with an unexpected situation and will be covered until the end of the practical program at the center.

General Conditions of the Internship Program

The general terms and conditions of the internship agreement for the program are as follows:

1. TUTORING: during the Hybrid Professional Master's Degree the student will be assigned two tutors who will accompany them throughout the process, resolving any doubts and questions that may arise. On the one hand, there will be a professional tutor belonging to the internship center who will have the purpose of guiding and supporting the student at all times. On the other hand, the student will also be assigned an academic tutor whose mission will be to coordinate and help the student during the whole process, resolving doubts and facilitating everything they may need. This way, the professional will be accompanied at all times and will be able to consult any doubts that may arise, both of a practical and academic nature.

2. DURATION: the internship program will have a duration of three continuous weeks of practical training, distributed in 8-hour days and five days a week. Attendance days and schedule will be the center's responsibility, informing the professional duly and in advance, with sufficient time in advance in order to in advance to facilitate their organization.

3. ABSENCE: in case of non-attendance on the starting day of the Hybrid Professional Master's Degree, the student will lose the right to the same without the possibility of reimbursement or change of dates. Absence for more than two days from the internship without justified/medical cause will result in the resignation of the internship and, therefore, its automatic termination. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

4. CERTIFICATION: the student who passes the Hybrid Professional Master's Degree will receive a certificate accrediting the stay at the center in question.

5. EMPLOYMENT RELATIONSHIP: the Hybrid Professional Master Program shall not constitute an employment relationship of any kind.

6. PRIOR EDUCATION: some centers may require a certificate of previous studies for the completion of the Hybrid Professional Master's Degree. In these cases, it will be necessary to submit it to the TECH internship department so that the assignment of the chosen center can be confirmed.

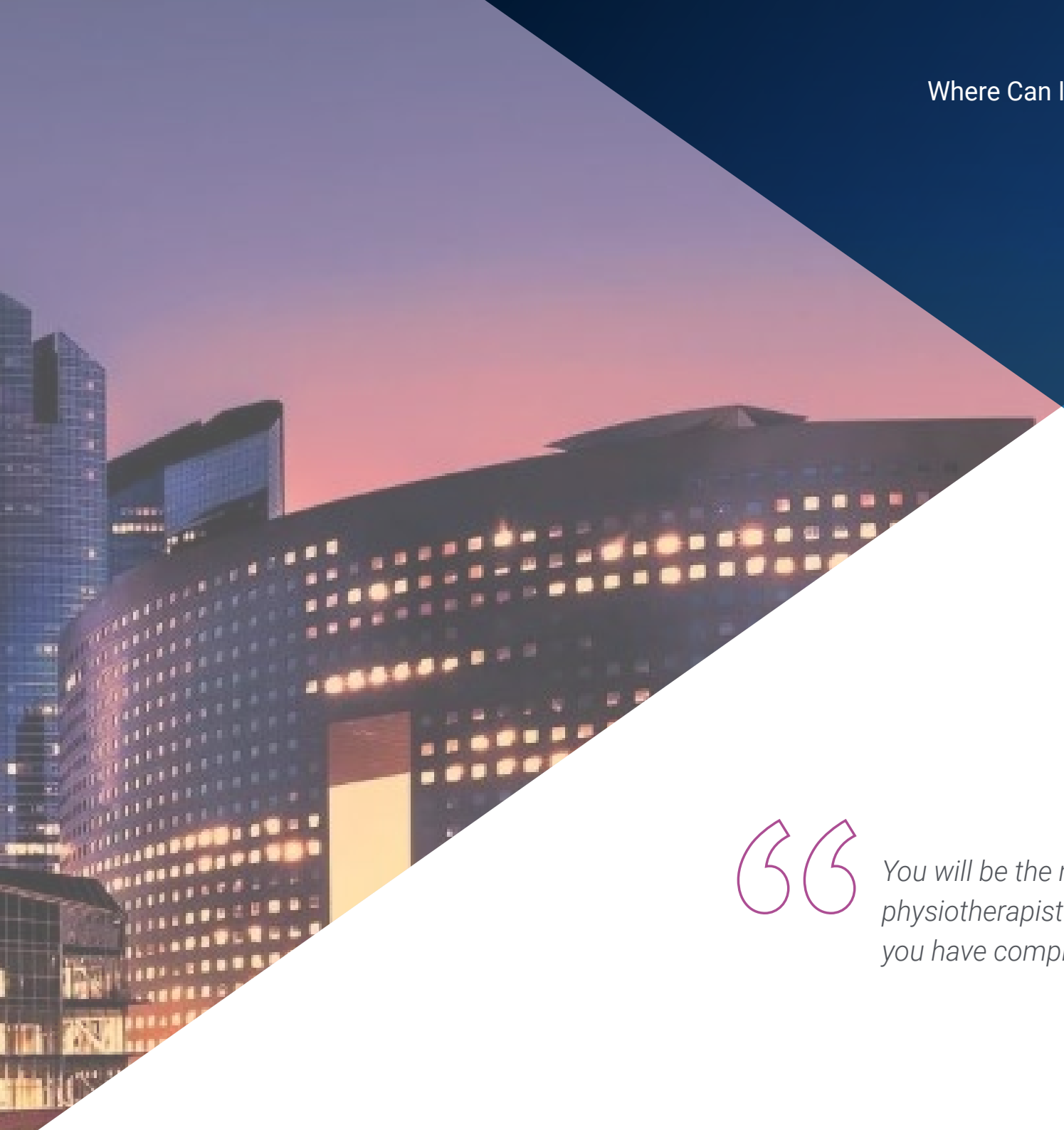
7. NOT INCLUDED: the Hybrid Professional Master's Degree will not include any element not described in the present conditions. Therefore, it does not include accommodation, transportation to the city where the internship takes place, visas or any other items not listed

