

# Hybrid Professional Master's Degree

## Update in Bariatric Surgery





## Hybrid Professional Master's Degree

### Update in Bariatric Surgery

Course Modality: Hybrid (Online + Clinical Internship)

Duration: 12 months

Certificate: TECH Technological University

Teaching Hours: 1,620 h.

Website: [www.techtitute.com/pk/medicine/hybrid-professional-master-degree/hybrid-professional-master-degree-update-bariatric-surgery](http://www.techtitute.com/pk/medicine/hybrid-professional-master-degree/hybrid-professional-master-degree-update-bariatric-surgery)

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# 01

# Introduction

Bariatric Surgery is one of the most requested surgeries nowadays, due to the increasing problems related to obesity and the better awareness of this type of disorders. This situation has caused a revolution in the discipline, which has incorporated new surgical techniques with which the specialist can address different procedures and pathologies. Therefore, this program has been specifically designed to bring the physician closer to these advances, for which they will not only have the best theory 100% online, but also an internship in a prestigious center where they will be able to put into practice the new skills acquired throughout the degree.





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*Learn, in a practical and face-to-face way, the latest techniques in Bariatric Surgery, with the constant accompaniment of specialists of recognized prestige in this clinical area”*

The growing concern for personal image and the numerous complications that collaterally affect patients with obesity have led to the development of new surgical procedures as a priority. Therefore, Bariatric Surgery has progressed enormously in recent years, and the specialist who has focused their career in this field or who wishes to get up-to-date has a great opportunity with this Hybrid Professional Master's Degree.

This program has been developed according to the latest scientific evidence in this area, and will allow the physician to learn about the latest innovations in issues such as the management of fistulas after bariatric surgery, revision surgery after adjustable gastric banding, nutritional treatment of patients with complications or the role of gastrointestinal hormones in the resolution of type II diabetes mellitus after bariatric surgery, among many other aspects.

The program is developed in two distinct phases. The first is carried out 100% online, adapting to the personal and professional circumstances of the specialist. In addition, they will be accompanied by a teaching staff of great reputation in this area of specialty, who will update them with the best multimedia resources: case studies, theoretical and practical exercises, master classes, readings and videos of procedures.

During the second stage, the professional will have the opportunity to spend an on-site internship in a prestigious center, where they will be able to put into practice all the new knowledge acquired during the online phase. In this way, this program offers a comprehensive learning process that is adjusted to the latest developments in Bariatric Surgery.

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

- ♦ Development of more than 100 clinical cases presented by surgical professionals specialized in Bariatric Surgery
- ♦ 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
- ♦ Obese patient assessment techniques
- ♦ Comprehensive systematized action plans for the main pathologies related to obesity
- ♦ Presentation of practical workshops on diagnostic and therapeutic techniques for patients with obesity
- ♦ An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course
- ♦ Practical clinical guides on approaching different pathologies
- ♦ With a special emphasis on evidence-based medicine and research methodologies in Bariatric Surgery
- ♦ All 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
- ♦ Additionally, students will be able to carry out a clinical internship in one of the best hospitals in Spain

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*The latest knowledge in Bariatric Surgery can be found here, presented through the best multimedia resources: videos, case studies, master classes, among others”*

This Hybrid Professional Master's Degree program, of a professionalizing nature and hybrid learning modality, is aimed at updating medical professionals who develop their functions in the surgical service. The contents are based on the latest scientific evidence, and oriented in a educational way to integrate theoretical knowledge in the medical practice, and the theoretical-practical elements will facilitate the updating of knowledge and allow decision-making in patient management.

Thanks to the multimedia content, developed with the latest educational technology, medical professionals will benefit from situated and contextual learning, i.e., a simulated environment that will provide immersive learning 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 student will be assisted by an innovative interactive video system created by renowned experts.

*You will delve into issues such as technical considerations in the perioperative management of the morbidly obese patient with associated abdominal wall pathology.*

*Get up-to-date through the best educational technology, especially designed for working professionals.*



02

# Why Study this Hybrid Professional Master's Degree?

In many fields of work and knowledge, theory is not enough to achieve real development or progress. In the field of Bariatric Surgery, especially, it is as relevant to know the latest techniques and medical approaches as it is to know how to implement them in different clinical environments. For this reason TECH has created this pioneering degree, which combines the most recent update in areas such as minimally invasive approaches in Bariatric Surgery, surgical techniques with robots or Roux-en-Y gastric bypass with a clinical internship in a prestigious clinical center. Therefore, the student will get a complete vision of the most current panorama in Bariatric Surgery, being guided throughout the process by authentic experts in the field.





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*Take your knowledge and skills to another level with a theoretical and practical program that will allow you to get up to date on the latest advances in Bariatric Surgery”*

### 1. Updating from the latest technology available

The area of Bariatric Surgery has been revolutionized in recent years thanks to advances such as robotic surgery or minimally invasive techniques. For this reason, and with the aim of bringing the specialist closer to this technology, TECH presents this Hybrid Professional Master's Degree, in which the professional will enter a cutting-edge clinical environment, accessing the latest technology in this important surgical field.

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

The large team of professionals that will accompany the specialist throughout the internship provides a first-class endorsement and a guarantee of unprecedented updating. With a specifically designated tutor, the student will be able to see real patients in a state-of-the-art environment, which will allow them to incorporate the most effective procedures and approaches in Bariatric Surgery into their daily practice.

### 3. Entering First-Class Clinical Environments

TECH carefully selects all the centers available for the internship part of the program. Thanks to this, the specialist will have guaranteed access to a prestigious clinical environment in the area of Bariatric Surgery. In this way, you will be able to see the day-to-day work of a demanding, rigorous and exhaustive sector, always applying the latest theses and scientific postulates in its work methodology.





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

The academic market is plagued by teaching programs that are poorly adapted to the daily work of the specialist and that require long teaching hours, often not very compatible with personal and professional life. TECH offers a new learning model, totally theoretical and practical, that allows them to get in front of state-of-the-art procedures in the field of Bariatric Surgery and, best of all, to put it into immediate professional practice.

#### 5. Expanding the Boundaries of Knowledge

TECH offers the possibility to carry out the internship part of this program not only in national but also international centers. This way, the specialist will be able to expand their frontiers and catch up with the best professionals, who practice in first class centers and in different continents. A unique opportunity that only TECH, the largest online university in the world, could offer.

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*You will have full practical immersion at the center of your choice”*

# 03 Objectives

The main objective of this Hybrid Professional Master's Degree in Update in Bariatric Surgery is to bring the professional closer to the latest developments in this important and complex clinical area. In order to achieve this, it offers online learning totally adapted to their needs and an on-site internship in a prestigious clinical center where they will carry out numerous practical activities and where they will be in contact with real patients.





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*You will quickly achieve your goal of being up-to-date on the latest techniques in Bariatric Surgery”*



## General Objective

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- This program pursues several general objectives. On the one hand, it studies the different surgical techniques in the treatment of obesity, while describing the semiology peculiarities of the bariatric patient and the different tools available for the diagnosis of complications. On the other hand, it focuses on defining the general characteristics and the surgical strategy in revision surgery, so that it covers the pre, peri- and post-operative care of the bariatric patient, making it a complete, up-to-date and in-depth degree

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*Bariatric Surgery has undergone numerous transformations in recent years and with this program you will be able to learn about all of them and integrate them into your daily work”*





## Specific Objectives

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### Module 1. General Aspects of Obesity

- ♦ Gain an in-depth understanding of obesity as a clinical condition and its pathophysiology
- ♦ Correctly evaluate a patient with obesity
- ♦ Learn advanced practical knowledge of dietary, pharmacological treatment and movement education of obesity
- ♦ Justify the causes of decreased appetite
- ♦ Analyze the safety of treatment
- ♦ Evaluate the quality of life during and after the treatment
- ♦ Know the historical framework of the origin of each of the bariatric techniques

### Module 2. Endoscopic and Percutaneous Treatments in Obesity

- ♦ Establish the physiological basis of action in these procedures
- ♦ Describe the development of techniques
- ♦ Analyze the most important findings in the anamnesis and physical examination of bariatric patients, as well as the usefulness of each of the auxiliary diagnostic methods
- ♦ Describe the most important complications in endoscopic treatment procedures for obesity, as well as their diagnosis and management
- ♦ Determine the role of endoscopic surgery in the management of complications and weight regain after bariatric surgery

### Module 3. Surgical Treatment of Morbid Obesity

- ♦ Design future lines of work in superobese patients



#### **Module 4. Perioperative Management**

- ♦ Establish the importance of information and patient participation in perioperative care
- ♦ Understand the benefits of weight loss, nutritional optimization and comorbidity as preoperative measures in bariatric surgery
- ♦ Identify the specific nutritional risks in the perioperative period

#### **Module 5. Emergencies of the Bariatric Surgery Patient**

- ♦ Establish the diagnosis and treatment of endocrine, cardiac and renal complications in the postoperative period of bariatric surgery
- ♦ Determine the etiology, diagnosis and therapeutic attitude toward complications and revision surgery after a gastric bypass

#### **Module 6. Revision Surgery**

- ♦ Describe the therapeutic alternatives in revision surgery of techniques no longer used
- ♦ Study the indications, technical details and results after adjustable gastric band revision surgery
- ♦ Analyze the most relevant aspects of surgical revision for insufficient weight loss, weight regain and/or nutritional complications following duodenal crossover surgery
- ♦ Examine the most frequent indications for revision surgery after biliopancreatic diversion
- ♦ Establish the most appropriate surgical options in revision surgery due to malnutrition syndromes and severe nutritional complications following SADI- S
- ♦ Analyze the different technical options for revision surgery after vertical gastrectomy, depending on whether there has been inadequate weight loss and/or weight regain, or due to the occurrence of complications
- ♦ Describe the indications, technical details and results after OAGB revision surgery

#### **Module 7. Postoperative Aftercare and Supplementation**

- ♦ Study the etiology and chronic pain management after bariatric surgery
- ♦ Establish guidelines and advice for the reintroduction of physical activity after surgery
- ♦ Know the guidelines for dietary treatment after bariatric surgery, depending on the type of surgery
- ♦ Explain the postoperative complications associated with each of the different surgical techniques
- ♦ Define the measures included in the ERAS protocols
- ♦ Analyze the peculiarities of the ERAS protocols in bariatric surgery
- ♦ Analyze the psychological profile of bariatric “patients ” and there difficulties in adapting to the postoperative process
- ♦ Establish the main causes of intestinal obstruction which occurs in patients undergoing bariatric surgery, their differential diagnosis and treatment
- ♦ Know the most important aspects in the treatment and management of gastrointestinal bleeding and/or hemoperitoneum after bariatric surgery

#### **Module 8. Basics of Metabolic Surgery**

- ♦ Analyze hormonal effects
- ♦ Present the metabolic effects of manipulating intestinal bile acid availability after bariatric surgery





### **Module 9. Transplantation, Abdominal Wall and Special Situations in Bariatric Surgery**

- ♦ Establish indications for surgery in patients who are candidates for solid organ transplantation

### **Module 10. Innovation, Quality of Life, Training and Clinical Management in Bariatric Surgery**

- ♦ Establish the criteria for prioritizing patients on the surgical waiting list
- ♦ Analyze the cost benefit relationship in bariatric surgery
- ♦ Establish quality standards
- ♦ Assess the advantages and disadvantages of bariatric tourism
- ♦ Identify quality of life indicator parameters
- ♦ Weigh up the pros and cons of different surgical training methods
- ♦ Identify the benefits of robotic surgery and NOTES

# 04 Skills

Throughout the development of this program, the specialist will be able to update their skills and acquire new ones in the field of bariatric surgery. Therefore, they will learn about the most recent novelties in surgical techniques in this area, as well as complications, comorbidities and areas of special attention in this discipline. In this way, upon completion of the degree, the physician will have completely renewed their skills in this field, preparing them to face the present and future challenges in the field.



