



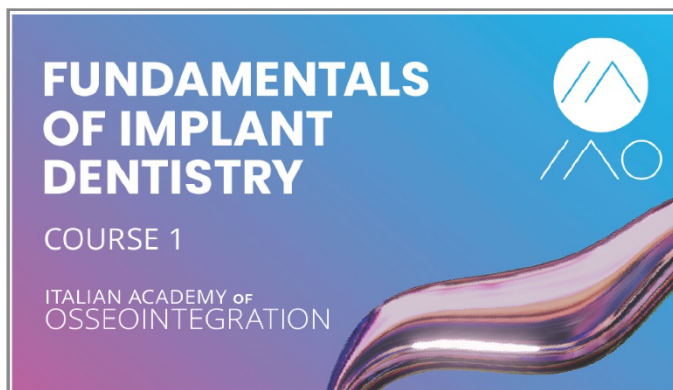
# FUNDAMENTALS OF IMPLANT DENTISTRY

COURSE 1

ITALIAN ACADEMY OF  
OSSEOINTEGRATION

# Fundamentals of implant dentistry

The essential guide of the principles of implantology that every clinician must master and apply in daily practice



## SUMMARY



### Topic:

The essential guide of the principles of implantology that every clinician must master and apply in daily practice



### Objectives:

Maintain healthy peri-implant tissues  
Understand biological principles and applying them to achieve excellent outcomes  
Evaluate the predictability of grafts and biomaterials  
Develop and execute successful implant treatment plans  
Develop and execute successful implant placement  
Achieve and measure primary stability in implant osseointegration  
Manage and optimize peri-implant soft tissue  
Preserve alveolar ridge post-extraction



### Why to enrol:

1- You manage both soft tissue management and regeneration of the infrabony defect in a single surgical moment.

2- You will fully understand the biological aspects behind regenerative therapy and know how to create new periodontal ligament, new connective attachment and new alveolar bone proper.

3- You will be able to stabilize the clot by grafting connective tissue, providing protection from trauma and bacteria.

## LEVELS

Difficulty Advanced

Theory ●●●●

Practice ●●●●●

## KEY INFO



English



On Demand



Implantology



17 video lectures with clinical clips

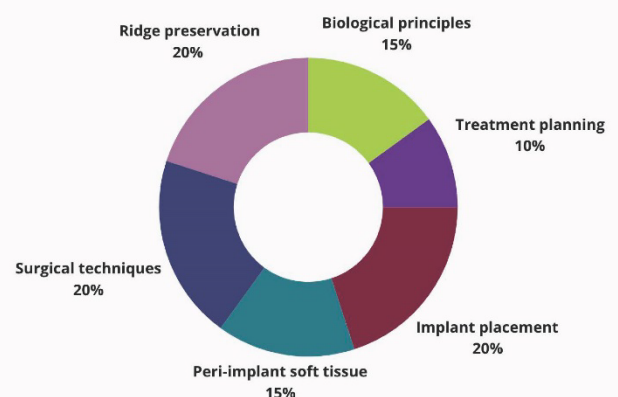


Clinical Yes



NO

## SKILLS YOU WILL LEARN





**Italian Academy of Osseointegration (IAO)**, the most important implantology society in Italy and recognized internationally, welcomes you to **“Fundamentals of Implantology”** a comprehensive course that provides a thorough educational experience featuring **a collection of fundamental principles of implantology**, that every clinician should internalize and apply in clinical practice.

This course has been fully dubbed in English and features lectures by internationally renowned experts in implantology.

By mastering the foundational **modern concepts**, practitioners are equipped to achieve exceptional outcomes and ensure **long-term success in implantology**.

Participants will gain a deep understanding of the **biological, anatomical, and microbiological principles** that underpin **successful implant placement and maintenance**, as well as the process of **osseointegration**, how it occurs and **how to ensure its optimal achievement**.

The course also explores **modern treatment planning and implant placement techniques**, ensuring that practitioners are well-equipped to achieve optimal outcomes.

Additionally, it addresses the importance of **primary stability** and offers systematic approaches to achieving it, along with comprehensive strategies for **managing peri-implant soft tissue** and **preserving alveolar volume in post-extraction sites**

**The following topics will be covered:**

- **Biological, anatomical, and microbiological bases** for implant placement
- Comparison of **treatment planning**
- Fundamental principles for **successful implant placement**
- Systematic approaches to achieve **primary stability**
- Management of **peri-implant soft tissue**
- Preservation of alveolar volume in **post-extraction sites**

**At the end of the course, you'll be able to:**

- Maintain **healthy peri-implant tissues**
- Understand microbiological principles related to implantology
- Evaluate the **predictability of grafts and biomaterials**
- Develop and execute successful implant treatment plans
- Achieve and measure **primary stability** in implant osseointegration
- Manage and optimize **peri-implant soft tissue**
- Preserve **alveolar ridge post-extraction** using various techniques

**Who is this course for?**

These modern principles that guide implantology must be considered by **implantologists at every level of experience**, as they provide an essential foundation for effective clinical practice and long-term treatment success.