However, students may consult with their academic tutor for any questions or recommendations in this regard. The academic tutor will provide the student with all the necessary information to facilitate the procedures in any case.

08

Where Can I Do the Clinical Internship?

Students who complete this Hybrid Professional Master's Degree in Electrotherapy in Physiotherapy will have access to a prestigious center where they can carry out their clinical practice. It is an institution specialized in Electrotherapy, so that Physiotherapy professionals who enroll in this Certificate will be able to complete an on-site stay in which they will learn the latest developments and all the possibilities offered by this technique in the field of rehabilitation.



You will be the most prestigious physiotherapist in your environment when you have completed your clinical internship"

The student will be able to take the practical part of this Hybrid Professional Master's Degree in the following centers:

ASPAYM Principado de Asturias

Country: Spain
City: Asturias

Address : Av. Roma, 4, 33011 Oviedo, Asturias

National federation dedicated to the physical and mental promotion of patients.

Related internship programs:
-Neurological Physiotherapy
Neurodegenerative Diseases

Fisioterapia Recupérate Ya

Country: Spain
City: Madrid

Address : Calle de Sandoval 17, (28010) Madrid

Physiotherapeutic center with a wide range of services for physical and manual therapy.

Related internship programs:
-Physiotherapy Diagnosis
- Electrotherapy in Physiotherapy

Clínicas Galiano

Country: Spain
City: Madrid

Address : C. Cuenca, 5, 28922 Alcorcón, Madrid

Clinical center specialized in Rehabilitation and Physiotherapy

Related internship programs:
- Electrotherapy in Physiotherapy

Clínica Colombia

Country: Spain
City: Madrid

Address : Calle Colombia, 6, Local 1A, 28823, Madrid

Entity specialized in physiotherapeutic and rehabilitation care

Related internship programs:
-Physiotherapy Diagnosis
--Musculoskeletal ultrasound in Physiotherapy

Clínica Levante

Country: Spain
City: Madrid

Address : Calle Antonio Muñoz Molina, 1, 28521, Rivas-Vaciamadrid, Madrid

Multidisciplinary clinical care center for specialized care

Related internship programs:
- Electrotherapy in Physiotherapy

Hospital HM Modelo

Country: Spain
City: La Coruña

Address : Rúa Virrey Osorio, 30, 15011, A Coruña

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Anaesthesiology and Resuscitation
- Palliative Care

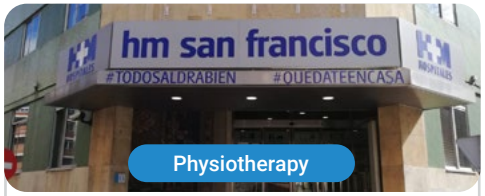
Hospital Maternidad HM Belén

Country: Spain
City: La Coruña

Address : R. Filantropía, 3, 15011, A Coruña

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Update in Assisted Reproduction
- Hospitals and Health Services Management



Hospital HM San Francisco

Country: Spain
City: León

Address : C. Marqueses de San Isidro, 11, 24004, León

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
-Anesthesiology and Resuscitation Update
-Nursing in Traumatology Service

Hospital HM Regla

Country: Spain
City: León

Address : Calle Cardenal Landázuri, 2, 24003, León

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Update on Psychiatric Treatment in Minor Patients

Hospital HM Nou Delfos

Country: Spain
City: Barcelona

Address : Avinguda de Vallcarca, 151, 08023 Barcelona

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Aesthetic Medicine
- Clinical Nutrition in Medicine