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*After completing the qualification,  
you will have the most up-to-date  
competencies in this healthcare field”*



## General Skills

- Implement the most important elements of the Multidisciplinary Obesity Team
- Be able to create or improve the EMO
- Manage relationships between associated multidisciplinary departments
- Enhancing all aspects of 360° care for morbidly obese patients
- Recognize the appropriate intervention techniques for each case
- Correctly deal with the existing intervention techniques in bariatric surgery
- Organize all aspects of a Bariatric Surgery Unit with real efficacy
- Increase the number of interventions performed

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





## Specific Skills

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- Confidently and safely manage the indications of endoscopic and surgical treatments
- Know how to prepare a patient for bariatric surgery as well as how to select them with the surgical technique criteria
- Manage the protocols which allow professionals in the EMO to develop their practice with security, making the correct decisions in accordance with the best evidence and medical praxis
- Know how to use endoscopic techniques
- Know the indications and their clinical management with agility and security
- Perform the implantation and removal of endoscopic elements safely (endoscopic physicians, gastroenterologists or surgeons)
- Select the best bariatric technique for each patient
- Possess advanced theoretical knowledge for professional practice
- Elaborate a realistic, high quality protocol focused on the patient's needs and the possibilities in their surroundings
- Early diagnosis
- Safely and effectively manage complications arising from this surgery
- Confidently evaluate a bariatric surgery patient "in failure"
- Determine the cause of the failure and outline the best plan, surgical or otherwise, for its treatment
- Confidently evaluate a Type 2 Diabetic patient
- Determine if they have surgery indications
- Define the patient's expectation of results and choose the best technique for the patient
- Determine which elements are key (and which are not) for the transmission of knowledge in bariatric activity
- Start your scientific activity with a lower volume of cases than other teams who do not have this knowledge
- Design an EMO with a viable and sustainable business plan structure
- Specify in the business plan, the key elements to ensure it is cost-effective
- Carry out practice with legal security
- Be able to cope before, during and after any legal contingency

# 05

# Course Management

During the online stage, the specialist will be accompanied by the best specialists in this surgical area. Therefore, this teaching staff has been carefully chosen by TECH, which has been responsible for selecting the most prestigious and adapted to the latest developments in the discipline. In this way, the physician will receive all the keys to integrate into their work the most important developments in this field, and will do so directly from leading experts in this complex clinical field.





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*Great active experts bring you the latest techniques in bariatric surgery. Directly and immediately. Without interruptions”*

## International Guest Director

Dr. Alec Beekely is an international eminence in Bariatric and Metabolic Surgery. Throughout his career, this specialist has mastered the most disruptive tools and procedures to intervene patients with pathologies such as Morbid Obesity, Diabetes, among others. Thanks to his extensive experience and continuous updating, he has become the Director of the surgical program, focused on this area, at Thomas Jefferson University Hospital in the United States.

At the same time, the expert maintains close ties with the Trauma and Intensive Care Service of the same health institution. Through this work, he has performed operations on people in serious or acute conditions and, in turn, supervises the progress of residents and interns under his care. In addition, he is an instructor of Advanced Life Support in Trauma.

Similarly, his research career has been linked to clinical analysis projects. In particular, Dr. Beekely has addressed in depth the management of the Roux-en-Y gastric bypass technique and its subsequent outcomes such as weight loss and ulceration. He is also a scientific reviewer for multiple peer-reviewed journals such as Surgery for Obesity and Related Diseases and the Journal of Trauma.

On the other hand, this specialist has a long career in the medical-war context. His beginnings in the field of military surgery have been linked to combat and extreme situations such as the wars in Afghanistan and Iraq. Given his merits in this complex field, he has received various awards such as the Bronze and Meritorious Service Medals awarded by his country's army.

Dr. Beekely has also been an active member of several scientific societies and committees. In this way, through his intense healthcare management, he has become a true reference in world medicine.





## Dr. Beekley, Alec

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- Director of the Metabolic and Bariatric Surgery Program at Thomas Jefferson University Hospital
- Advanced Life Support Instructor in the Trauma and Intensive Care Service at Thomas Jefferson University Hospital
- Director of the Combat Casualty Research Team at the 28th Combat Support Hospital in Baghdad, Iraq
- Staff Surgeon General, 102nd Forward Surgical Team, Kandahar, Afghanistan
- General Surgeon, Madigan Army Medical Center, Tacoma
- General Surgeon at Blanchfield Army Community Hospital in Kentucky
- M.D., Case Western Reserve University

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*Thanks to TECH, you will be able to learn with the best professionals in the world”*

## Management



### Dr. Priego Jiménez, Pablo

- Surgeon of the Laparoscopic Surgery Unit at Hospital Viamed Virgen de la Paloma. Madrid
- Clinical Head of General Surgery of the Bariatric and Metabolic Surgery Unit at the University Hospital Viamed Virgen de la Paloma. Madrid
- Specialist in Surgery in the General Surgery Service, Esophagogastric and Bariatric Surgery Unit at the University Hospital Ramón y Cajal
- Specialist in Surgery in the General Surgery Service, Esophagogastric, Hepatobiliopancreatic and Thoracic Surgery Unit at the General University Hospital of Castellón
- Degree in Medicine and Surgery from the Complutense University of Madrid
- Master's Degree in Advanced Laparoscopic Surgery by the University of Alcalá
- Member of the Spanish Association of Surgeons, Section of Esophagogastric Surgery and the Section of Minimally Invasive Surgery and Technological Innovation of the ACS, Spanish Society for the Surgery of Obesity (SECO), International Federation for the Surgery of Obesity (IFSO), European Association of Endoscopic Surgery (EAES), Paraguayan Society of Endoscopic Surgery, Madrid Association of Surgeons



### **Dr. Ruiz-Tovar Polo, Jaime**

- ♦ Specialist in General and Digestive System Surgery
- ♦ Responsible for Neurostimulation at Clínica Garcilaso
- ♦ Bariatric Surgeon in the Center for Excellence for the Study and Treatment of Obesity in the Bariatric Surgery Unit. Valladolid
- ♦ Specialist Physician in the Bariatric Surgery Unit at the Rey Juan Carlos University Hospital
- ♦ Coordinator of the Bariatric Surgery Unit at the General University Hospital of Elche
- ♦ Doctorate in Medicine from the Autonomous University Madrid
- ♦ Degree in Medicine from the Autonomous University Madrid
- ♦ Master's Degree in Advanced Laparoscopic Surgery from the University of Alcalá

## Professors

### Dr. Alfaro Almajano, Enrique

- ♦ Area Specialist in Digestive System at the Lozano Blesa University Clinical Hospital. Zaragoza
- ♦ Degree in Medicine from the University of Zaragoza
- ♦ RMI training in Digestive System in Lozano Blesa Clinical University Hospital. Zaragoza
- ♦ Area Specialist in Digestive System at the Lozano Blesa University Clinical Hospital. Zaragoza
- ♦ Master's Degree in Initiation to Research in Medicine at the Faculty of Medicine, University of Zaragoza
- ♦ Postgraduate Diploma in Emergencies in Gastroenterology and Hepatology, Distance Learning University of Madrid (UDIMA)
- ♦ Master's Degree in Gastroenterological and Hepatobiliary Emergencies from the Distance Learning University of Madrid (UDIMA)

### Dr. Baltar Boilève, Javier

- ♦ Medical specialist in General and Digestive Surgery
- ♦ Specialist Physician in General and Digestive Surgery at the University Clinical Hospital of Santiago
- ♦ Doctor in General and Digestive Surgery, University of Santiago de Compostela
- ♦ Degree in Medicine and Surgery from the University of Santiago de Compostela

### Dr. Deluca, Luciano

- ♦ Staff Surgeon of the General Surgery Service of the Bariatric Surgery Program at the PFA Medical Complex Churrucá, Visca, CABA, Argentina
- ♦ Staff Surgeon of the Ezequiel Fernandez Obesity Surgical Rehabilitation Center. CABA, Argentina
- ♦ Surgeon of the Bariatric Surgery Program at the Clínica Privada Provincial de Merlo. Buenos Aires, Argentina
- ♦ Surgeon of the Bariatric Surgery Program at the Good Shepherd Private Clinic. Buenos Aires, Argentina
- ♦ Surgeon, Bariatric Surgery Program. Paysandu, Uruguay
- ♦ Surgeon of the Bariatric Surgery Program Obesitac. Tacna, Peru
- ♦ Honorary Diploma in Medicine from the School of Medicine, University of Buenos Aires
- ♦ Specialist in General Surgery
- ♦ Specialist in Minimally Invasive Metabolic and Bariatric Surgery
- ♦ Member of the Argentine Association of Surgery (AAC) and Argentine Society of Obesity Surgery (SACO)

### Dr. Ortega Abad, Virginia

- ♦ Specialist in Gynecology and Obstetrics at the University General Hospital Gregorio Marañón
- ♦ Degree in Medicine and Surgery

**Dr. Durán Poveda, Manuel**

- ♦ Head of the General and Digestive System Surgery Team at the Ruber Internacional Hospital. Madrid
- ♦ Head of Unit at the Rey Juan Carlos University Hospital
- ♦ Degree in Medicine and Surgery from the Complutense University of Madrid
- ♦ Doctor of Medicine and Surgery, from the Complutense University of Madrid
- ♦ Specialist in General and Digestive System Surgery
- ♦ Master's Degree in Senior Health Service and Business Management
- ♦ Master's Degree in Health Management and Research Tools from the National University of Distance Education (UNED)

**Dr. Durán Escribano, Carlos**

- ♦ Head of the General and Digestive System Surgery Department at La Luz Quirónsalud Hospital
- ♦ Head of the Laparoscopic Surgery Unit at the Hospital Virgen de la Paloma. Madrid
- ♦ Emergency Department Coordinator at Hospital Virgen de la Paloma. Madrid
- ♦ Degree in Medicine and Surgery from the Complutense University of Madrid
- ♦ Specialist in General and Digestive System Surgery at La Princesa University Hospital
- ♦ Sub-specialist in Gastric Bypass by Laparoscopy
- ♦ Sub-specialist in Inguinal Hernia Surgery
- ♦ Member of the Spanish Society of Surgery, Spanish Society of Obesity Surgery and International Federation for Surgery of Obesity and Metabolic Disorders

**Dr. Oller Navarro, Inmaculada**

- ♦ Specialist in General and Digestive System Surgery
- ♦ Attending Physician of General and Digestive Surgery at the General University Hospital of Elche
- ♦ Author and co-author of dozens of scientific articles and book chapters
- ♦ Teacher in university studies of Medicine
- ♦ Master's Degree in Clinical and Surgical Research
- ♦ Master's Degree in General Surgery and Digestive System Update from CEU Cardenal Herrera University

**Dr. Posada González, María**

- ♦ Medical Specialist in General Surgery, Esophagogastric and Digestive Tract Surgery
- ♦ Specialist in Esophagogastric and Bariatric Surgery Unit at the Jiménez Díaz Foundation University Hospital
- ♦ Specialist Physician in the General Surgery and Digestive System Department at the University Hospital of Basurto
- ♦ Specialist in the Esophagogastric Surgery Unit at the Keck Medical Center of the University of Southern California. United States
- ♦ Medical Specialist at La Princesa University Hospital
- ♦ Degree in Medicine and Surgery from the Autonomous University of Madrid
- ♦ Member of the Spanish Association of Surgeons and Spanish Society of Obesity Surgery

