

Postgraduate Diploma

Intestinal Microbiota





Postgraduate Diploma Intestinal Microbiota

Course Modality: Online

Duration: 6 months.

Certificate: TECH Technological University

Official N° of hours: 450 h.

Website: www.techtute.com/physiotherapy/postgraduate-diploma/postgraduate-diploma-intestinal-microbiota

Index

01

Introduction

p. 4

02

Objectives

p. 8

03

Course Management

p. 12

04

Structure and Content

p. 16

05

Methodology

p. 22

06

Certificate

p. 30

01

Introduction

Scientific research in the field of microbiota has been booming in recent decades, aimed both at the study of its characteristics and its impact on our health. In each one of the different areas in our body, such as the skin, mucous membranes, respiratory tract, vagina or digestive tract, we can find complex microbial ecosystems that are adapted to the particularities of each area. Of all of them, the most complex and numerous is the one associated with the digestive system, as these communities have a symbiotic and mutualistic behavior with human eukaryotic cells and are essential for the proper functioning of our body. Aware of this, TECH professionals have designed this training program that focuses on providing physiotherapists with the necessary skills to understand the functioning of the Intestinal Microbiota, offering effective therapeutic solutions to patients with dysfunctions in this area.





“

Knowing the bacterial environment of the intestine helps the Physiotherapist to know the origin of various pathologies and their correct physical treatment"

Numerous pieces of scientific evidence have implicated the intestinal microbiome and its metabolic potential in various pathological conditions in recent years, giving rise to new therapeutic strategies to control and regulate this ecosystem. The study of this ecosystem is a field of rapid scientific progress, and it is universally accepted that in order to achieve an adequate state of health it is also necessary to have a "healthy" Microbiota.

The human microbiota undergoes changes as a consequence of the influence of multiple factors such as diet, lifestyle, pharmacological treatments, generating alterations in this bacterial ecosystem and the abnormal interaction that the organism could have with it. It can be related to certain processes such as: allergies, acute and chronic intestinal diseases, obesity and metabolic syndrome, neurological diseases, dermatitis and other alterations in the dermis, and even some types of cancer.

This Postgraduate Diploma in Intestinal Microbiota focuses on providing physiotherapists with the necessary information on issues related to the Intestinal Microbiota, its Eubiosis and Dysbiosis and the problems related to them.

In the same way, the use of Probiotics and Prebiotics and the growing market launch of new products with very specific strains for problems and diseases of the intestinal tract will also be addressed. All this content will enable physiotherapy professionals to be prepared to offer effective solutions to patients with this type of pathologies and infections, knowing how to guide them so that they can recover and maintain their Microbiota through food and, consequently, a good state of health.

This **Postgraduate Diploma in Intestinal Microbiota** contains the most complete and up-to-date scientific program on the market. The most important features of the program include:

- Development of practical cases presented by experts in Intestinal Microbiota
- 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
- New developments on Intestinal Microbiota
- It contains practical exercises where the self-evaluation process can be carried out to improve learning
- With special emphasis on innovative methodologies in Intestinal Microbiota
- All of this will be complemented by theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection



TECH provides you with the latest knowledge on Intestinal Microbiota so that you can become a successful physiotherapist"

“

This Postgraduate Diploma is the best investment you can make when selecting a refresher program, for two reasons: in addition to updating your knowledge in Intestinal Microbiota, you will obtain a Postgraduate Diploma from TECH Technological University"

The program includes, in its teaching staff, professionals belonging to the field of medicine and physiotherapy, who bring to this training the experience of their work, in addition to recognized specialists from prestigious reference societies and 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 training programmed to train 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 professional will be assisted by an innovative interactive video system created by renowned and experienced experts in Microbiota.

The Postgraduate Diploma allows you to exercise through simulated environments, which provide immersive learning programmed to train for real situations.

This 100% online Postgraduate Diploma will allow you to combine your studies with your professional work while expanding your knowledge in this field.



02 Objectives

The main objective of the program is the development of theoretical and practical learning, so that the professional can master in a practical and rigorous way the study of Microbiotics in the daily practice of your profession. In this sense, The Postgraduate Diploma in Intestinal Microbiota responds to the continuous demand of professionals for quality training in this area, which serves as a vehicle to use physical therapy as a means of healing from diseases of the digestive tract and as a preventive tool in maintaining the health of patients of all ages.