Hospital HM Madrid

Country: Spain
City: Madrid

Address : Pl. del Conde del Valle de Súchil, 16, 28015, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Palliative Care
- Anaesthesiology and Resuscitation

Hospital HM Torrelodones

Country: Spain
City: Madrid

Address : Av. Castillo Olivares, s/n, 28250, Torrelodones, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Anaesthesiology and Resuscitation
- Palliative Care

Hospital HM Sanchinarro

Country: Spain
City: Madrid

Address : Calle de Oña, 10, 28050, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Anaesthesiology and Resuscitation
- Palliative Care

Hospital HM Puerta del Sur

Country: Spain
City: Madrid

Address : Av. Carlos V, 70, 28938, Móstoles, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Palliative Care
- Clinical Ophthalmology

Policlínico HM Las Tablas

Country: Spain
City: Madrid

Address : C. de la Sierra de Atapuerca, 5, 28050, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
-Nursing in Traumatology Service
-Physiotherapy Diagnosis

Policlínico HM Moraleja

Country: Spain
City: Madrid

Address : P.º de Alcobendas, 10, 28109, Alcobendas, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Rehabilitation Medicine in Acquired Brain Injury Management

Policlínico HM Virgen del Val

Country: Spain
City: Madrid

Address : Calle de Zaragoza, 6, 28804, Alcalá de Henares, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
-Physiotherapy Diagnosis
-Physiotherapy in Early Child Care

Policlínico HM Imi Toledo

Country: Spain
City: Toledo

Address : Av. de Irlanda, 21, 45005, Toledo

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:
- Electrotherapy in Rehabilitation Medicine
- Hair Transplantation

Clínica Virgen del Camino

Country: Spain
City: Madrid

Address : Paseo de las Delicias, 150, 28045 Madrid

The Virgen del Camino Clinic, 45 years of health care

Related internship programs:
Occupational Nursing
-Physiotherapy Diagnosis

Clínica Montecarlo Torrent

Country: Spain
City: Valence

Address : Avinguda al Vedat, 21-1st floor, Edificio Montecarlo, 46900 Torrent, Valencia

Specialized physiotherapy center

Related internship programs:
- Electrotherapy in Physiotherapy
Sports Physiotherapy

Premium global health care Madrid

Country: Spain
City: Madrid

Address : C. de Víctor de la Serna, 4, 28016 Madrid

Rehabilitation, readaptation and personal training: these are pillars of Physiotherapy clinic in Pozuelo

Related internship programs:
- MBA in Digital Marketing
Project Management

Premium global health care Fuenlabrada

Country: Spain
City: Madrid

Address : Paseo de Roma, 1, 28943 Fuenlabrada, Madrid

Rehabilitation, readaptation and personal training: these are pillars of Physiotherapy clinic in Fuenlabrada

Related internship programs:
- MBA in Digital Marketing
Project Management

Premium global health care Pozuelo

Country: Spain
City: Madrid

Address : Centro Comercial Monteclaro, Local 59.4, s/n, Av. de Monteclaro, d, 28223 Pozuelo de Alarcón, Madrid

Rehabilitation, readaptation and personal training: these are pillars of Physiotherapy clinic in Pozuelo

Related internship programs:
- MBA in Digital Marketing
Project Management

Ossis Ortho Sport Clinic

Country: Mexico
City: Quintana Roo

Address : Plaza Ossis Wellness Center. Ubicado en Av. Huayacan esq. Calle Ciricote Smz. 313 Mza. 257, Cancún, Quintana Roo

Rehabilitation clinic specialized in Traumatology, Orthopedics and Sports Medicine.

Related internship programs:
Sports Physiotherapy
- Electrotherapy in Physiotherapy

Santé Clinic Querétaro

Country: Mexico
City: Querétaro de Arteaga

Address : Circuito Álamos #88 PA-B col Álamos 2da sección Querétaro, Qro, CP 76160

Clinical center specialized in physical therapy and recovery

Related internship programs:
- Aesthetic Medicine
Sports Physiotherapy

Engrama

Country: Mexico
City: México City

Address : Martín Mendalde 922, Del Valle Centro, Benito Juárez, CDMX. México

Specialized physiotherapeutic care center with more than 10 years of experience.

Related internship programs:
Geriatric Physiotherapy
- Electrotherapy in Physiotherapy

Physio Sports México

Country: Mexico
City: Mexico City

Address : Convento del Rosario No. 34, Jardines de Santa Mónica C.P. 54050. Tlalnepantla, Estado de México. México

Avant-garde and innovative Physiotherapy Clinic

Related internship programs:
- Electrotherapy in Physiotherapy
Sports Physiotherapy

Fénix Terapia Física

Country: Mexico
City: Mexico City

Address : Presidente Masaryk 178 Int. 201 Col. Polanco V Sección. Alc. Miguel Hidalgo C.P. 11560

Multidisciplinary physiotherapeutic center and promotion of bone and muscle health.