**Dr. García Muñoz-Najar, Alejandro**

- ◆ Specialist Physician of the Department of General Surgery and Digestive System
- ◆ Specialist Physician of the Department of General Surgery and Digestive System at Rey Juan Carlos University Hospital
- ◆ Member of the Abdominal Wall Surgery Unit and the Endocrine Surgery Unit at Rey Juan Carlos University Hospital
- ◆ Coordinator of the Bariatric and Metabolic Surgery Unit at Rey Juan Carlos University Hospital
- ◆ Specialist in General and Digestive System Surgery at 12 de Octubre University Hospital
- ◆ Degree in Medicine from the University of Navarra

**Dr. Ortiz Lacorzana, Javier**

- ◆ Surgeon Coordinator of the Bariatric and Metabolic Surgery Unit at Basurto University Hospital
- ◆ Surgeon at the Sanatorio Bilbaino
- ◆ Surgeon at the IMQ Zorrotzaurre Clinic
- ◆ Professor of Surgery at the University of the Basque Country
- ◆ Doctor of Medicine and Surgery, University of the Basque Country
- ◆ Degree in Medicine and Surgery, University of the Basque Country
- ◆ Specialty in Digestive System at the University Hospital of Basurto
- ◆ Member of SECO, SEEDO, IFSO, SENPE and AEC

**Dr. Miranda Múrua, María del Coro**

- ◆ Head of the Esophagogastric Surgery Unit at the Navarra Hospital Complex
- ◆ Collaborator of the Navarrabiomed Biomedical Research Center in the Esophagogastric and Bariatric Surgery Area
- ◆ Professor of the XIX Course of Esophagogastric Surgery
- ◆ Doctor of Medicine from the University of Navarra
- ◆ Specialist in Esophagogastric Surgery, Navarra Hospital Complex

**Dr. Lumbreras Marín, Eva**

- ◆ Plastic Surgeon in the FEMM Clinic
- ◆ Specialist in Aesthetic and Reconstructive Plastic Surgery at Sanitas La Moraleja University Hospital
- ◆ Family Doctor in Primary Care and as an Acting Physician in the same area at the Abrantes Health Center
- ◆ Attending Emergency Physician at the Alcorcón Foundation University Hospital
- ◆ Associate Professor at Alfonso X el Sabio University in the Department of Human Anatomy
- ◆ Specialist in Family and Community Medicine at 12 de Octubre University Hospital
- ◆ Specialist in Aesthetic and Reconstructive Plastic Surgery at the Getafe University Hospital
- ◆ Member of the Spanish Society of Plastic, Reconstructive and Aesthetic Surgery

**Dr. Mayo Ossorio, María de los Ángeles**

- ♦ Coordinator of the Unit of Bariatric and Esophagogastric Surgery at Puerta del Mar University Hospital
- ♦ Medical Specialist in the Department of General and Digestive System Surgery at Puerta del Mar University Hospital
- ♦ Assistant of the surgical team of General Surgery at the Social Maria Institute of Cadiz
- ♦ Associate Professor of Surgery at the Faculty of Medicine at the University of Cadiz
- ♦ Doctor of Medicine and Surgery from University of Cadiz with the qualification of outstanding Cum Laude
- ♦ Degree in Medicine and Surgery from the University of Cadiz
- ♦ Master's Degree in Obesity Surgery, Francisco de Vitoria University
- ♦ Postgraduate Diploma in Esophagogastric and Bariatric Surgery from the CEU Cardenal Herrera University

**Dr. Oliver Guillén, José Ramón**

- ♦ Specialist of the General and Digestive System Surgery Service at the Soria Health Care Complex
- ♦ Researcher at the Soria Health Care Complex
- ♦ Degree in Medicine and Surgery

**Dr. Molina-Amador García, Alicia**

- ♦ Specialist in Nutrition and Dietetic Planning
- ♦ Dietitian and Nutritionist postdoctoral researcher linked to research projects in the Surgery Service at Sant Joan de Reus University Hospital
- ♦ Associate Professor in the Surgery Service of the Rovira i Virgili University
- ♦ Professor of the Master's Degree in Obesity Surgery from SECO, AEC, Editorial Médica Panamericana
- ♦ Doctor in Biomedicine, Rovira i Virgili University
- ♦ Diploma in Human Nutrition and Dietetics, Rovira i Virgili University
- ♦ Master's Degree in Nutrition and Metabolism from Rovira i Virgili University
- ♦ Master's Degree in Genetic, Nutritional and Environmental Determinants of Growth and Development from Rovira i Virgili University
- ♦ Postgraduate Degree in Research: Design and Statistics in Health Sciences from Autonomous University of Barcelona
- ♦ VII Diploma of Specialized Nutrition in Obesity Surgery from the Mexican College of Obesity Surgery and Metabolic Diseases

**Dr. Cuadrado Ayuso, Marta**

- ♦ Specialist in General and Digestive System Surgery
- ♦ Area Specialist in the Esophagogastric and Bariatric Surgery Unit at the Ramón y Cajal University Hospital
- ♦ Area Specialist Physician at El Escorial Hospital
- ♦ Area Specialist Physician at the University Hospital HM Torrelodones
- ♦ Area Specialist Physician at La Luz Hospital
- ♦ Area Specialist Physician at Gregorio Marañón General University Hospital
- ♦ Degree in Medicine and Surgery from the Autonomous University of Madrid
- ♦ Master's Degree in General and Digestive Surgery Update by CEU Cardenal Herrera University

**Dr. Martínez Amorós, Rosana**

- ♦ Specialist in Clinical Psychology
- ♦ Clinical Psychologist at the Mental Health Unit of the San Vicente del Raspeig Hospital del Raspeig
- ♦ Clinical Psychologist at the General University Hospital of Elche
- ♦ Clinical Psychologist at the Centre de Salut Altavix
- ♦ Clinical Psychologist at the Day Center and the Specific Center for People with Chronic Mental Illness of the SASM Foundation
- ♦ Coordinator of the Moderate and Severe Intellectual Disability Ward at the Institute Pere Mata University Psychiatric Hospital
- ♦ Sexologist in the Reproductive and Sexual Health Center of Novelda-Aspe
- ♦ Degree in Psychology from the University of Valencia

**Dr. Morales Cerchiaro, Ángela**

- ♦ Dietician and Nutritionist at the ONCARE Center, Monographic Consultation for Oncology Patients
- ♦ Dietitian and Nutritionist at the Obesity Unit of the HM Montepíncipe Hospital
- ♦ Collaborator in practical teaching in the Epidemiology and Public Health course of the Degree in Human Nutrition and Dietetics at the Complutense University of Madrid
- ♦ Collaboration in the practical teaching to students of the Degree of Human Nutrition and Dietetics at the Gregorio Marañón General University Hospital
- ♦ Collaborator in practical teaching in the Seminar on Clinical Nutrition in the Degree of Medicine at the Complutense University of Madrid
- ♦ Collaborator in practical teaching in the Department of Medicine of the Complutense University of Madrid
- ♦ Doctor in Medical and Surgical Sciences, Complutense University of Madrid
- ♦ Master's Degree in Human Nutrition and Applied Dietetics, Complutense University of Madrid
- ♦ Member of the Society of Clinical Nutrition and Metabolism

**Dr. Abreu Quezada, Hanser Antonio**

- ♦ General Director at Advanced Medical Center, Maternity and Pediatric Clinic and specialties
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- ♦ Master's Degree in Obesity Surgery, Francisco de Vitoria University



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- ♦ Head of the Esophagogastric, Endocrinometabolic and Obesity Surgery Section, Doctor Negrín University Hospital of Gran Canaria
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- ♦ Master's Degree in Coloproctology
- ♦ Esophagogastric Oncologic Surgery Residency at National Cancer Center
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#### **Dr. Martínez Ubieto, Fernando**

- ♦ Head of the Surgery Service at the Hospital of Alcañiz
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# 06

## Educational Plan

This Hybrid Professional Master's Degree in Update in Bariatric Surgery has been designed by internationally renowned specialists, and they have been in charge of integrating all the latest developments in the discipline in a unique qualification. Therefore, through the 10 specific modules that make up the program, the physician will be able to delve into issues such as endoluminal vertical gastroplasty, Roux-en-Y gastric bypass or thromboembolic prophylaxis in bariatric surgery, among many others.





“

*Delve into the most relevant theory in this field, subsequently applying it in a real work environment”*

## Module 1. General Aspects of Obesity

- 1.1. Obesity and Overweight
  - 1.1.1. Introduction
  - 1.1.2. Definition of Obesity
  - 1.1.3. Epidemiology
  - 1.1.4. Pathophysiology
  - 1.1.5. Energy Intake
  - 1.1.6. Metabolism and Energy Expenditure
  - 1.1.7. Updated Action Mechanisms in Bariatric Surgery
  - 1.1.8. Etiology: Genetics and Epigenetics of Obesity Syndromes with Dysmorphic Obesity
  - 1.1.9. Initial Evaluation of Obesity
    - 1.1.9.1. Body Mass Index
    - 1.1.9.2. Waist Circumference
    - 1.1.9.3. Body Fat Percentage
    - 1.1.9.4. Other Parameters
  - 1.1.10. Evaluation of Patient Risk
- 1.2. Major Comorbidities
  - 1.2.1. Definition of Major and Minor Comorbidity
  - 1.2.2. Diabetes Mellitus Type 2
    - 1.2.2.1. Prediabetes and Diabetes: Definition
    - 1.2.2.2. Dietary Treatment
    - 1.2.2.3. Oral Anti-diabetic Treatment
    - 1.2.2.4. Insulin Treatment
    - 1.2.2.5. Target Organ Involvement: Signs and Symptoms
  - 1.2.3. Hyperlipidemia
    - 1.2.3.1. Total Cholesterol
    - 1.2.3.2. HDL and LDL
    - 1.2.3.3. Triglycerides



- 1.2.4. Cardiovascular
  - 1.2.4.1. Cardiac: Ischemic Heart Disease
  - 1.2.4.2. Vascular
    - 1.2.4.2.1. Venous Stasis with Increased Risk of DVT/PTE
    - 1.2.4.2.2. Arterial Hypertension
- 1.2.5. Metabolic Syndrome
- 1.2.6. Respiratory: hypoventilation syndrome and apnea-hypopnea syndrome
- 1.2.7. Load-bearing Arthropathy: Definition and Common Injuries
- 1.2.8. Infertility
- 1.3. Minor Comorbidities
  - 1.3.1. Digestive
    - 1.3.1.1. Hepatic Steatosis, Steatohepatitis and Cirrhosis
    - 1.3.1.2. Colelithiasis, Colecistitis
    - 1.3.1.3. Gastroesophageal Reflux Diseases
  - 1.3.2. Obesity and Cancer: Incidence
  - 1.3.3. Asthma
  - 1.3.4. Hypothyroidism
  - 1.3.5. Incontinence
  - 1.3.6. Psychological Alterations (Major or Minor?)
  - 1.3.7. Other Minor Comorbidities
- 1.4. Dietary and Pharmacological Treatment
  - 1.4.1. Dietary Treatment
    - 1.4.1.1. Introduction
    - 1.4.1.2. Food plan Dietary Treatment
    - 1.4.1.3. Distribution of Macronutrients in the Diet
    - 1.4.1.4. Modification of Diet Structure
    - 1.4.1.5. General Recommendations for Hypocalorie Diets
  - 1.4.2. Medical treatment
    - 1.4.2.1. Types of Drugs
    - 1.4.2.2. Drugs Which Affect Appetite and Fullness
    - 1.4.2.3. Drugs Which Work on a Gastrointestinal Level
    - 1.4.2.4. Thermogenic Drugs
    - 1.4.2.5. Other Drugs
    - 1.4.2.6. Medication being Researched
    - 1.4.2.7. Therapeutic Algorithms
- 1.5. Physical Activity
  - 1.5.1. Program Objectives
  - 1.5.2. Types of Exercise
  - 1.5.3. Frequency, Duration and Intensity
  - 1.5.4. Behaviour Modification
- 1.6. Indications of Endoscopic and Surgical Treatments
  - 1.6.1. According to BMI
  - 1.6.2. According to Previous Surgery
  - 1.6.3. According to Associated Comorbidities
  - 1.6.4. Listening to the Patient
  - 1.6.5. Therapeutic Algorithms
- 1.7. Pre-Operative Study
  - 1.7.1. Basic Preoperative Process
  - 1.7.2. Study of the Upper Digestive Tract: Endoscopy vs. Rx
  - 1.7.3. Study and Eradication of Helicobacter Pylori: When and How?
  - 1.7.4. ASMBS Micronutrient Survey and Grades of Recommendations
  - 1.7.5. Indications from Other Studies
    - 1.7.5.1. Respiratory: Functional Respiratory Tests and Polysomnography
    - 1.7.5.2. Digestive: Ultrasound and CAT
    - 1.7.5.3. Cardiac: ECG and Stress Test
    - 1.7.5.4. Movement: Antigravity Treadmill Test
    - 1.7.5.5. DMT2, Hb Glycated A1, Pancreatic Reserve, and Pancreatic Antibodies
    - 1.7.5.6. Studies of Venous Circulation in Lower Limbs
  - 1.7.6. Updated Pre-anaesthesia Assessment in Bariatric Surgery