## **MODULE 1 - Biological, Anatomical, and Microbiological Foundations of Implant Placement**

**This module covers the following topics:**

- Master the variety of implant systems and their impact on long-term therapeutic success.
- Understand main causes of **implant failure**
- Learn about the susceptibility of peri-implant tissue to **bacterial colonization** and the critical role of **plaque control**
- Emphasize the necessity of maintaining high levels of **oral hygiene**, both at home and professionally.
- Examine the **anatomical, biological, and microbiological bases** of the implant placement environment.
- Discuss the use of **bone grafts** to reconstruct missing volumes for implant insertion.
- Analyze the interaction of these factors with the implantation environment and their predictability.
- Discover the **latest technologies** and **clinical strategies** that promote oral health, especially in implant therapies.

## Video Lesson 1

### How to keep peri-implant tissue healthy

Dr Cristiano Tomasi, introduced by Dr. E. Bressan

**Description:** In this video lesson, Dr. Cristiano Tomasi emphasizes the critical importance of **maintaining healthy dental implants** by adhering to fundamental biological, anatomical, and microbiological principles.

This video lecture specifically focuses on **understanding biological processes**, the maturation of tissues, and the essential roles played by both soft and hard tissues in the healing process. Furthermore, it provides insights into defining the **health status of implants** through **histological and biological assessments**.

Dr. Tomasi further underscores the crucial role of healthy peri-implant tissues in preventing complications associated with implant procedures.

**In particular, this lesson covers the following topics:**

- **Histological and biological bases** for determining the healthy status of an implant.
- **Essential principles for maintaining implant health**
- The necessity of supporting **natural healing** and respecting biological processes
- Strategies to facilitate the healing of both soft and hard tissues
- Understanding **the role of sealings** in protecting implant sites
- Strategies to **prevent mucositis** around implants

## Video Lesson 2

### Microbiological principles: past & present

Dr. Olivia Marchisio, introduced by Dr. E. Bressan

**Description:** In this video lecture, **Dr. Olivia Marchisio** explores the evolving understanding of **biofilm formation** and its relationship with bacteria. She discusses how different surfaces, such as **titanium and zirconia**, influence biofilm formation. Dr. Marchisio highlights the adaptation of bacteria over time and how modern technologies enhance our understanding of combating periodontal disease. The lecture concludes with insights into how peri-implant hygiene affects the local composition of bacterial plaque.

**In particular, this lesson covers the following topics:**

- Evolution of the concept of biofilm formation and its relationship with bacteria
- Influence of **surface materials** (titanium and zirconia) on biofilm formation
- **Adaptation of bacteria** and the challenges in combating periodontal disease
- Importance of **peri-implant hygiene** in influencing local bacterial plaque composition

### Video Lesson 3

#### Predictability criteria for grafts and biomaterials

Dr. Danilo Di Stefano, introduced by Dr. E. Bressan

**Description:** In this video lecture, Dr. Danilo Di Stefano delves into the **predictability criteria for grafts and biomaterials**. He discusses where and how implants are placed, providing insights into **autologous and heterologous bone tissue** with scientific evidence and clinical considerations. The lecture emphasizes the interactions between various cells in the implant environment and bone tissue, highlighting the significance of selecting appropriate materials for successful outcomes.

**In particular, this lesson covers the following topics:**

- Criteria for **predictability of grafts and biomaterials**
- Clinical considerations for graft and biomaterial use
- **Implant placement:** considerations and best practices
- **Autologous vs. heterologous bone tissue:** insights and evidence
- Scientific evidence supporting material selection
- **Cells interactions** in the implant and bone tissue environment

## MODULE 2

### Treatment planning: comparison between high-profile clinicians

#### Video Lesson 4

##### Treatment planning: Dr. C. Ghezzi

Introduced by Dr. Giovanni Zucchelli

#### Video Lesson 5

##### Treatment planning: Dr. F. Mintrone

Introduced by Dr. Giovanni Zucchelli

## MODULE 3

### How to perform a correct implant placement

## **This module covers the following topics:**

- Importance of surgical approach for long-term implant success
- Respect for physiology and biological principles of **bone regeneration**
- Consideration of **materials and implant surfaces** in clinical approach
- Adoption of appropriate **surgical protocol based on bone type**
- Selection of optimal waiting time before prosthetic loading
- **Step-by-step explanation of surgical procedures**