Related internship programs:
Geriatric Physiotherapy
- Electrotherapy in Physiotherapy

Plene Fisio

Country: Mexico
City: Mexico City

Address : Anaxágoras 915, Narvarte Poniente, Benito Juárez, 03100 Ciudad de México, CDMX, México

Physiotherapy Clinic in La Navarte

Related internship programs:
-Physiotherapy Diagnosis
- Electrotherapy in Physiotherapy

Clínica de Fisioterapia Integral Mover-T

Country: Mexico
City: Mexico City

Address : Calle Pilares 506, Colonia del Valle Centro, Benito Juárez,03100 Ciudad de México, CDMX, México

Integral Physiotherapy Clinic

Related internship programs:
-Physiotherapy Diagnosis
- Electrotherapy in Physiotherapy

Sports Clinic

Country: Mexico
City: Mexico City

Address : WTC, Montecito 38, Niv 1 local 01-09, Niv 2 Local 02-01, 02-13 y 02- 14l C.P. 03810, Benito Juárez , CDMX

Specialized clinic for the care of sportsmen and women

Related internship programs:
Sports Physiotherapy
- Electrotherapy in Physiotherapy

Athlos Ecatepec

Country: Mexico
City: Mexico City

Address : Plaza Ecatepec, Via Morelos 172, Local C-8, Los Laureles, Ecatepec de Morelos, Méx. Junto a la zona de Comida

Specialized centers for physical and sports rehabilitation

Related internship programs:
-Physiotherapy Diagnosis
- Electrotherapy in Physiotherapy

Athlos Naucalpan

Country: Mexico
City: Mexico City

Address : Av. Gustavo Baz Prada No. 116, Col. Bosques de Echegaray, Naucalpan de Juárez. Estado de México

Specialized centers for physical and sports rehabilitation

Related internship programs:
-Physiotherapy Diagnosis
- Electrotherapy in Physiotherapy

Athlos Iztacalco

Country: Mexico
City: Mexico City

Address : Julio García No. 14, Piso 2, San Miguel, Iztacalco, CDMX. Esq. Francisco del Paso y Troncoso

Specialized centers for physical and sports rehabilitation

Related internship programs:
-Physiotherapy Diagnosis
- Electrotherapy in Physiotherapy