- 1.8. Pre-surgery Preparation
  - 1.8.1. Pre-surgery Preparation
  - 1.8.2. Duration, Objectives and Scientific Evidence Related to Preparation
  - 1.8.3. Liquid Diet
  - 1.8.4. Physical Activity
  - 1.8.5. Respiratory Physiotherapy and Tobacco Consumption
  - 1.8.6. Study and Control of Arterial Hypertension
  - 1.8.7. Updated Blood Glucose Control in Bariatric Surgery
- 1.9. Surgical Technique Selection
  - 1.9.1. According to BMI
  - 1.9.2. According to Psychological and Nutritional Profile
  - 1.9.3. According to Associated Comorbidities
  - 1.9.4. Listening to the Patient
  - 1.9.5. Recommended Algorithm
- 1.10. Indications and Technique Selection in Special Groups
  - 1.10.1. Adolescents and Children
    - 1.10.1.1. Children vs. Adolescents: How to Identify Them
    - 1.10.1.2. Bridge Techniques vs. Definitive Techniques: On Whom and Which Ones?
  - 1.10.2. Over 60 Years Old
    - 1.10.2.1. How to Differentiate between Biological Age and Theoretical Age?
    - 1.10.2.2. Specific Techniques for >60s
  - 1.10.3. BMI 30-35
    - 1.10.3.1. Indication for surgery
    - 1.10.3.2. Surgical Techniques
  - 1.10.4. Other Borderline Patients
    - 1.10.4.1. BMI <30 and DMT2
    - 1.10.4.2. BMI 30-35 and C-peptide=0
    - 1.10.4.3. BMI 30 and 35 and DMT1
    - 1.10.4.4. Children Over the Age of 70
    - 1.10.4.5. HIV Patients
    - 1.10.4.6. Liver Cirrhosis Patients

## Module 2. Endoscopic and Percutaneous Treatments in Obesity

- 2.1. Intra-gastric balloon (Oballon, ELIPSE)
  - 2.1.1. Definition
  - 2.1.2. Technique
  - 2.1.3. Results
  - 2.1.4. Complications
- 2.2. Endobarrier
  - 2.2.1. Definition
  - 2.2.2. Technique
  - 2.2.3. Results
  - 2.2.4. Complications
- 2.3. Vertical Endoluminal Gastroplasty (EndoCinch)
  - 2.3.1. Definition
  - 2.3.2. Technique
  - 2.3.3. Results
  - 2.3.4. Complications
- 2.4. Transoral Gastroplasty (TOGA)
  - 2.4.1. Definition
  - 2.4.2. Technique
  - 2.4.3. Results
  - 2.4.4. Complications
- 2.5. POSE
  - 2.5.1. Definition
  - 2.5.2. Technique
  - 2.5.3. Results
  - 2.5.4. Complications
- 2.6. Endoscopic Plication (Apollo)
  - 2.6.1. Definition
  - 2.6.2. Technique
  - 2.6.3. Results
  - 2.6.4. Complications

- 2.7. Gastric Electrical Stimulation (Gastric Pacemaker)
  - 2.7.1. Definition
  - 2.7.2. Technique
  - 2.7.3. Results
  - 2.7.4. Complications
- 2.8. Neurostimulation of the Dermatomes of the Abdomen
  - 2.8.1. Definition
  - 2.8.2. Technique
  - 2.8.3. Results
  - 2.8.4. Complications
- 2.9. Aspire Method
  - 2.9.1. Definition
  - 2.9.2. Technique
  - 2.9.3. Results
  - 2.9.4. Complications
- 2.10. Uncommon Methods (Lingual Mesh, Surgiclip)
  - 2.10.1. Definition
  - 2.10.2. Techniques
  - 2.10.3. Results
  - 2.10.4. Complications

### Module 3. Surgical Treatment of Morbid Obesity

- 3.1. History of Surgical Treatment of Morbid Obesity
  - 3.1.1. Historical Background in Ancient Times
  - 3.1.2. Beginning of Obesity Surgery in the Modern Era
  - 3.1.3. Current Use of Bariatric and Metabolic Surgery
- 3.2. Adjustable Gastric Band
  - 3.2.1. Introduction
  - 3.2.2. Surgical Technique
  - 3.2.3. Results
  - 3.2.4. Immediate Postoperative Complications

- 3.3. Vertical Gastrectomy
  - 3.3.1. Introduction
  - 3.3.2. Surgical Technique
  - 3.3.3. Results
  - 3.3.4. Immediate Postoperative Complications
- 3.4. Gastric Bypass Roux-en-Y
  - 3.4.1. Introduction
  - 3.4.2. Surgical Technique
  - 3.4.3. Results
  - 3.4.4. Immediate Postoperative Complications
- 3.5. Gastric Bypass of One Anastomosis
  - 3.5.1. Introduction
  - 3.5.2. Surgical Technique
  - 3.5.3. Results
  - 3.5.4. Immediate Postoperative Complications
- 3.6. Biliopancreatic Diversion
  - 3.6.1. Introduction
  - 3.6.2. Surgical Technique
  - 3.6.3. Results
  - 3.6.4. Immediate Postoperative Complications
- 3.7. Duodenal Crossover
  - 3.7.1. Introduction
  - 3.7.2. Surgical Technique
  - 3.7.3. Results
  - 3.7.4. Immediate Postoperative Complications
- 3.8. SADIS
  - 3.8.1. Introduction
  - 3.8.2. Surgical Technique
  - 3.8.3. Results
  - 3.8.4. Immediate Postoperative Complications

- 3.9. Nissen Sleeve
  - 3.9.1. Introduction
  - 3.9.2. Surgical Technique
  - 3.9.3. Results
  - 3.9.4. Immediate Postoperative Complications
- 3.10. Other techniques: SAGIS/SASI, Intestinal Bipartition, Gastric Plication, Banding Techniques, etc
  - 3.10.1. Introduction
  - 3.10.2. Surgical Technique
  - 3.10.3. Results
  - 3.10.4. Immediate Postoperative Complications

#### Module 4. Perioperative Management

- 4.1. ERAS Program in Bariatric Surgery
  - 4.1.1. Introduction
  - 4.1.2. ERAS Protocol in Bariatric Surgery
  - 4.1.3. Implementation Results
  - 4.1.4. GERM Multidisciplinary Working Group. Protocol Update
- 4.2. Multidisciplinary Management of the Bariatric Patient
  - 4.2.1. Pre Surgery
    - 4.2.1.1. Endocrinology & Nutrition
    - 4.2.1.2. Dietitian
    - 4.2.1.3. Psychiatry
    - 4.2.1.4. Psychology
    - 4.2.1.5. Pneumology
    - 4.2.1.6. Cardiology
    - 4.2.1.7. Digestive System
    - 4.2.1.8. Radiology
    - 4.2.1.9. Surgery
    - 4.2.1.10. Anaesthesiology
    - 4.2.1.11. Rehabilitation and Physiotherapy







- 4.2.2. Hospital Admission
  - 4.2.2.1. Pre Surgery
  - 4.2.2.2. Intraoperative
  - 4.2.2.3. Post-Operative
- 4.2.3. Monitoring
  - 4.2.3.1. Surgery
  - 4.2.3.2. Endocrinology & Nutrition
  - 4.2.3.3. Dietitian
  - 4.2.3.4. Psychiatry and Psychology
  - 4.2.3.5. Pneumology
  - 4.2.3.6. Primary Care
- 4.3. Patient Information, Objectives and Establishing Realistic Expectations
  - 4.3.1. What is Obesity?
  - 4.3.2. Affections Arising from Obesity
  - 4.3.3. Obesity in the Current Day
  - 4.3.4. Can it be Modified?
  - 4.3.5. Benefits of Fighting It
  - 4.3.6. Postoperative Results
    - 4.3.6.1. Complications
    - 4.3.6.2. Weight Regain
    - 4.3.6.3. Therapy Options
  - 4.3.7. Monitoring
- 4.4. Psychological Assessment
  - 4.4.1. Psychological Focus on an Obese Patient in Bariatric Surgery
  - 4.4.2. Emotional State and Quality of Life in Candidates for Bariatric Surgery
  - 4.4.3. Considerations in Preoperative Psychological Assessments
  - 4.4.4. Aspects to be Addressed in the Initial Interviews
    - 4.4.4.1. History of the Start and Evolution of Their Obesity
    - 4.4.4.2. Explore Expectations, Motivation and Goals of the Patient
    - 4.4.4.3. Patient's Lifestyle
    - 4.4.4.4. Family Circle
    - 4.4.4.5. Patient Coping Strategies