“

This Postgraduate Diploma, designed with the latest educational technology, will allow you to learn all the advances in Intestinal Microbiota and its correct treatment”



General Objectives

- ♦ This Postgraduate Diploma meets a need of today's society, a quality and up-to-date training that allows the use of microbiological therapy as a preventive or therapeutic tool for the maintenance of health
- ♦ Offer a complete and wide vision of the current situation in the area of the Human Microbiota, in its widest sense, the importance of the balance of this Microbiota as a direct effect on our health, with the multiple factors that influence it positively and negatively
- ♦ Argue with the backing of scientific evidence how a high degree of importance is currently being given to the Microbiota and its interaction with many non-digestive, autoimmune pathologies or its relationship with the dysregulation of the immune system, the prevention of diseases, and as a support to other medical treatments
- ♦ Promote work strategies based on the integral approach of the patient as a reference model, not only focusing on the symptomatology of the specific pathology, but also looking at its interaction with the Microbiota and how it may be influencing it
- ♦ Encourage professional stimulation through continuing education and research



Make the most of the opportunity and take the step to get up-to-date on the latest developments in Intestinal Microbiota”





Specific Objectives

Module 1. Microbiota. Microbiome. Metagenomics

- ◆ Know the relationship between the Microbiota and the Microbiome and its most accurate definitions
- ◆ Understand in depth the concepts of symbiosis, commensalism, mutualism, and parasitism
- ◆ Delve into the different types of Human Microbiota and know their general aspects
- ◆ Delve into the aspects that trigger the balance and imbalance of the Microbiota

Module 2. Gut Microbiota I. Intestinal Homeostasis

- ◆ Delve into current studies on Intestinal Microbiota
- ◆ Understand the composition of the Intestinal Microbiota
- ◆ Delve into the physiology of the digestive tract
- ◆ Know the composition of the Microbiota in the different parts of the digestive tract
- ◆ Resident Flora and Transient or Colonizing Flora
- ◆ Understand the functions of the Intestinal Microbiota at the metabolic, nutritional and trophic levels

Module 3. Gut Microbiota II. Intestinal Dysbiosis

- ◆ Know in depth what Intestinal Dysbiosis is
- ◆ Analyze the consequences of Intestinal Dysbiosis
- ◆ Know the relationship of intestinal dysbiosis with other types of immunological, metabolic, neurological and gastric disorders
- ◆ Understand the consequences of the alteration of the intestinal ecosystem and its relationship with Functional Digestive Disorders
- ◆ Know the composition of the Intestinal Microbiota in the different stages of life
- ◆ Know how to apply the techniques of quantitative analysis of microorganisms in feces
- ◆ Delve into current studies on Intestinal Microbiota



03

Course Management

The program's teaching staff includes leading specialists in Human Microbiota and other related areas, who bring their years of work experience to this training program. In addition, other specialists of recognized prestige participate in its design and elaboration, completing the program in an interdisciplinary manner. All this, with the aim of providing physiotherapists with the most complete information and contents of the educational panorama so that they can practice their profession with greater guarantees of success and care for Neonatal and Pediatric patients with a deeper knowledge of the functioning of their Microbiota.





Learn the latest advances in physical treatments for microbiota-related pathologies in children and adolescents from leading professionals with this complete program"

Management



Ms. Fernández Montalvo, María Ángeles

- Parapharmacy Manager, Nutrition and Natural Medicine Professor
- Degree in Biochemistry from the University of Valencia
- Postgraduate Diploma in Nutrition, Dietetics, and Diet Therapy
- Expert in Microbiological Food Analysis
- Expert in Nutrition, Food, and Cancer. Prevention and Treatment.
- Expert in Vegetarian, Clinical, and Sports Nutrition
- Specialist in food intolerances and the study of the intestinal microbiota
- Numerous courses on Intestinal Microbiota, methods of analysis and applications
- Diploma in Natural and Orthomolecular Medicine
- Expert in the current use of Nutricosmetics and Nutraceuticals in general.
- Expert in point-of-sale management in Pharmacies and Parapharmacies.
- Member of the Spanish Society of Probiotics and Prebiotics (SEPyP)
- Member of the Spanish Society of Dietetics (SEDCA)
- Member of the Spanish Society of Nutrition (SEÑ)

Professors

Dr. Lombó Burgos, Felipe

- ♦ Doctor in Biology from the University of Oviedo
- ♦ Professor at the university.

Dr. López López, Aranzazu

- ♦ Ph.D. in Biological Sciences
- ♦ Researcher in oral microbiology at FISABIO foundation.
- ♦ Public Health Research Center of Valencia

Dr. Méndez García, Celia

- ♦ Doctorate in Microbiology from the University of Oviedo.
- ♦ Research at Novartis Laboratories (Boston)

Dr. Gonzalez Rodríguez, Silvia P

- ♦ PhD in Medicine and Surgery from the University of Alcalá de Henares. Gynecology Specialist.
- ♦ Medical Subdirector, Research Coordinator and Clinical Chief of the Menopause and Osteoporosis Unit at the Velázquez Medical Cabinet (Madrid)

Dr. Álvarez García, Verónica

- ♦ Degree in Medicine
- ♦ Digestive system specialist at the Central Hospital of Asturias (HUCA).