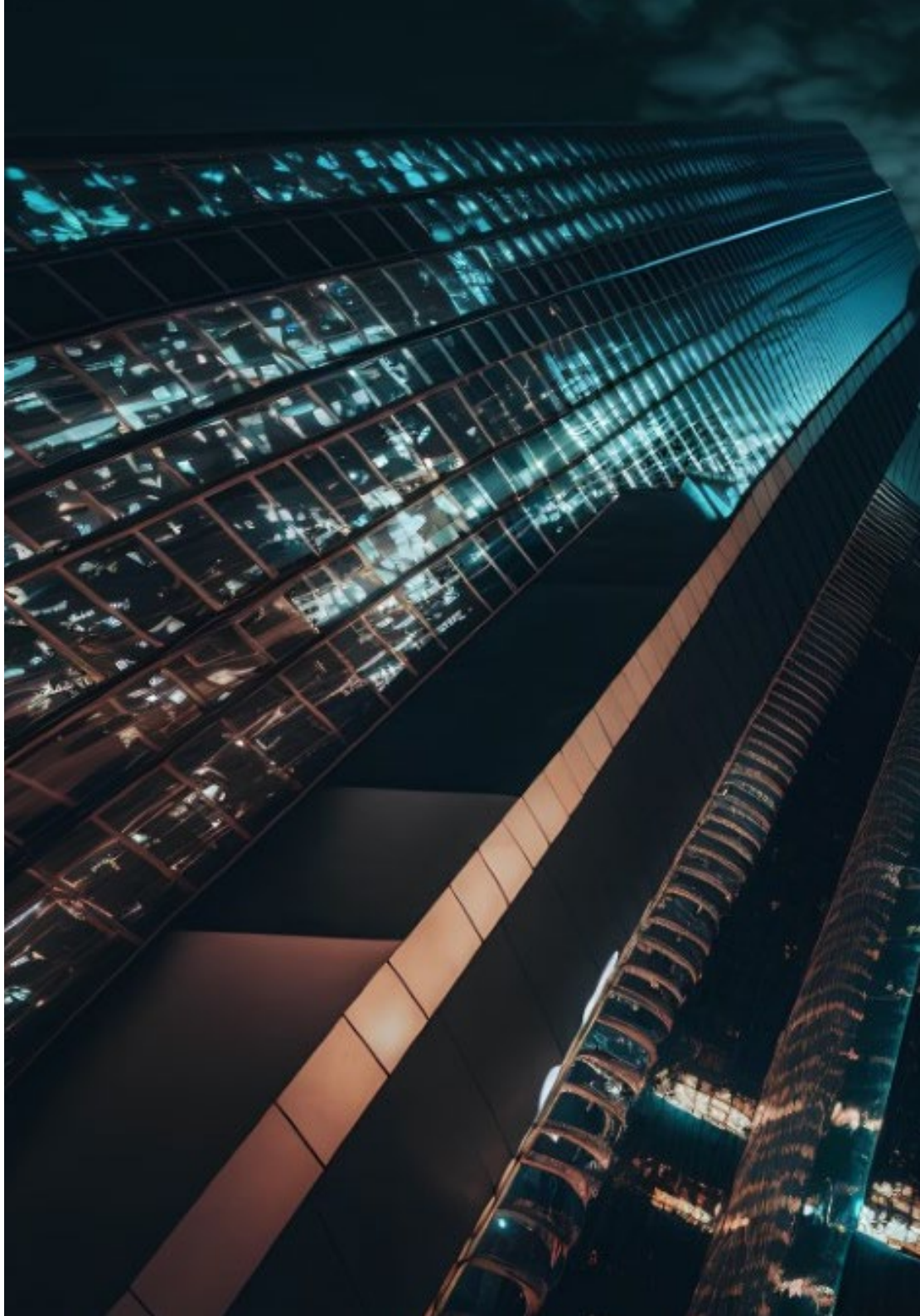
Athlos Toluca

Country: Mexico
City: Mexico City

Address : Cerro de la Estrella 128 - 29, Xinantécatl, Metepec, Edo. de Méx

Specialized centers for physical and sports rehabilitation

Related internship programs:
-Physiotherapy Diagnosis
- Electrotherapy in Physiotherapy



Athlos Tiber

Country: Mexico
City: Mexico City

Address : Río Tiber No. 21, 3er Piso, Col: Cuauhtémoc, Del: Cuauhtémoc, CDMX

Specialized centers for physical and sports rehabilitation

Related internship programs:
-Physiotherapy Diagnosis
- Electrotherapy in Physiotherapy

Athlos Roma

Country: Mexico
City: Mexico City

Address : Guanajuato 178, 3er Piso. Roma Norte, Cuauhtémoc, CDMX

Specialized centers for physical and sports rehabilitation

Related internship programs:
-Physiotherapy Diagnosis
- Electrotherapy in Physiotherapy

Athlos Tlalpan

Country: Mexico
City: Mexico City

Address : Calle 3 Num 52, Coapa, Espartaco, Coyoacán, 04870, CDMX

Specialized centers for physical and sports rehabilitation

Related internship programs:
-Physiotherapy Diagnosis
- Electrotherapy in Physiotherapy

Athlos Lindavista

Country: Mexico
City: Mexico City

Address : Sullana 741, Col. Lindavista, Del. G.A.M. CDMX

Specialized centers for physical and sports rehabilitation

Related internship programs:
-Physiotherapy Diagnosis
- Electrotherapy in Physiotherapy