- 4.4.5. Recommended Evaluation Tools
  - 4.4.5.1. Depression/ Anxiety Scale
  - 4.4.5.2. Decision-Making and Self Control
  - 4.4.5.3. Quality of Life
  - 4.4.5.4. Body image
  - 4.4.5.5. Eating Disorders
  - 4.4.5.6. Personality
- 4.4.6. Considerations for Interpreting the Information Collected
- 4.5. Perioperative Nutritional Management for Patients under Bariatric Surgery
  - 4.5.1. Introduction
  - 4.5.2. Benefits of Pre-Surgery Weight Loss in Bariatric Surgery
  - 4.5.3. Preoperative Treatment Guidelines
    - 4.5.3.1. Hypocalorie Diet and Very Low-Calorie Diet
    - 4.5.3.2. Medical treatment
    - 4.5.3.3. Other treatments
  - 4.5.4. Postoperative Nutritional Treatment
    - 4.5.4.1. Dietary Progression in the First Weeks
    - 4.5.4.2. Micronutrient Supplementation Guidelines
    - 4.5.4.3. Special Situations
- 4.6. Thromboembolic Prophylaxis in Bariatric Surgery Prevention Measures for Surgical Site Infections
  - 4.6.1. Thromboembolic Prophylaxis
    - 4.6.1.1. Introduction
    - 4.6.1.2. Early Mobilization
    - 4.6.1.3. Mechanical Prophylaxis
    - 4.6.1.4. Pharmacological Prophylaxis
  - 4.6.2. Prevention of Surgical Site Infections
    - 4.6.2.1. Introduction
    - 4.6.2.2. Preoperative Phase
      - 4.6.2.2.1. Smoking Control
      - 4.6.2.2.2. Shower and Shaving
      - 4.6.2.2.3. Skin Asepsis and Antisepsis
      - 4.6.2.2.4. Antibiotic Prophylaxis
    - 4.6.2.3. Intra and Perioperative Phase
      - 4.6.2.3.1. Door Opening Control
      - 4.6.2.3.2. Body Temperature and Blood Sugar Level Control
      - 4.6.2.3.3. Tissue Oxygenation
      - 4.6.2.3.4. Wound/Operation Site Irrigation
      - 4.6.2.3.5. Sutures with Antiseptics
    - 4.6.2.4. Postoperative Phase
      - 4.6.2.4.1. Skin Dressings
      - 4.6.2.4.2. Measurement Packages
- 4.7. Antiemetic Prophylaxis and Goal-Directed Fluid Therapy
  - 4.7.1. Antiemetic Prophylaxis
    - 4.7.1.1. Identification of Patients from Risk of Suffering Post Operative Nausea and Vomiting (PONV) in Bariatric Surgery
    - 4.7.1.2. Detection and Intervention of Factors with Reduce the Basal Risk of PONV
    - 4.7.1.3. Antiemetic Drug Management
    - 4.7.1.4. Establishing a Prophylactic Algorithm to Establish Preventive Strategies in High-Risk Patients
    - 4.7.1.5. Description of Treatment for PONV in Bariatric Surgery
  - 4.7.2. Goal-Guided Fluid Therapy
    - 4.7.2.1. Different Approaches to Fluid Administration in Obesity Surgery: Liberal vs. Restrictive Approach
      - 4.7.2.1.1. Liberal Fluid Therapy vs. Restrictive Fluid Therapy
      - 4.7.2.1.2. Preoperative, Intraoperative and Postoperative Periods
      - 4.7.2.1.3. Surgical Factors which Affect the Administration of Fluids
    - 4.7.2.2. Concepts Goal-Guided Fluid Therapy
    - 4.7.2.3. Description of the Parameters that Guide the Administration of Fluids in Bariatric Surgery
      - 4.7.2.3.1. Volume Monitoring
      - 4.7.2.3.2. Functional Hemodynamic Variables
    - 4.7.2.4. Review of Current Monitoring Recommendations in Bariatric Surgery

- 4.8. Early Mobilization and Reintroduction of Oral Feeding
  - 4.8.1. Early Mobilization
    - 4.8.1.1. Inconveniences Period of Inactivity
    - 4.8.1.2. Benefits of Early Mobilization
    - 4.8.1.3. Early Mobilization Guidelines
  - 4.8.2. Reintroduction of Oral Feeding
    - 4.8.2.1. Benefits of Early Oral Feeding
    - 4.8.2.2. Importance of Protein Supplements
    - 4.8.2.3. Guidelines for Reintroduction of Oral Feeding
- 4.9. Impact of Physical Training Programs on the Maintenance of Weight Loss Before and After Bariatric Surgery
  - 4.9.1. Impact of Physical Training Programs on the Physical Aptitude of Obese People
  - 4.9.2. Physical Activity in the Preoperative and Postoperative Periods of Bariatric Surgery
    - 4.9.2.1. Preoperative Physical Activity
    - 4.9.2.2. Postoperative Physical Activity
  - 4.9.3. Advice Before Starting a Physical Activity Program After Bariatric Surgery
  - 4.9.4. Planning on Physical Activity after Bariatric Surgery
    - 4.9.4.1. Physical Activity during the First Month
    - 4.9.4.2. Physical Activity between the 2nd and 6th Months
    - 4.9.4.3. Physical Activity After the 6th Month
  - 4.9.5. Types of Routines and Exercises
- 4.10. Optimization of Comorbidities Prior to Bariatric Surgery
  - 4.10.1. Concept of Multimodal Rehabilitation in Bariatric Surgery
  - 4.10.2. Preanesthetic Consultation in Bariatric Surgery
  - 4.10.3. Study and Detection of the Risk Factors of Coronary Heart Disease
  - 4.10.4. *Screening* for Sleep Apnea-Hypopnea Syndrome
  - 4.10.5. Indications for Preoperative Spirometry in Obese Patients
  - 4.10.6. Description of the Recommended Laboratory Studies on Proposed Patients for Bariatric Surgery
  - 4.10.7. Nutritional Optimization in the Preoperative Period
  - 4.10.8. Respiratory Physiotherapy
  - 4.10.9. Physical Rehabilitation of Bariatric Patients

## Module 5. Emergencies of the Bariatric Surgery Patient

- 5.1. Semiology of Abdominal Pathology and Complementary Explorations in Emergencies in Patients with a History of Bariatric Surgery
  - 5.1.1. Introduction
  - 5.1.2. Medical History
  - 5.1.3. Physical Examination
  - 5.1.4. Complementary Examination Orientation
  - 5.1.5. Blood Analysis
  - 5.1.6. Abdomen Rx
  - 5.1.7. Abdominal ultrasound
  - 5.1.8. Computerised and Axial Tomography
  - 5.1.9. Esophagogram and Upper Intestinal Transit
  - 5.1.10. Upper Digestive Endoscopy
  - 5.1.11. Endoscopic Retrograde Cholangiopancreatography
  - 5.1.12. Cholangio Nuclear Magnetic Resonance
  - 5.1.13. Echoendoscopy
  - 5.1.14. Exploratory Laparoscopy
- 5.2. Complications of Endoscopic Procedures (Intragastric Balloon, POSE, Apollo)
  - 5.2.1. Definition of Techniques
  - 5.2.2. Indication of Techniques
  - 5.2.3. Development of Complications
  - 5.2.4. Solution of Complications
- 5.3. Fistula Management After Bariatric Surgery
  - 5.3.1. Introduction
  - 5.3.2. Leakage and Postoperative Sepsis
  - 5.3.3. Fistula after Laparoscopic Vertical Gastrectomy
    - 5.3.3.1. Causes
    - 5.3.3.2. How to Avoid Them
    - 5.3.3.3. How to Diagnose Them
    - 5.3.3.4. Management

- 5.3.4. Fistula after Gastric Bypass
  - 5.3.4.1. Causes
  - 5.3.4.2. How to Avoid Them
  - 5.3.4.3. How to Diagnose Them
  - 5.3.4.4. Management
- 5.3.5. Fistulas after Malabsorptive Techniques
- 5.4. Intestinal Obstruction of the Upper and Lower Digestive Tract (bridles, internal hernias, trocars, etc. after Bariatric Surgery)
  - 5.4.1. Introduction
  - 5.4.2. Obstruction of Upper Digestive Tract
  - 5.4.3. Causes of Intestinal Obstruction
    - 5.4.3.1. After Open Surgery
      - 5.4.3.1.1. Early Onset
      - 5.4.3.1.2. Late Onset
    - 5.4.3.2. After Laparoscopic Surgery
      - 5.4.3.2.1. Early Onset
      - 5.4.3.2.2. Late Onset
  - 5.4.4. Diagnosis of Intestinal Obstruction
  - 5.4.5. Treatment of Intestinal Obstruction
  - 5.4.6. Additional Material
- 5.5. Acute Digestive Complications: Marginal Ulcer of Anastomotic, Stenosis, Diarrhea, Proctalgia, etc.
  - 5.5.1. Introduction
  - 5.5.2. Anastomotic Fistula
  - 5.5.3. Marginal Ulcer
  - 5.5.4. Anastomotic Stenosis
  - 5.5.5. Acute Diarrhea following Bariatric Surgery
  - 5.5.6. Proctalgia following Bariatric Surgery
- 5.6. Managing Bleeding after Bariatric Surgery (Upper GI Hemorrhage, Hemoperitoneum, etc.)
  - 5.6.1. Upper Gastrointestinal Bleeding
    - 5.6.1.1. Early Onset
    - 5.6.1.2. Late Onset
  - 5.6.2. Lower Gastrointestinal Bleeding
  - 5.6.3. Hemoperitoneum
- 5.7. Hepato-biliary Complications Secondary to Post-Surgical Intestinal Malabsorption. Bacterial Overgrowth
  - 5.7.1. Hepato-biliary Complications Colelithiasis
  - 5.7.2. Effect of Bacterial Overgrowth on MO
  - 5.7.3. Bacterial overgrowth and NASH
- 5.8. Medical Complications Related to Bariatric Surgery (Dumping Syndrome, Reactive Hypoglycemia, Cardiopulmonary, Renal)
  - 5.8.1. Dumping Syndrome
  - 5.8.2. Reactive Hypoglycemia
  - 5.8.3. Cardiopulmonary Complications
  - 5.8.4. Renal Complications
- 5.9. Nutritional or Toxic Deficiency Emergencies
  - 5.9.1. Introduction
  - 5.9.2. Digestive Emergencies
  - 5.9.3. Neurological Emergencies
  - 5.9.4. Cardiac Emergencies
  - 5.9.5. Nephrourological Emergencies
  - 5.9.6. Psychiatric Emergencies
- 5.10. Chronic Pain After Bariatric Surgery: a Challenge for the Multidisciplinary Team
  - 5.10.1. Introduction
  - 5.10.2. Definition
  - 5.10.3. Etiology
  - 5.10.4. Diagnosis
  - 5.10.5. Non-Invasive Treatment
  - 5.10.6. Invasive Treatment

**Module 6. Revision Surgery**

- 6.1. Definition and Indications of Revision Surgery
  - 6.1.1. Definition and Indicators of the Success or Failure of the Bariatric Surgery
  - 6.1.2. Indications of Revision Surgery
  - 6.1.3. General Features of Revision Surgery
  - 6.1.4. Surgical Strategy in Revision Surgery
  - 6.1.5. General Criteria According to the Type of Primary Technique
- 6.2. Revision Surgery of Techniques No-Longer Used
  - 6.2.1. Introduction. Historical Review
  - 6.2.2. Description of Techniques No-Longer Used
  - 6.2.3. Indications of Revision Surgery
  - 6.2.4. Preoperative Study and Preparation of the Patient
  - 6.2.5. Therapy Options
  - 6.2.6. Conclusions
- 6.3. Revision Surgery Following Adjustable Gastric Band
  - 6.3.1. Introduction, Indications and Basic Principles When Should We Consider Bandage Revision Surgery?
  - 6.3.2. Revision Surgery Following Adjustable Gastric Band. Technique Analysis of Surgery
  - 6.3.3. Revision Surgery following Adjustable Gastric Band: Results
- 6.4. Revision Surgery following Vertical Gastrectomy
  - 6.4.1. Reasons and Candidates for Revision Surgery following Vertical Gastrectomy
  - 6.4.2. Revision Surgery due to Insufficient Loss or Weight Regain following Vertical Gastrectomy
    - 6.4.2.1. Duodenal/SADI-S Crossover. Revision or Second Part
    - 6.4.2.2. Gastric *Bypass* as an Alternative to Duodenal Crossover
    - 6.4.2.3. Other Possible Alternatives
  - 6.4.3. Revision Surgery for GER following Vertical Gastrectomy
    - 6.4.3.1. Gastric Bypass as the Best Option
    - 6.4.3.2. Other Possible Alternatives
- 6.5. Revision Surgery following Gastric *Bypass*
  - 6.5.1. Introduction
  - 6.5.2. Indications
    - 6.5.2.1. Insufficient Weight Loss
    - 6.5.2.2. Weight Regain
    - 6.5.2.3. Persistence of Comorbidities
    - 6.5.2.4. Late Complications
      - 6.5.2.4.1. Reservoir Dilatation
      - 6.5.2.4.2. Alterations of the Gastro-Gastric Anastomosis
      - 6.5.2.4.3. Gastroesophageal Reflux
      - 6.5.2.4.5. Internal Hernias
      - 6.5.2.4.6. Malnutrition
      - 6.5.2.4.7. Hypoglycemia
  - 6.5.3. Technical Aspects
    - 6.5.3.1. Reconnection of the Reservoir
    - 6.5.3.2. Reparation of the Gastro-Gastric Anastomosis
    - 6.5.3.3. Modification of Handle Length
    - 6.5.3.4. Conversion of Normal Anatomy
  - 6.5.4. Conclusions
- 6.6. Revision Surgery after a One Anastomosis *Bypass*
  - 6.6.1. Introduction
  - 6.6.2. Relevance of a Correct Technique
  - 6.6.3. Indications
    - 6.6.3.1. Weight Loss Weight Regain
    - 6.6.3.2. Persistence of Comorbidities
    - 6.6.3.3. Gastroesophageal Reflux
    - 6.6.3.4. Nutritional Disorders
  - 6.6.4. Technical Aspects
  - 6.6.5. Results
  - 6.6.6. Conclusions