Dr. Solís Sánchez, Gonzalo

- ♦ Neonatologist at the Hospital Universitario Central de Asturias (HUCA)
- ♦ Researcher, Associate Professor of the University of Oviedo

Dr. Suárez Rodríguez, Marta

- ♦ Neonatologist of the Central University Hospital of Asturias (HUCA)
- ♦ Researcher and Professor of the Professional Master's Degree in Early Care and the Professional Master's Degree in Critical Care Nursing at the University of Oviedo and other training courses.

Dr. Díaz Martín, Juan José

- ♦ Pediatric gastroenterologist at the Central Hospital of Asturias (HUCA)
- ♦ Member of the Spanish Society of Pediatric Gastroenterology, Hepatology, and Nutrition
- ♦ Associate Professor of Pediatrics at the University of Oviedo

Dr. Fernández Madera, Juan José

- ♦ Degree in Medicine
- ♦ Specialist in Allergology and Clinical Immunology
- ♦ Specialist in Sports Medicine

04

Structure and Content

The structure of the contents has been designed by a team of professionals from the best hospitals and universities in the country, aware of the relevance of current training to prevent, detect and intervene in those pathologies related to alterations of the Intestinal Microbiota, and committed to quality teaching through new educational technologies. All of this, with the aim of training physiotherapists who are much more competent and prepared to offer treatments that help and support the intestinal microbiome of patients.



“

This Postgraduate Diploma in Intestinal Microbiota contains the most complete and up-to-date scientific program on the market”

Module 1. Microbiota. Microbiome. Metagenomics

- 1.1. Definition and Relationship Between Them
- 1.2. Composition of the Microbiota: Types, Species and Strains
- 1.3. Different Human Microbiota. General Overview of Eubiosis and Dysbiosis
 - 1.3.1. Gastrointestinal Microbiota
 - 1.3.2. Oral Microbiota
 - 1.3.3. Skin Microbiota
 - 1.3.4. Respiratory Tract Microbiota
 - 1.3.5. Urinary Tract Microbiota
 - 1.3.6. Reproductive System Microbiota
- 1.4. Factors that Influence Microbiota Balance and Imbalance
 - 1.4.1. Diet and Lifestyle. Gut-Brain Axis
 - 1.4.2. Antibiotic Therapy
 - 1.4.3. Epigenetic-Microbiota Interaction. Endocrine Disruptors
 - 1.4.4. Probiotics, Prebiotics, Symbiotics. Concepts and Overviews
 - 1.4.5. Fecal Transplant, Latest Advances

Module 2. Gut Microbiota I. Intestinal Homeostasis

- 2.1. Studies of Intestinal Microbiota for Nutritionists
 - 2.1.1. Projects MetaHIT, Meta-Biomed, MyNewGut, Human Microbiome Project
- 2.2. Microbiota Composition
 - 2.2.1. Protective Microbiota (Lactobacillus, Bifidobacterium, Bacteroides)
 - 2.2.2. Immunomodulatory Microbiota (Enterococcus faecalis and Escherichia coli)
 - 2.2.3. Mucoprotective or Muconutritive Microbiota (Faecalibacterium prausnitzii and Akkermansia muciniphila)
 - 2.2.4. Microbiota with Proteolytic or Proinflammatory Activities (E. coli Biovare, Clostridium, Proteus, Pseudomonas, Enterobacter, Citrobacter, Klebsiella, Desulfovibrio, Bilophila)
 - 2.2.5. Fungal Microbiota (Candida, Geotrichum)
- 2.3. Digestive System Physiology. Composition of the Microbiota in the Different Parts of the Digestive Tract. Resident Flora and Transient or Colonizing Flora. Sterile Areas in the Digestive Tract