09

Methodology

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

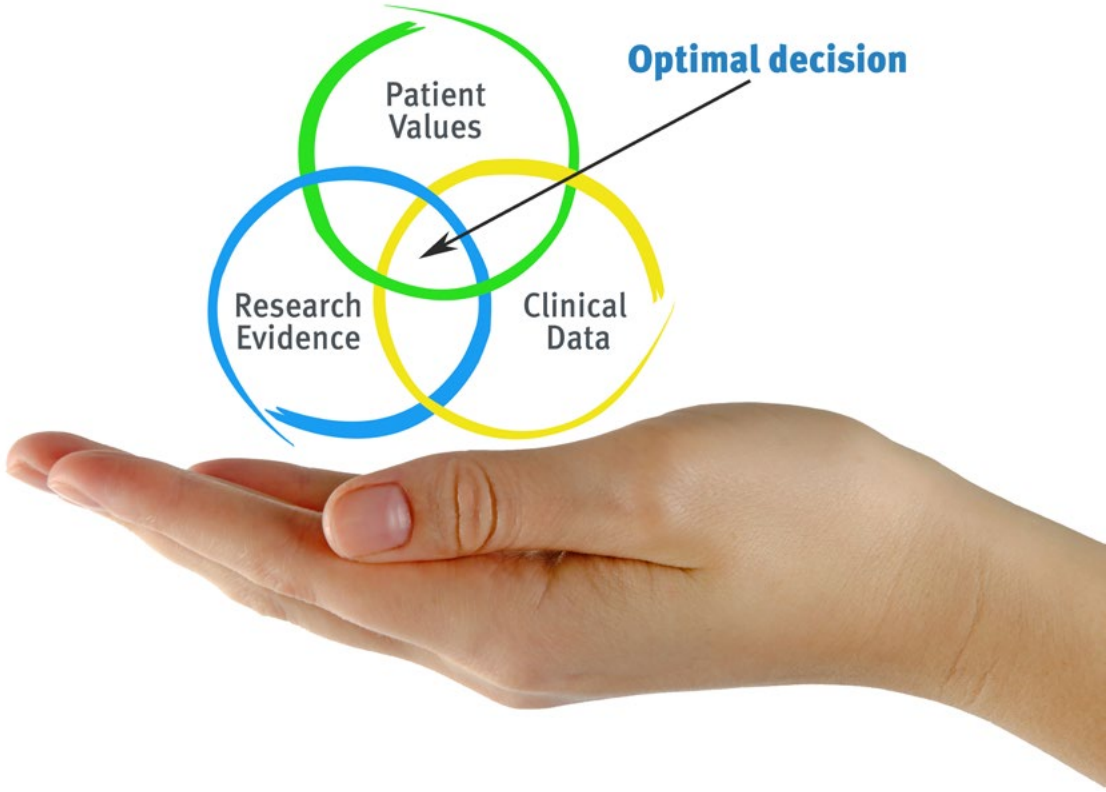
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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. 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:

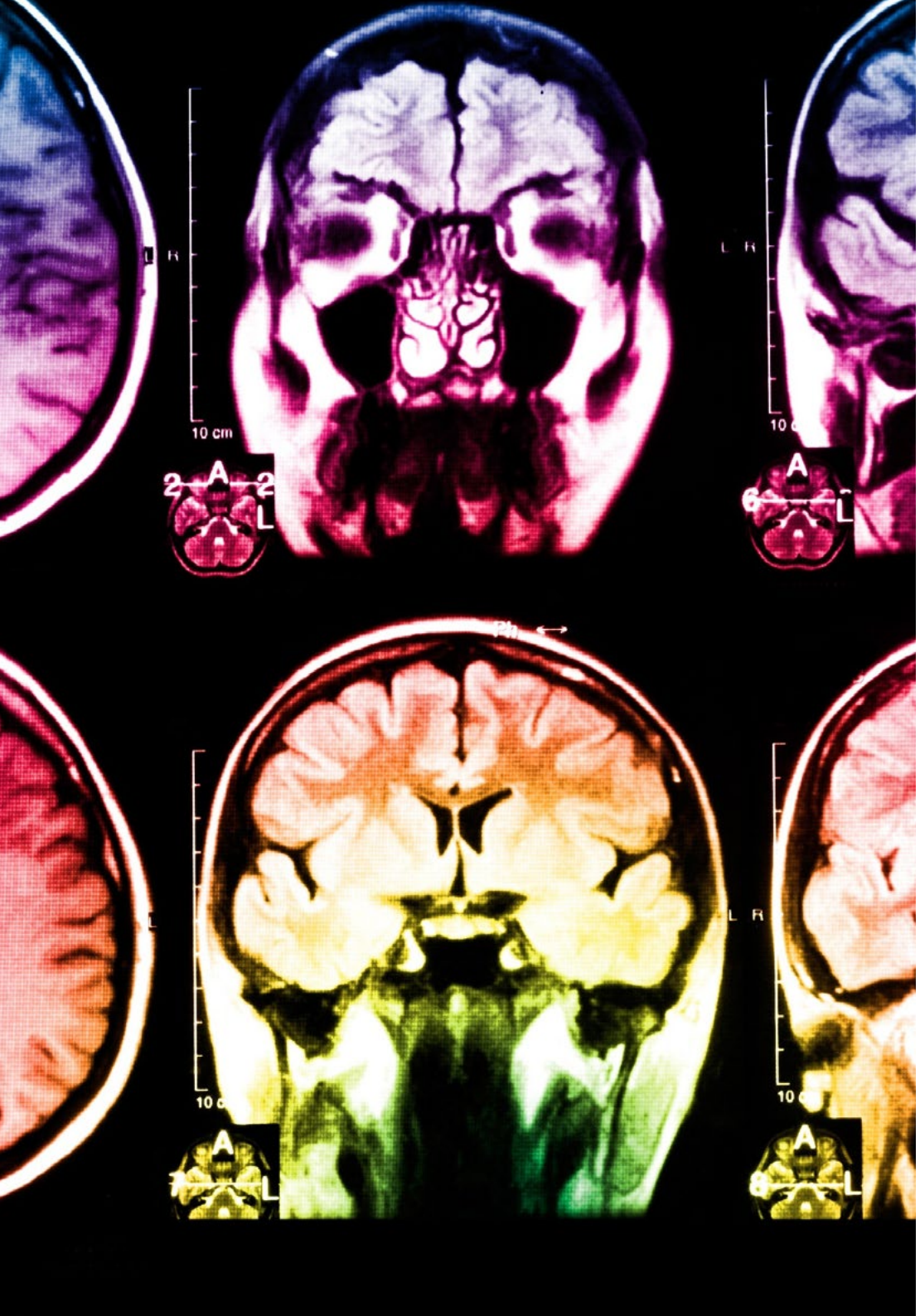
1. Physiotherapists/kinesiologists who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on practical skills that allow the physiotherapist/kinesiologist to better integrate 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.