- 6.7. Revision Surgery following Duodenal Crossover
  - 6.7.1. Revision Surgery following Duodenal Crossover
    - 6.7.1.1. Revision Surgery for Nutritional Complications
      - 6.7.1.1.1. Indications
      - 6.7.1.1.2. Technique Options
  - 6.7.2. Revision Surgery for Insufficient Weight Loss or Weight Regain after Duodenal Crossover
    - 6.7.2.1. Indications
    - 6.7.2.2. Technique Options
- 6.8. Revision surgery after BPD
  - 6.8.1. Indications of Revision Surgery for Biliopancreatic Diversion
  - 6.8.2. Revision Surgery Due To Insufficient Loss or Weight Regain after Biliopancreatic Diversion
  - 6.8.3. Medical-Surgical Criteria for Revision Surgery For Protein Malabsorption
    - 6.8.3.1. Technique Options in Revision Surgery for Severe Protein Deficiency
  - 6.8.4. Revision Surgery in Ulcerative Complications of Gastrojejunal Anastomosis in Biliopancreatic Diversion
- 6.9. Revision surgery after SADI-S
  - 6.9.1. Medium and Long-Term Results of SADI-S, Common Problems
  - 6.9.2. Indications of Revision Surgery following SADI-S
  - 6.9.3. Technique Options in Revision Surgery for Severe Protein Deficiency
- 6.10. Role of Endoscopic Surgery in the Management of Complications and Weight Regain
  - 6.10.1. Introduction
  - 6.10.2. Gastrointestinal Bleeding
  - 6.10.3. Anastomotic Ulcers
  - 6.10.4. Stenosis
  - 6.10.5. Leakages and Fistulas
  - 6.10.6. Pancreatobiliary Pathology
  - 6.10.7. Weight Regain

## Module 7. Postoperative Aftercare and Supplementation

- 7.1. Postoperative Monitoring and *Screening* for Nutritional Deficiencies
  - 7.1.1. Dietary and Lifestyle Guidelines after Bariatric Surgery
  - 7.1.2. Macronutrient Deficiencies
    - 7.1.2.1. Vitamins
    - 7.1.2.2. Minerals
- 7.2. Postoperative Supplementation Mineral and Vitamin Supplements
  - 7.2.1. Supplementation in Restrictive Techniques
  - 7.2.2. Supplementation in Malabsorption Techniques
  - 7.2.3. Supplementation in Mixed Techniques
- 7.3. Nutritional Recommendations after Restrictive Techniques
  - 7.3.1. Nutritional Recommendations in Patients Undergoing Restrictive Techniques
  - 7.3.2. Post- Surgery Complications and Nutritional Problems
- 7.4. Nutritional Recommendations after Mixed Techniques
  - 7.4.1. Introduction
  - 7.4.2. Nutritional Objectives
  - 7.4.3. Dietary Progression after Surgery
    - 7.4.3.1. Clear Liquid Diet
- 7.5. Nutritional Recommendations after Malabsorptive Techniques
  - 7.5.1. Introduction
  - 7.5.2. Preoperative Evaluation and Supplementation
  - 7.5.3. Postoperative Diet and Supplementation
    - 7.5.3.1. Proteins
    - 7.5.3.2. Micronutrients
  - 7.5.4. Gastrointestinal Symptoms
  - 7.5.5. Long-Term Monitoring
  - 7.5.6. Conclusions
- 7.6. Nutritional Management of Patients Suffering from Complications (Critical Patients)
  - 7.6.1. Nutritional Assessment for Critically Ill Patients
  - 7.6.2. Therapeutic Approach for Patients with Complications

- 7.7. Specific Nutritional Requirements in Children and Adolescents
  - 7.7.1. Introduction
  - 7.7.2. Nutritional Recommendations
  - 7.7.3. Assessment of Nutritional Status
  - 7.7.4. Nutritional Education
  - 7.7.5. Nutritional Needs
  - 7.7.6. Monitoring of Nutritional Status
- 7.8. Special Nutritional Requirements in the Elderly
  - 7.8.1. Preoperative Age-Focused Assessment
  - 7.8.2. Age-related Physiological Changes that Alter Supplementation
  - 7.8.3. Special Supplementation and Monitoring
- 7.9. Special Nutritional Requirements in Women (Pregnancy, Breastfeeding and Menopause)
  - 7.9.1. Introduction
  - 7.9.2. Obesity and Reproductive Function in Women
  - 7.9.3. Bariatric Surgery, Pregnancy and Breastfeeding
    - 7.9.3.1. Dietary Recommendations
    - 7.9.3.2. Nutritional Supplements
    - 7.9.3.3. Gestational Diabetes
    - 7.9.3.4. Pregnancy Complications following Bariatric Surgery
    - 7.9.3.5. Neonatal Care
    - 7.9.3.6. Nursing
  - 7.9.4. Bariatric Surgery and Menopause
- 7.10. Postoperative Management of Specific Complications: Anemia, Protein Malnutrition and Neurological Disorders
  - 7.10.1. Introduction
  - 7.10.2. Anaemia
  - 7.10.3. Protein Deficiency
  - 7.10.4. Neurological Complications

## Module 8. Basics of Metabolic Surgery

- 8.1. Metabolic Syndrome and Mediators of Inflammation
  - 8.1.1. Bariatric Surgery vs. Metabolic Surgery. Anatomophysiological Basis of Metabolic Surgery
  - 8.1.2. Control Mechanisms for Various Obesity Comorbidities
  - 8.1.3. Future Perspectives of Metabolic Surgery
- 8.2. Pathophysiology of Diabetes Medical and Dietary Treatment of Diabetes
  - 8.2.1. Insulin and Alteration in its Cellular Response
  - 8.2.2. Hyperglycemia, Hyperlipidemia and Tissue Damage
  - 8.2.3. Energetic Metabolism Alterations
  - 8.2.4. Associated Phenomena: Inflammation, Apoptosis, Steatosis and Cellular Fibrosis
- 8.3. Role of Gastrointestinal Hormones in the Resolution of Type 2 Diabetes Mellitus after Bariatric Surgery
  - 8.3.1. Introduction
  - 8.3.2. Gastrointestinal Hormones Involved in the Metabolism of Glucose
    - 8.3.2.1. Incretinic Effect
  - 8.3.3. Pathophysiology and Etiopathogenesis of Type 2 Diabetes in Obese Patients
    - 8.3.3.1. Role of Gastrointestinal Hormones in Resistance to Insulin
  - 8.3.4. Contribution of Bariatric Surgery to the Resolution of Type 2 Diabetes
    - 8.3.4.1. Weight Loss
    - 8.3.4.2. Modification of Nutrients and Microbiota
    - 8.3.4.3. Effect of Gastrointestinal Hormones: Proximal and Distal Gut Theory
  - 8.3.5. Evidence of Bariatric Surgery in Type 2 Diabetes
    - 8.3.5.1. Short and Long Term Impact of Bariatric Surgery in Regulating Glucose Metabolism
    - 8.3.5.2. Surgical Treatment vs. Doctor
    - 8.3.5.3. BPGL vs. GV
- 8.4. Concept of Metabolic Surgery, Concept and Scientific Evidence
  - 8.4.1. Introduction: History of Metabolic Surgery

- 8.4.2. Concepts of Metabolic Surgery
  - 8.4.2.1. General Concepts: Obesity Surgery and Metabolic Complications
  - 8.4.2.2. Specific Concept: Diabetes Surgery
- 8.4.3. Indications of Metabolic Surgery
  - 8.4.3.1. Indications in Diabetic Patients with Morbid Obesity
  - 8.4.3.2. Indications in Type 2 Diabetic Patients with BMI 35-40
  - 8.4.3.3. Indications in Diabetic Patients with BMI < 30
- 8.4.4. Surgical Techniques
  - 8.4.4.1. Traditional Techniques: (Gastric Banding, Vertical Gastrectomy, Gastric Bypass and Biliopancreatic Bypass)
  - 8.4.4.2. New Techniques: BAGUA SADI-S, Gastroileal Bypass of One Anastomosis, and Others
- 8.4.5. Current Scientific Evidence on Metabolic Surgery
- 8.4.4. Ethical and Deontological Aspects of Metabolic Surgery
- 8.5. Importance of Loop Lengths in Bariatric Surgery
  - 8.5.1. Determining Cutting Points
  - 8.5.2. Patient Monitoring
  - 8.5.3. Comorbidity Remission
- 8.6. Influence of the Microbiota in Bariatric Surgery
  - 8.6.1. Microbiome: basic concepts
  - 8.6.2. Microbiome and Obesity
  - 8.6.3. Changes in Microbiome after Bariatric Surgery
- 8.7. Obesity and NASH Role of the Liver as Metabolism Regulator
  - 8.7.1. Role of the Liver as Metabolism Regulator
  - 8.7.2. Obesity and Non-Alcoholic Fatty Liver Disease
  - 8.7.3. Bariatric Surgery and Non-Alcoholic Fatty Liver Disease
- 8.8. Influence of Bile Acids
  - 8.8.1. Bile Acid Synthesis and Hepatic Circulation
  - 8.8.2. Regulation of Dietary Fat Availability by Bile Acids
  - 8.8.3. Main Bile Acid Receptors: TGR5 - FXR
  - 8.8.4. Regulation of Metabolism by the Bile Acids
  - 8.8.5. Metabolic Effects of Manipulating Intestinal Bile Acid Availability after Bariatric Surgery

- 8.9. Influence of Bariatric Surgery on Hypogonadism and Polycystic Ovary Syndrome (POS)
  - 8.9.1. Prevalance of Male Hypogonadism and POS in Bariatric Surgery Candidates
  - 8.9.2. Effects of Bariatric Surgery in the Hormonal Concentrations of Patients with Male Hypogonadism and Semen Quality
  - 8.9.3. Effects of Bariatric Surgery on the Resolution of POS and Female Fertility
- 8.10. Timing of Metabolic Surgery and Its Effect on the Pancreas
  - 8.10.1. Time as a Predictor of Diabetes Resolution following Metabolic Surgery
  - 8.10.2. Pancreas Remodeling Capacity of the Pancreas in Human vs. Animal Models
  - 8.10.3. Regeneration of the Pancreas and Hyperinsulinism after Bariatric Surgery