## **Video Lesson 6**

### **Fundamental principles for successful implant placement**

Dr. Massimo Simion introduced by Dr. E. Bressan

**Description:** In this video lecture, Dr. Massimo Simion covers the **foundational principles** necessary for **implant placement**. He discusses **bone structure, bone cells**, and the process of **osseointegration**, providing a detailed explanation of each phase. The lecture also addresses the anatomical differences between natural teeth and implants, as well as the importance of **vascularization**. Emphasizing the biological processes that must be respected for successful implant placement, Dr. Simion offers a comprehensive guide to understanding and executing these procedures correctly.

### **In particular, this lesson covers the following topics:**

- **Foundational principles for implant placement**
- **Bone structure and bone cells**
- Detailed phases of **osseointegration**
- Anatomical differences between natural teeth and implants
- Importance of **vascularization**
- Biological processes essential for proper implant placement

## **Video Lesson 7**

### **Decision-making clinical criteria for a correct implant placement**

Dr. Tiziano Testori introduced by Dr. E. Bressan

**Description:** In this video lecture, led by Dr. Tiziano Testori, participants will delve into the nuances of **immediate and early loading implants**, clarifying definitions and clinical procedures associated with each approach. The lecture emphasizes the critical

decision-making process of when to perform immediate versus early loading, ensuring clarity on correct **site preparation** and **insertion torque** requirements. Dr. Testori will outline the primary objectives of treatment plans and strategies to achieve them through detailed clinical cases and illustrations.

**In particular, this lesson covers the following topics:**

- Definitions, clinical procedures and decision-making criteria for immediate and early loading implants
- Importance of **correct site preparation** for implant placement
- Understanding **insertion torque** and its significance in implant success
- Objectives of **treatment planning** and methodologies to achieve them, illustrated through clinical cases

## MODULE 4

### Primary Stability: Systematic approaches to plan and achieve success

**This module covers the following topics:**

- Exploring the **concept and importance of primary stability**
- **Effects of micromovements** on implant success
- **Mechanical and biological factors** influencing implant stability
- **Approaches based on bone type** for achieving primary stability
- Techniques to enhance primary stability and manage risks
- **Advanced protocols and the role of insertion torque**
- Monitoring and controlling elements for optimal implant outcomes
- Utilization of failure torque tests for effective stability assessment

## Video Lesson 8

### The primary stability in implant osseointegration

Dr. Claudio Stacchi introduced by Dr. M.Simion

**Description:** In this video lecture, Dr. Claudio Stacchi explores the critical role of primary stability in the successful osseointegration of dental implants. He delves into the **concept of primary stability**, the **impact of micromovements**, and the mechanical and biological factors that influence implant success. Dr. Stacchi also covers various approaches based on bone type, **the role of macrophages**, and

techniques to enhance primary stability while addressing potential risks such as surgical trauma and bone compression.

**In particular, this lesson covers the following topics:**

- Definition and importance of **primary stability**
- **Impact of micromovements** on osseointegration and why they can be detrimental
- **Different approaches for bone types I, II, and III**
- Biological effects: **the role of macrophages** M1 and M2 in the healing process
- **How to evaluate bone density**
- Features that improve primary stability of implants
- **Implant site preparation** techniques
- Risks associated with excessive undersizing
- **Controlling surgical trauma** and its risks
- The importance of respecting the nature of bone
- **Effects of bone compression** and ridge width on implant success
- Understanding and mitigating **early marginal bone loss**

## **Video Lesson 9**

### **Advanced Protocols and Clinical Key Factors for Implant Success**

Dr. Tiziano Testori introduced by Dr. M.Simion

**Description:** In this video lecture, Dr. Tiziano Testori discusses the critical factors for achieving clinical success in dental implantology. He provides an in-depth look at advanced protocols, the importance of primary stability, and the role of insertion torque. Dr. Testori explains how to monitor and control these elements to enhance implant outcomes and shares insights on performing failure torque tests to assess implant stability.

**In particular, this lesson covers the following topics:**

- Key clinical factors for implant success
- Advanced protocols in dental implantology
- Controlling primary stability for optimal outcomes
- The importance of insertion torque in implant placement
- Methods to monitor and measure insertion torque
- Techniques to enhance clinical success and minimize risks

## **Video Lesson 10**

## Systematic approach to achieve primary stability and to diagnose bone quality

Dr. Danilo Di Stefano

introduced by Dr. M.Simion

**Description:** In this video lecture, Dr. Di Stefano examines the essential aspects of primary stability and bone quality in implantology.