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

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

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

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

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

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

Study Material

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

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

Physiotherapy Techniques and Procedures on Video

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

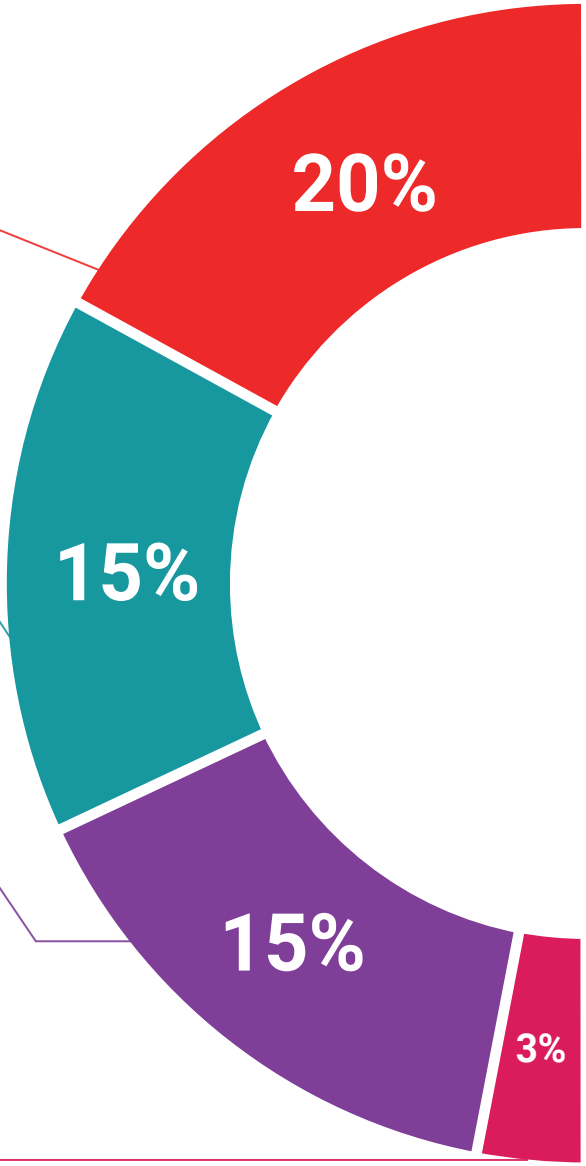
Interactive Summaries

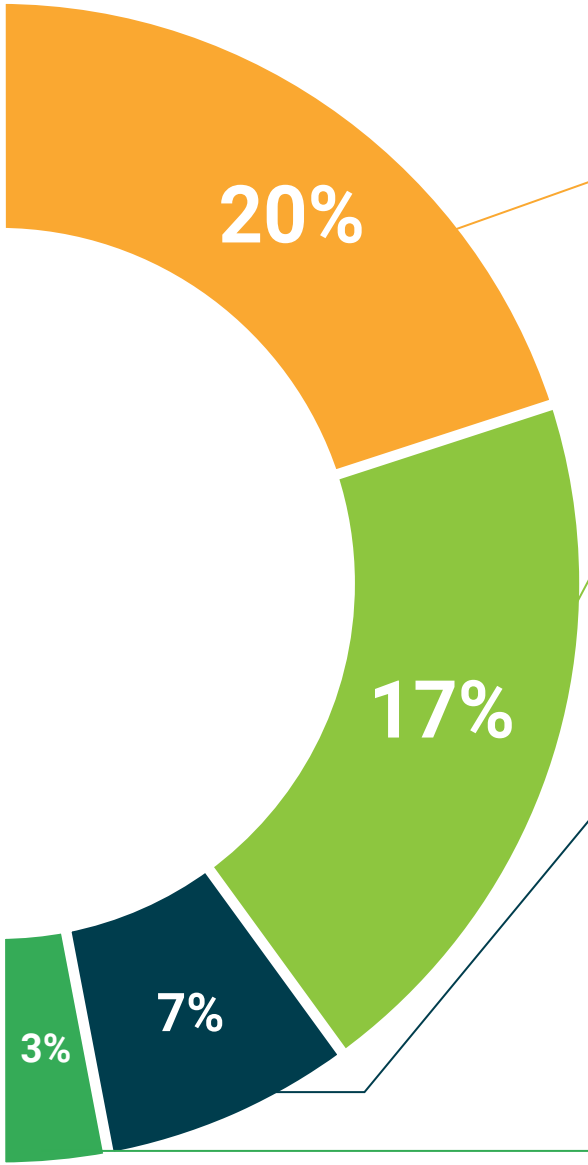
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