- 2.3.1. Esophageal Microbiota
 - 2.3.1.1. Healthy Individuals
 - 2.3.1.2. Patients (Gastric Reflux, Barrett's Esophagus, etc.)
- 2.3.2. Gastric Microbiota
 - 2.3.2.1. Healthy Individuals
 - 2.3.2.2. Patients (Gastric Ulcer, Gastric Cancer, MALT, etc.)
- 2.3.3. Gallbladder Microbiota
 - 2.3.3.1. Healthy Individuals
 - 2.3.3.2. Patients (Cholecystitis, Cholelithiasis, etc.)
- 2.3.4. Small Intestine Microbiota
 - 2.3.4.1. Healthy Individuals
 - 2.3.4.2. Patients (Inflammatory Bowel Disease, Irritable Bowel Syndrome, etc.)
- 2.3.5. Colon Microbiota
 - 2.3.5.1. Healthy Individuals. Enterotypes
 - 2.3.5.2. Patients (Inflammatory Bowel Disease, Crohn's Disease, Colon Carcinoma, Appendicitis, etc..)
- 2.4. Functions of the Intestinal Microbiota for Nutritionists: Protective and Barrier. Immunological
 - 2.4.1. Interrelationships Between the Intestinal Microbiota for Nutritionists and Distant Organs (Brain, Lung, Heart, Liver, Pancreas, etc.)
- 2.5. Intestinal Mucosa and Mucosal Immune System
 - 2.5.1. Anatomy, Characteristics, and Functions (MALT, GALT, and BALT System)
- 2.6. What is Intestinal Homeostasis? Role of Bacteria in Intestinal Homeostasis
 - 2.6.1. Effects on Digestion and Nutrition
 - 2.6.2. Defence Stimulation, Hindering Colonization by Pathogenic Microorganisms
 - 2.6.3. Production of Vitamin B and K
 - 2.6.4. Production of Short Chain Fatty Acids (Butyric, Propionic, Acetic, etc.)
 - 2.6.5. Production of Gases (Methane, Carbon Dioxide, Molecular Hydrogen). Properties and Functions
 - 2.6.6. Lactic Acid

Module 3. Gut Microbiota II. Intestinal Dysbiosis

- 3.1. What is Intestinal Dysbiosis? Consequences
- 3.2. Intestinal Barrier. Physiology. Function. Intestinal Permeability and Hyperpermeability. Relationship between Intestinal Dysbiosis and Intestinal Hyperpermeability
- 3.3. Relationship of Intestinal Dysbiosis and Other Types of Disorders: Immunological, Metabolic, Neurological and Gastric (*Helicobacter Pylori*)
- 3.4. Consequences of the Alteration of the Intestinal Ecosystem and its Relationship to Functional Digestive Disorders
 - 3.4.1. Inflammatory Bowel Disease IBD
 - 3.4.2. Chronic inflammatory bowel diseases: Crohn's Disease. Ulcerative Colitis
 - 3.4.3. Irritable Bowel Syndrome (IBS) and Diverticulitis
 - 3.4.4. Intestinal Motility Disorders. Diarrhea. Diarrhea Caused by *Clostridium Difficile*. Constipation
 - 3.4.5. Digestive Disorders and Nutrient Malabsorption Problems: Carbohydrates, Proteins, and Fats
 - 3.4.6. Markers of Intestinal Inflammation: Calprotectin. Eosinophil Cationic Protein (ECP). Lactoferrin. Lysozyme
 - 3.4.7. Leaky Gut Syndrome. Permeability Markers: Alpha-1 Antitrypsin. Zonulin. Tight Junctions and their Main Function
- 3.5 Alteration of the Intestinal Ecosystem and its Relationship with Intestinal
 - 3.5.1. Viral Intestinal Infections
 - 3.5.2. Bacterial Intestinal Infections
 - 3.5.3. Intestinal Infections due to Parasites
 - 3.5.4. Fungal Intestinal Infections. Intestinal Candidiasis.





- 3.6. Composition of the Intestinal Microbiota for Nutritionists in the Different Stages of
 - 3.6.1. Variation in Intestinal Microbiota Composition for Nutritionists from the Neonatal-Early Childhood Stage to Adolescence. "Unstable Period"
 - 3.6.2. Composition of the Intestinal Microbiota for Nutritionists in Adulthood. "Stable Period"
 - 3.6.3. Intestinal Microbiota Composition for Nutritionists in the Elderly "Unstable Stage". Aging and Microbiota
- 3.7. Nutritional Modulation of Intestinal Dysbiosis and Hyperpermeability: Glutamine, Zinc, Vitamins, Probiotics, Prebiotics
- 3.8. Techniques for Quantitative Analysis of Microorganisms in Feces
- 3.9. Current Lines of Research



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

05

Methodology

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

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





“

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH we use the Case Method

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



06 Certificate

The Postgraduate Diploma in Intestinal Microbiota guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.





“

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

This **Postgraduate Diploma in Intestinal Microbiota** contains the most complete and up-to-date scientific program on the market.

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

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

Title: **Postgraduate Diploma in Intestinal Microbiota**

Official N° of hours: **450 h.**



*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.

future
health confidence people
education information tutors
guarantee accreditation teaching
institutions technology learning
community commitment
personalized service innovation
knowledge present
development language
virtual classroom



Postgraduate Diploma
Intestinal Microbiota

Course Modality: Online

Duration: 6 months.

Certificate: TECH Technological University

Official N° of hours: 450 h.

Postgraduate Diploma

Intestinal Microbiota