He emphasizes the significance of achieving the right torque and discusses the challenges of operator-dependence in clinical practice. Dr. Di Stefano introduces a **validated method for objective measurement of clinical parameters**, stressing the need for accurate, **operator-independent, and site-specific diagnosis of bone quality**.

Dr. Di Stefano explains the importance of implant micro-macro morphology and its behavior in various bone tissues, presenting an **objective parameter for dynamic stability measurement** that influences loading decisions. Additionally, he shares a study on **bone density measurement** and distribution in the maxilla, showcasing the creation of a topological density map.

**In particular, this lesson covers the following topics:**

- Primary stability and **bone quality** in dental implantology
- The importance of achieving the **right insertion torque**
- Challenges of operator-dependence in clinical practice
- Validated methods for objective measurement of clinical parameters
- **Objective, operator-independent, and site-specific diagnosis of bone quality**
- Importance of implant micro-macro morphology and behavior in bone tissue
- Definition and use of an **objective parameter for dynamic stability measurement**
- Influence of dynamic stability measurement on loading decisions
- Study on **bone density** measurement and distribution in the maxilla

## MODULE 5

### How to manage peri-implant soft tissue

**This module covers the following topics:**

- Importance of **peri-implant soft tissues** for health and aesthetics of implants

- Understanding the role of soft tissues around implant-prosthetic structures
- Definition and significance of "**keratinized tissue**" extending to the mucogingival junction
- Role of keratinized tissue in plaque control and aesthetic outcomes
- Definition and importance of "**supra-crestal soft tissue**" from mucosal margin to bone crest
- Impact of supra-crestal tissue thickness on aesthetic outcomes and implant structure transparency
- Facilitation of natural emergence profile and home hygiene control
- **Surgical procedures to increase keratinized tissue height and enhance supra-crestal tissue thickness**

## Video Lesson 11

### Peri-implant soft tissue from A to Z

Dr. Zucchelli Giovanni

introduced by Dr. P.Casentini

**Description:** In this video lecture, Dr. Giovanni Zucchelli provides a detailed exploration of soft tissue structural analysis as it relates to dental implants.

He defines **keratinized tissue** and **supra-crestal soft tissue**, emphasizing their roles in implant health and aesthetics. Dr. Zucchelli covers surgical techniques such as the **transmucosal path and mucosal tunneling** for managing soft tissues around implants. He also discusses methods to increase keratinized tissue and create supra-crestal soft tissue both before and after implant placement, offering comprehensive insights into enhancing peri-implant soft tissue quality.

**In particular, this lesson covers the following topics:**

- **Soft tissues structural analysis** for dental implants
- **Keratinized tissue and supra-crestal soft tissue**
- **Transmucosal path and mucosal tunnel**
- **Surgical techniques to increase keratinized tissue** before, during, and after implant placement
- **Surgical techniques to increase supra-crestal soft tissue** before, during, and after implant placement

## Video Lesson 12

### Surgical techniques for soft tissue augmentation around dental implants

Dr. Mario Gisotti introduced by Dr. P.Casentini

**Description:** In this comprehensive video lecture, Dr. Mario Gisotti delves into the critical aspects of timing and surgical techniques for soft tissue augmentation around dental implants. He explores the precise **timing considerations** for various surgical procedures aimed at enhancing peri-implant soft tissues, including **connective tissue grafting** and **palatal advanced flap techniques**. Professor Gisotti provides step-by-step guidance on executing these procedures effectively to achieve both functional and aesthetic goals in implant dentistry.

**In particular, this lesson covers the following topics:**

- Timing considerations for surgical techniques in peri-implant soft tissue augmentation
- How to perform **peri-implant gingival grafting**
- Execution of **palatal advanced flap techniques**
- Connective tissue grafting to increase supra-crestal soft tissue thickness for aesthetic purposes

### **Video Lesson 13**

#### **Optimizing peri-implant soft tissue with provisionals**

Dr. Diego Lops Introduced by Dr. P.Casentini

**Description:** In this video lecture, Dr Diego Lops provides valuable insights into the effective **conditioning of peri-implant soft tissue using provisional restorations** to achieve optimal aesthetic outcomes. He explains the crucial steps involved in **transferring information** about peri-implant soft tissue morphology **to dental laboratory technicians**. This ensures precise communication and collaboration between clinicians and technicians for the fabrication of final prostheses that harmonize seamlessly with natural soft tissue contours around implants.