Additional Reading

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





Expert-Led Case Studies and Case Analysis

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

Testing & Retesting

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

Classes

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

Quick Action Guides

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

10

Certificate

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

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

This **Hybrid Professional Master's Degree in Electrotherapy in Physiotherapy** contains the most complete and up-to-date program on the professional and scientific field.

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

In addition to the diploma, students will be able to obtain an academic transcript, as well as a certificate outlining the contents of the program. In order to do so, students should contact their academic advisor, who will provide them with all the necessary information.

Title: **Professional Master' Hybrid in Electrotherapy in Physiotherapy**

Modality: **Hybrid (Online + Clinical Internship)**

Duration: **12 months**

Certificate: **TECH Technological University**

Teaching Hours: **1,620 h.**

Endorsed by the NBA:

tech technological university

Awards the following

DIPLOMA

to

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

For having successfully passed and accredited the following program

HYBRID PROFESSIONAL MASTER'S DEGREE

in

Electrotherapy in Physiotherapy

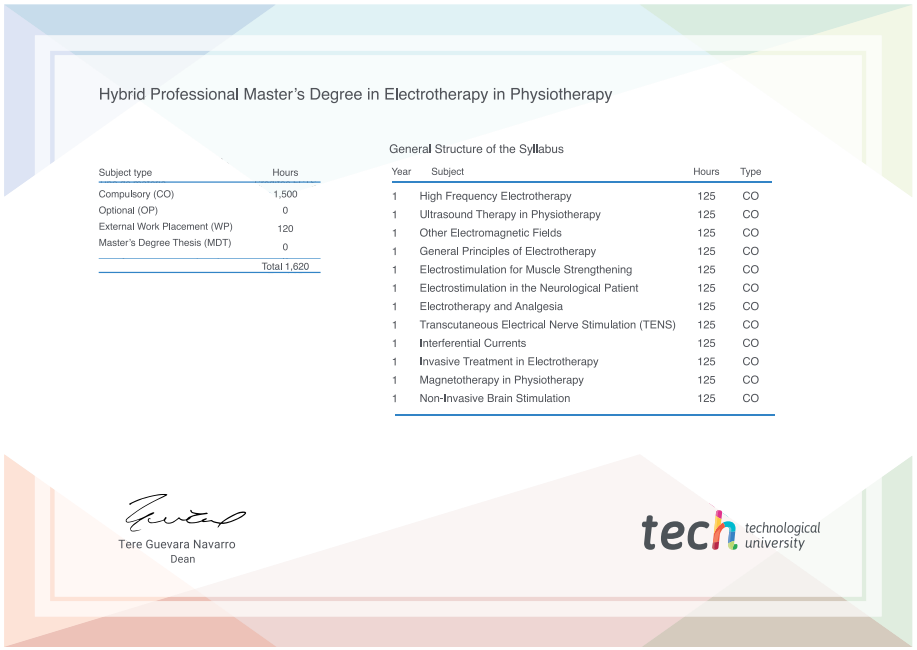
This is a qualification awarded by this University, with a duration of 1,620 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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



Hybrid Professional Master's Degree in Electrotherapy in Physiotherapy

Subject type	Hours
Compulsory (CO)	1,500
Optional (OP)	0
External Work Placement (WP)	120
Master's Degree Thesis (MDT)	0
	Total 1,620

General Structure of the Syllabus

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

Tere Guevara Navarro
Dean

tech technological university

*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.

tech technological university

Hybrid Professional Master's Degree

Electrotherapy in Physiotherapy

- Modality: **Hybrid (Online + Clinical Internship)**
- Duration: **12 months**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Hybrid Professional Master's Degree

Electrotherapy in Physiotherapy

Endorsed by the NBA

tech technological university