## Module 9. Transplantation, Abdominal Wall and Special Situations in Bariatric Surgery

- 9.1. Technical Considerations in the Perioperative Management of the Morbidly Obese Patient with Associated Abdominal Wall Pathology
  - 9.1.1. Preoperative Optimization
  - 9.1.2. Obesity Surgery Before Wall Surgery
  - 9.1.3. Dermolipectomies as an Associated Procedure in Abdominal Wall Reconstruction
- 9.2. Solid Organ Transplant and Bariatric Surgery
  - 9.2.1. Obesity and Donors
  - 9.2.2. Transplantation and Surgical Technique
  - 9.2.3. Post-Transplant Obesity: Metabolic Syndrome
  - 9.2.4. Bariatric Surgery and Liver or Kidney Transplant
- 9.3. Obesity and Gastroesophageal Reflux
  - 9.3.1. Pathophysiology of Reflux Diagnostic Tests
  - 9.3.2. GERD in the Context of Obesity
  - 9.3.3. GERD Therapy Focus in Obese Patient
    - 9.3.3.1. Medical Treatment
    - 9.3.3.2. Surgical Management
  - 9.3.4. Monitoring of Patient with GERD



- 9.4. Management of a Morbidly Obese Patient What is the Ideal Strategy?
  - 9.4.1. Definition of Superobese Patients
  - 9.4.2. Is a Superobese Patient Different to a Simple Obese Patient?
  - 9.4.3. Multidisciplinary Preoperative Management of the Superobese Patient
  - 9.4.4. Role of an Intra-gastric Balloon in a Superobese Patient
  - 9.4.5. Anesthetic Management and Monitoring of the Superobese Patient
  - 9.4.6. Surgery in Superobese Patients Is There a Technique of Choice?
  - 9.4.7. What Results Can We Expect Following Surgery in Superobese Patients?
  - 9.4.8. Nutritional Monitoring in a Superobese Patient After Surgery
- 9.5. Surgery in a Patient with BMI <35
  - 9.5.1. Introduction
  - 9.5.2. Impact of Class I Obesity (BMI 30-35kg/ m<sup>2</sup>) on Health
  - 9.5.3. Non-Surgical Treatment of Class I Obesity
  - 9.5.4. Evidence in the Literature for Bariatric Surgery in BMI 30-35 Kg/M<sup>2</sup>
  - 9.5.5. Safety in Bariatric Surgery
  - 9.5.6. Cost-Benefit Ratio
  - 9.5.7. Recommendations offered by Different Scientific Societies
- 9.6. Pregnancy and Bariatric Surgery
  - 9.6.1. Perinatal Risks and Complications in Pregnant Women undergoing Bariatric Surgery
  - 9.6.2. Management of Pregnant Woman Undergoing Bariatric Surgery
- 9.7. Adolescents and Bariatric Surgery. Technique and Results
  - 9.7.1. Adolescents and Morbid Obesity
  - 9.7.2. Indications and Current Scene
  - 9.7.3. Therapeutic Perspectives and Results
- 9.8. Effects of Bariatric Surgery on Bone Metabolism
  - 9.8.1. Introduction
  - 9.8.2. Pathophysiological Mechanisms
    - 9.8.2.1. Nutrient Malabsorption
    - 9.8.2.2. Mechanical Disorders
    - 9.8.2.3. Neurohormonal Mechanisms
  - 9.8.3. Effects of Bariatric Surgery on Bone Metabolism
    - 9.8.3.1. Adjustable Gastric Band
    - 9.8.3.2. Gastric Bypass
    - 9.8.3.3. Vertical Gastrectomy
    - 9.8.3.4. Biliopancreatic Diversion and Duodenal Crossover
  - 9.8.4. Fracture Risk
  - 9.8.5. Recommendations in the Preoperative Evaluation and Treatment of Bone Metabolism Alterations after Bariatric Surgery
    - 9.8.5.1. Preoperative Evaluation
    - 9.8.5.2. Treatment of Bone Metabolism Alterations following Bariatric Surgery
- 9.9. Other Special Situations in Bariatric Surgery
  - 9.9.1. Inflammatory Bowel Disease
  - 9.9.2. Heart Disease
  - 9.9.3. Kidney Diseases
  - 9.9.5. Neurological Diseases and Mobility Problems
  - 9.9.6. Psychiatric Illness
- 9.10. Sarcopenia and Loss of Muscle Mass
  - 9.10.1. Body Tissue
  - 9.10.2. Energy Expenditure
  - 9.10.3. Sarcopenia
    - 9.10.3.1. Definition
    - 9.10.3.2. Assessment
    - 9.10.3.3. Sarcopenic Obesity
  - 9.10.4. Changes in Body Composition in Bariatric Patients
  - 9.10.5. Inconveniences of Loss of Fat-Free Mass in Bariatric Patients

## Module 10. Innovation, Quality of Life, Training and Clinical Management in Bariatric Surgery

- 10.1. Innovation, Quality of Life, Training and Clinical Management in Bariatric Surgery
    - 10.1.1. Application of Robotics in Bariatric Surgery
      - 10.1.1.1. Bariatric Procedures: General Aspects (Indications, Contraindications, Advantages and Disadvantages)
      - 10.1.1.2. Restrictive Laparoscopic and Robot-Assisted Procedures
        - 10.1.1.2.1. Gastric Sleeve: Advantages and Disadvantages of Using Robots
        - 10.1.1.2.2. Other Restrictive Procedures: Gastric Banding, Bariclip, Gastroplication, Intra gastric Balloon and Endorobotics
      - 10.1.1.3. Robot-Assisted Laparoscopic Roux-en-Y Gastric Bypass
        - 10.1.1.3.1. Pouch Confirmation and Probe Calibration
        - 10.1.1.3.2. Intestinal Loop Length: Alimentary Loop, Biliopancreatic Loop, Common Loop
        - 10.1.1.3.3. Types of Anastomosis: Manual, Linear, Circular, Robotic Grappling (Anterior, Posterior, One Plane, Two Plane)
        - 10.1.1.3.4. Closing Spaces and Gaps
        - 10.1.1.3.5. Intraoperative Tests: Methylene Blue, Pneumatic Test, Endoscopy
        - 10.1.1.3.6. Use of Open and Closed Drains
      - 10.1.1.4. Other Robot-Assisted Mixed Procedures:
        - 10.1.1.4.1. Gastric *Bypass* of One Anastomosis
        - 10.1.1.4.2. SADI-S
        - 10.1.1.4.3. Duodenal Crossover and Biliopancreatic Diversion
        - 10.1.1.4.4. Intestinal Bipartition
      - 10.1.1.5. Revision Surgery and Robotic Surgery
      - 10.1.1.6. Superobesity and Robotic Surgery
      - 10.1.1.7. Use of New Platforms in Gastrointestinal Surgery
      - 10.1.1.8. How to Reduce Costs in Robotic Surgery without Putting the Patient at Risk?
      - 10.1.1.9. Future of Robotic Surgery in Bariatric Surgery
      - 10.1.1.10. Pandemic and Robotic Surgery
      - 10.1.1.11. Telemedicine and 5G Technology
      - 10.1.1.12. Conclusions
- 10.2. Application of NOTES and Single Port in Bariatric Surgery
  - 10.2.1. Basics of Access Reduction in Bariatric Surgery
  - 10.2.2. Surgical Techniques
  - 10.2.3. Results
- 10.3. Quality of Life After Bariatric Surgery
  - 10.3.1. Introduction
  - 10.3.2. Concept of Quality of Life
  - 10.3.3. Questionnaires
    - 10.3.3.1. Generic Questionnaires
    - 10.3.3.2. Specific Questionnaires
  - 10.3.4. Results
    - 10.3.4.1. Surgical Techniques Results
      - 10.3.4.1.1. Short-Term Results
      - 10.3.4.1.2. Long-Term Results
    - 10.3.4.2. Future Perspectives
    - 10.3.4.3. Conclusions
- 10.4. Bariatric Surgery Cost-Benefit Studies
  - 10.4.1. Economic Impact of Obesity and Bariatric Surgery
    - 10.4.1.1. Economic Load of Obesity
    - 10.4.1.2. Costs of Bariatric Surgery
    - 10.4.1.3. Benefits of Bariatric Surgery
    - 10.4.1.4. Cost-effective Aspect of Bariatric Surgery
  - 10.4.2. Systems or Methods for the Evaluation of the Impact on Health Costs
    - 10.4.2.1. Comparison of Approaches for Measuring Cost Impact
      - 10.4.2.1.1. Cost Minimization Analysis (CMA)
      - 10.4.2.1.2. Cost-Effectiveness Analysis (CEA)
      - 10.4.2.1.3. Cost-Utility Analysis (CUA)
      - 10.4.2.1.4. Cost-Benefit Analysis (CBA)
    - 10.4.2.2. Visualization of Cost-effectiveness Using the Cost-effectiveness Plan
- 10.4.3. Summary of Current Data on the Economic Benefit of Bariatric Surgery

- 10.5. Management of Waiting List and Selection of Candidates in Bariatric Surgery
  - 10.5.1. Introduction
  - 10.5.2. Candidate Selection for Bariatric Surgery
  - 10.5.3. Factors Affecting the Waiting List
    - 10.5.3.1. Resources Availability
    - 10.5.3.2. Severity
    - 10.5.3.3. Waiting Capacity
  - 10.5.4. Criteria for Prioritizing Patients on the Waiting List Severity Scales
  - 10.5.5. Conclusions
- 10.6. Experimental Animal and Cadaver Training Thiel in Bariatric Surgery
  - 10.6.1. Introduction
  - 10.6.2. Learning Curve in Laparoscopic Gastric Bypass
  - 10.6.3. Ex vivo Laparoscopic Gastric Bypass Training Strategies
    - 10.6.3.1. Training Models
      - 10.6.3.1.1. Laboratory Models
      - 10.6.3.1.2. Virtual Reality Simulators
      - 10.6.3.1.3. Animal Experimentation Models
      - 10.6.3.1.4. Thiel Human Cadavers
    - 10.6.3.2. Laparoscopic Surgery Workshops
- 10.7. Bariatric Tourism
- 10.8. Quality Standards After Bariatric Surgery. What is the Current Evidence?
  - 10.8.1. In Relation to Weight Loss
  - 10.8.2. In Relation to the Resolution of Comorbidities in Revision Surgery
  - 10.8.3. Mortality and Morbidity in Bariatric Procedures Record of Complications
  - 10.8.4. How to Measure Quality of Life in Bariatric Patients? Measuring Systems
- 10.9. Aesthetic and Body Contouring Surgery
  - 10.9.1. Selection Criteria for Intervention of Morbid Obesity Sequelae Following Bariatric Surgery
  - 10.9.2. Plastic Surgery Techniques for the Intervention of Sequelae
    - 10.9.2.1. Upper Limbs Classification and Techniques
      - 10.9.2.1.1. Horizontal, L, T Brachioplasty
      - 10.9.2.1.2. Posterior Brachioplasty
    - 10.9.2.2. Posterior Brachioplasty
      - 10.9.2.2.1. Horizontal Lifting
      - 10.9.2.2.2. Vertical Lifting
      - 10.9.2.2.3. Complementary Techniques
    - 10.9.2.3. Abdomen Classification and Techniques
      - 10.9.2.3.1. Conventional/ Anchor Abdominoplasty with/ without Rectus Plication, with/ without Umbilical Transposition
      - 10.9.2.3.2. Upper/ Lower Body Lift
      - 10.9.2.3.3. Complementary Techniques: Liposuction
    - 10.9.2.4. Breast Classification and Techniques
      - 10.9.2.4.1. Breast Reduction
      - 10.9.2.4.2. Mastopexy with/without Prosthesis
  - 10.9.3. Intra / Postoperative Management
  - 10.9.4. Complications after Obesity Sequelae Surgery
- 10.10. Creation of Behavioral Therapy Programs for Maintaining Weight Loss after Surgery
  - 10.10.1. Introduction
  - 10.10.2. Psychological Aspects of Morbidly Obesity Postoperative Patients
  - 10.10.3. Phases in Postoperative Monitoring
  - 10.10.4. Areas to Evaluate in Postoperative Monitoring
  - 10.10.5. Individual Psychological Monitoring

07

# Clinical Internship

After the online learning phase, the specialist has the opportunity to carry out an on-site internship in a center of recognized prestige in the field of bariatric surgery. This internship is carried out over a period of 3 weeks, and will allow the professional to have access to real patients and perform various practical activities while being guided by physicians from the clinic itself.