**In particular, this lesson covers the following topics:**

- **Conditioning peri-implant soft tissue with provisional restorations** for optimal aesthetic results
- Techniques for **transferring information** on peri-implant soft tissue morphology **to dental laboratory technicians**

### **MODULE 6:**

#### **How to preserve alveolar volume in post-extraction sites: the biological basis**

## **This module covers the following topics:**

- Addressing the challenges in **preserving the alveolar ridge**
- Exploring **alveolar ridge preservation** and the **socket shield technique**.
- Understanding the **different biomaterials used**, their specific indications and contraindications.
- Discussing the **wide range of options and variables in treatment choices**.
- Comparing **established treatment protocols** and long-term follow-up plans with **newer surgical solutions**.
- The need for **long-term validation** and **scientific demonstration** of newer surgical techniques.

### **Video Lesson 14:**

#### **Microbiological aspects and healing process in post-extraction sites**

Dr. Cristiano Tomasi introduced by Dr. M. Simion

**Description:** In this insightful video lecture, Cristiano Tomasi explores the **microbiological aspects and healing mechanisms** involved in **post-extraction sites**. He delves into the temporal sequence and phases of healing, emphasizing the critical importance of clot stability and its protection during the healing process. Dr. Tomasi discusses the **strategic use of grafting materials** and outlines when and how they should be applied. Additionally, he covers methods for evaluating the vestibular bone wall to optimize treatment outcomes.

#### **In particular, this lesson covers the following topics:**

- Microbiological aspects in post-extraction site healing
- **Temporal sequence and phases of healing**
- Importance of **clot stability** and protection
- **Timing and application of grafting materials**
- Evaluation of the **vestibular bone wall**

### **Video Lesson 15:**

#### **Which materials for ridge preservation? Biology, anatomy and much more**

Dr. Danilo Di Stefano introduced by Dr. M. Simion

**Description:** In this video lecture, Dr. Di Stefano provides a comprehensive **overview of bone substitutes** used in clinical settings. He explores various types such as autologous and heterologous bone, PRGF, mixtures of heterologous and autologous

bone, collagenated bone, collagen membrane, and collagen 3D matrix. Dr Di Stefano discusses the histological differences between these biomaterials and the effects of collagen in bone regeneration. He also covers xenografts, their classifications, components of bone tissue, and **how these materials interact with physiological processes during the healing phases**.

**In particular, this lesson covers the following topics:**

- **Characteristics of bone substitutes** in clinical practice
- Autologous bone, PRGF, mixtures of heterologous and autologous bone, collagenated bone, collagen membrane, collagen 3D matrix
- Histological differences among biomaterials
- **Effects of collagen** in bone regeneration
- **Xenografts:** differences and classifications
- **Components of bone tissue**
- Interaction of materials with physiological processes
- **Healing processes** in bone regeneration

#### **Video Lesson 16:**

##### **Alveolar Ridge Preservation**

Dr. Daniele Cardaropoli introduced by Dr. M. Simion

**Description:** In this video lecture, Dr. Daniele Cardaropoli provides detailed insights into **alveolar ridge preservation techniques** aimed at maintaining alveolar bone volume following tooth extraction.

He emphasizes the importance of preserving the ridge's structural integrity and discusses various clinical procedures and terminology associated with ridge regeneration.

Dr. Cardaropoli covers the **clinical classification of post-extraction sites** (types I, II, III, and IV) and highlights the significance of alveolar ridge preservation in achieving optimal outcomes for subsequent implant placement.

**In particular, this lesson covers the following topics:**

- **Alveolar ridge preservation techniques**
- Procedures for **maintaining alveolar bone volume** post-extraction
- Analysis of ridge regeneration procedures
- **Correct terminology and concepts** in alveolar ridge preservation
- **Clinical classification of post-extraction sites** (types I, II, III, and IV)

## Video Lesson 17:

### Socket Shield Technique: biological foundations and practical implementation"

Dr. Alberto Pispero introduced by Dr. M. Simion

**Description:** In this video lecture, Dr. Alberto Pispero explores the **socket shield technique**, a method aimed at preserving the hard and soft tissue volumes around extracted teeth, ensuring optimal conditions for subsequent implant placement within a rehabilitation plan.

Dr. Pispero delves into the **biological rationale** and **essential principles underlying tissue healing in socket preservation**, providing a comprehensive overview of when, why, and how to perform this technique.

**In particular, this lesson covers the following topics:**

- **Biological principles** essential to tissue healing in socket preservation
- Rationale and minimum common denominator for preserving post-extraction sites
- **Step by step protocols** for implementing the socket shield technique
- Ensuring **preservation of both soft and hard tissue** integrity



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