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*After online learning you have the opportunity to consolidate your update through a clinical internship at a prestigious center of your choice”*

The internship period of this Bariatric Surgery updating program consists of a clinical stay in a prestigious center in this surgical field. The internship lasts 3 weeks, from Monday to Friday, with 8 consecutive hours of practical training with an assistant specialist. This internship will also allow the professional to meet patients who require this type of intervention, always with a team of specialists of reference in this area.

The student will actively participate by performing activities and procedures related to each area of competence (learning to learn and learning to do), with the support and guidance of the teachers and other classmates, facilitate teamwork and multidisciplinary integration as transversal competencies for the practice of Bariatric Surgery (learning to be and learning to relate to others).

The procedures described below will form the basis of the practical part of the training, and their implementation is subject to both the suitability of the patients and the availability of the center and its workload, with the proposed activities being as follows:



Module	Practical Activity
<b>Surgical Treatment of Obesity</b>	Support in the application of different endoscopic and percutaneous treatments: intragastric balloon (Oballon, ELIPSE), Endobarrier, endoscopic plication (Apollo), gastric electrical stimulation (gastric pacemaker), ASPIRE method, etc.
	Practice with surgical treatments of morbid obesity: adjustable gastric banding, Roux-en-Y gastric bypass, duodenal switch, Nissen-Sleeve, etc.
	Practice of other techniques: SAGIS/SASI, Intestinal Bipartition, Gastric Plication, etc.
<b>Perioperative Management</b>	Provide support in the collection and analysis of patient information to establish realistic goals and expectations
	Participate in the psychological assessment of the patient
	Practice in the perioperative nutritional management for patients under bariatric surgery
<b>Bariatric Surgery Patient Emergencies</b>	Perform emergency scans in patients with a history of Bariatric Surgery
	Analysis of complications of endoscopic procedures (intragastric balloon, POSE, Apollo)
	Practice fistula management after Bariatric Surgery
	Assessment of the Intestinal Obstruction of the Upper and Lower Digestive Tract (Bridles, Internal Hernias, Trocars, etc.) after Bariatric Surgery
	Participate in the analysis of acute digestive complications: marginal or anastomotic ulcer, stenosis, diarrhea, proctalgia, etc.
	Analysis in the management of bleeding after Bariatric Surgery (Upper GI Hemorrhage, Hemoperitoneum, etc.)
	Assessment of possible hepato-biliary complications secondary to post-surgical intestinal malabsorption Bacterial Overgrowth
Assess possible medical complications related to Bariatric Surgery (Dumping syndrome, reactive hypoglycemia, cardiopulmonary, renal)	

Module	Practical Activity
<b>Revision Surgery and Post-operative Monitoring</b>	Practice in different types of revision surgery: after adjustable gastric banding, after vertical gastrectomy, after duodenal switch, after SADI-S, etc.
	Participate in postoperative monitoring consultations and screening for nutritional deficiency
	Practice the postoperative supplementation to be prescribed and the nutritional recommendations
	Assess what type of treatment is assigned to the patient with complications (critical patient)
<b>Transplantation, Abdominal Wall and Special Situations in Bariatric Surgery</b>	Participate in postoperative assessment of specific complications: anemia, protein deficiency and neurological problems
	Participate and support in the treatment of special situations in Bariatric Surgery: solid organ transplantation and Bariatric Surgery, obesity and gastroesophageal reflux, pregnancy and Bariatric Surgery, effects of Bariatric Surgery on bone metabolism, etc.



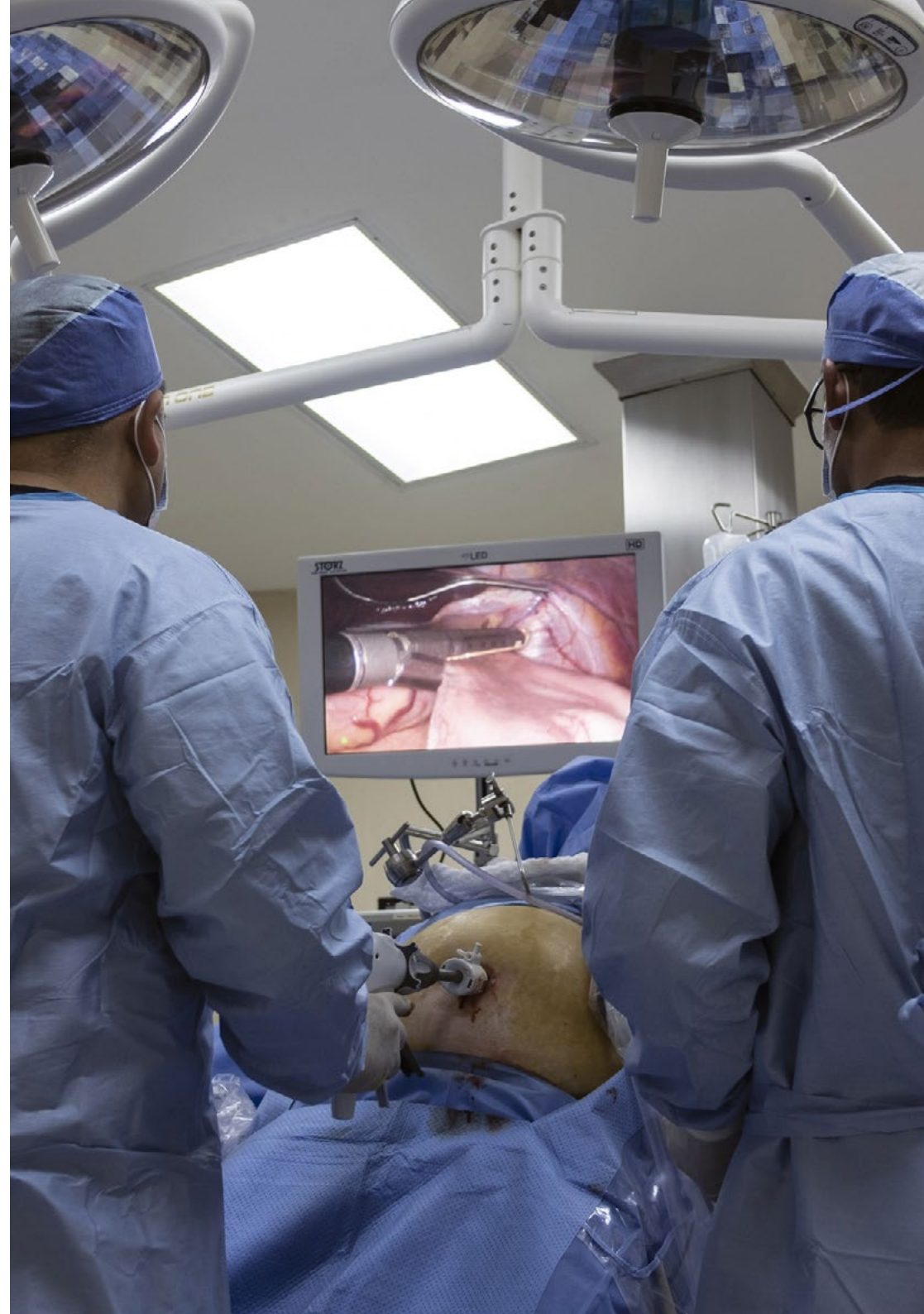
*The best syllabus to learn about the latest developments in the discipline is here"*

## 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.

To this end, this entity commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the course of the internship at the center.

This liability policy for interns will have broad coverage and will be taken out prior to the start of the practical training period. That way professionals will not have to worry in case of having to face an unexpected situation and will be covered until the end of the internship 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. TUTOR:** During the Hybrid Professional Master's Degree, students will be assigned with two tutors who will accompany them throughout the process, answering 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, they will also be assigned with an academic tutor whose mission will be to coordinate and help the students during the whole process, solving doubts and facilitating everything they may need. In this way, the student will be accompanied and will be able to discuss any doubts that may arise, both clinical and academic.

**2. DURATION:** The internship program will have a duration of three continuous weeks, in 8-hour days, 5 days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

**3. ABSENCE:** If the students does not show up on the start date of the Hybrid Professional Master's Degree, they will lose the right to it, without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

**4. CERTIFICATION:** Professionals who pass Hybrid Professional Master's Degree will receive a certificate accrediting their stay at the center.

**5. EMPLOYMENT RELATIONSHIP:** the Hybrid Professional Master's Degree shall not constitute an employment relationship of any kind.

**6. PRIOR EDUCATION:** Some centers may require a certificate of prior education for 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. DOES NOT INCLUDE:** 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?

TECH has been in charge of selecting the best centers so that the specialist can carry out high quality clinical practices, with the utmost medical and scientific rigor. Therefore, the professional will be able to complete their updating process in a practical, dynamic and active way, having access to state-of-the-art equipment, and with the guidance of the best experts of the center itself.






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*The best clinical centers are now at your disposal so that you can update your knowledge in a practical and direct way”*

## tech 60 | Where Can I Do the Clinical Internship?



The student will be able to complete the internship of this Hybrid Professional Master's Degree at the following centers:



Medicine.

### Hospital Fuensanta

Country	City
Spain	Madrid

Address: C. de Arturo Soria, 17, 28027 Madrid

Clinical center with medical services in multiple specialties

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**Related internship programs:**

- Nursing Management
- Nursing in the Digestive Tract Department





### Instituto de Obesidad (IOB)

Country	City
Spain	Madrid

Address: Calle Apolonio Morales 4 Bis,  
Esquina Menéndez Pidal, 28036 Madrid

Clinic specialized in surgical and counseling assistance to  
obese patients

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**Related internship programs:**

- Diet Therapy
- Update in Bariatric Surgery

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. Specialists learn better, faster, and more sustainably over time.

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



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



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

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

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



## Relearning Methodology

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

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

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



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

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

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

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

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



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



#### Study Material

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

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



#### Surgical Techniques and Procedures on Video

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



#### Interactive Summaries

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

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



#### Additional Reading

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





#### Expert-Led Case Studies and Case Analysis

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



#### Testing & Retesting

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



#### Classes

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



#### Quick Action Guides

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



# 10 Certificate

The Hybrid Professional Master's Degree in Update in Bariatric Surgery guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree diploma issued by TECH Technological University.



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

This **Hybrid Professional Master's Degree in Update in Bariatric Surgery** contains the most complete and up-to-date program on the professional and academic scene.

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 certificate, 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: **Hybrid Professional Master's Degree in Update in Bariatric Surgery**

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

Duration: **12 months**

Certificate: **TECH Technological University**

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



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



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



## Hybrid Professional Master's Degree

Update in Bariatric  
Surgery

Course Modality: Hybrid (Online + Clinical Internship)

Duration: 12 months

Certificate: TECH Technological University

Teaching Hours: 1,620 h.

# Hybrid Professional Master's Degree

## Update in Bariatric Surgery

