Veritas filia temporis
Truth is the daughter of time

Aulus Gellius (AD 125-66)
Acknowledgements

Ugo Pasqualini and Silvana Castaldi had a great deal in common: love and respect for a job well done, a thirst for knowledge open to innovation and research, and a sensitive and generous willingness to help their neighbors.

Fully reflecting the values by which she lived and completely attuned to her husband's desires, she made a significant bequest to a nursing home set in the heart of the Tesino mountain area, the beloved birthplace of the Pasqualini family: the Suor Agnese Nursing Home in Castello Tesino.

For this reason, on behalf of this nursing home, I would like to take this opportunity to thank Silvana in this book, which was written with the invaluable collaboration of Dr. Marco E. Pasqualini, who has continued the great scientific work of the late Prof. Ugo Pasqualini.

Atty. Antonio Giacomelli
President of the Suor Agnese Nursing Home
in Castello Tesino (TN)

First of all, I would like to thank Tatiana Turceninoff for her ongoing support when I was writing this work. Her advice has been invaluable.

I would like to thank my colleagues Andrea Bianchi, Amedeo Bobbio, Giancarlo Cortese, Leonard Linkow, Francesco Sanfilippo, Alvin Strock and Davide Zaffe for their enthusiasm and generosity in allowing me to use their photographic documentation.

My profound appreciation also goes to Pietro and Giuseppe Ferrante for their bibliographical research, which is fundamental to the list of recommended readings.

I am also grateful to Carlo and Alessandro Piacquadio of Fotoscientifica of Turin for their photographic assistance.

To my wife Laura: all my love for her unflagging moral support. Lastly, I would like to thank my entire office staff for their patience, all my friends in Milan and Castello Tesino (Trento), and all the collaborators who never stopped believing in this project.

Marco E. Pasqualini
TREATISE OF IMPLANT DENTISTRY
THE ITALIAN TRIBUTE TO MODERN IMPLANTOLOGY
Introduction

The huge commercial promotion of dental implants for the sole benefit of the companies that market them is discrediting other implant techniques that are often just as valid and certainly less invasive. Taking an honest approach and with due scientific rigor, we will clarify that there are thousands of implants - screws, blades, soldered needles, posts and composites, types with fixed or screwable abutments, and single-tooth, multiple and mixed types - that work as perfectly osseointegrated prosthetic abutments, without any resorption and recession of the surrounding tissues, and that have been around far longer than those currently being presented as innovations.

This book has been written to do justice to all those who contributed to the evolution of implant dentistry, from its origins to the present day. For every technique, we will provide useful information, also offering opinions, reservations and recommendations.

We will begin with the history of the first implant attempts, reporting it - where possible - with the same words and enthusiasm of the authors who followed one another in this long journey toward progress.

We will continue with detailed and analytical descriptions of all modern implant techniques, examining the causes of their success or failure from a comprehensive standpoint. We will also emphasize that those who are about to rehabilitate an edentulous region should have a full understanding of the underlying causes that led to the condition in the first place, since this is the only way to avoid repeating the same mistakes, which will endanger the ultimate success of the procedures. We are referring mainly to causes related to alteration of static or dynamic occlusion, pointing out that implantation is only the first stage of rehabilitation, which will be completed by prosthetic functionalization of the implants.

The fundamental importance of these concepts for the long life of the implants inspired the previous volume, Le patologie occlusali. Eziopathogenesi e terapia, which we consider an essential premise to this book. We would like conclude by expressing our gratitude to the Dental Clinic of the University of Modena (now the University of Modena and Reggio Emilia), which has supported our views for many years during this long, difficult but always exciting journey, undertaken together with many other colleagues, known and unknown, to find the answer to an age-old problem, one we hope has finally been solved once and for all.
The authors

DR. PROF. UGO PASQUALINI (1922-98)

He attended the University of Modena and graduated with a degree in medicine on July 27, 1948. He subsequently specialized in dentistry at the Zahn- und Kieferklinik of the University of Innsbruck, headed by Prof. K. Haüpl. For 25 years he was a non-tenured professor, teaching clinical maxillofacial prosthodontics at the Specialization School of Dentistry of the Dental Institute of the University of Modena (1966-91). From 1952 to 1955 he was the scientific director of the journal Odontes. In June 1957 he was appointed member of the Board of Directors of the Research Commission on Psychosomatic Stomatology established at the Dental Institute of the University of Pavia, directed by Prof. Silvio Palazzi. In 1962 he won the top “Campione d’Italia” prize for the best scientific report presented at the International Italo-Swiss Dental Congress. From 1970 to 1985 he was member of the Board of Directors of ANIO (Associazione Nazionale Implantoprotesi Orale), which was chaired by Prof. Oscar Hoffer, director of the Dental Institute of the University of Milan. He served as the cultural secretary of the Milan branch of AMDI (Italian Dental Association) from 1975 to 1978. He was a board member of the GISI (Italian Implant Study Group), which was chaired by Prof. Giordano Muratori from 1970 to 1996. He then served as president of SOMECOI (Società Medico Chirurgica di Odontoiatria Implantoprotesica) from 1983 to 1998. The author of 71 scientific articles, he also wrote Le patologie occlusali. Eziopatogenesi e terapia, which was published by Masson in 1993. A renowned researcher and lecturer, he spoke at the most prestigious international scientific implantology congresses and presented histological works on blades at the Royal Society of Medicine of London. He taught theoretical and hands-on courses in implant dentistry at the University of Zurich, directed by Prof. Hugo Obwegeser. These courses were also presented at the most prestigious American, German, and Spanish venues. He also taught postgraduate courses on implantology, gnathology, prosthodontics, and periodontal surgery. He filed several patents on different implant morphologies and prosthetic-implant connections. Prof. Pasqualini also had a private practice in Milan until 1998. He was a courageous scientist who anticipated the current trend of implant dentistry, ranging from two-step implants to immediate-load implants, and his sole focus was scientific progress. Thanks to his research, the principle of reparative osteogenesis (osseointegration) has become a scientific priority.
He attended the University of Milan, graduating with a degree in medicine, and then earned a postgraduate degree cum laude in dentistry at the University of Modena. He was non-tenured professor of clinical maxillofacial prosthetics at the School of Dentistry, which is part of the Department of Medicine at the University of Modena (academic year 1991–92). He held a non-tenured position with the Department of Medicine at the University of Bari, teaching “The role of plate-form implants in oral rehabilitation” as part of the course-work on oral diseases for the undergraduate program in dental hygiene (academic year 2001–02). He was also a non-tenured professor at the Department of Dental Sciences of the School of Medicine at the Gabriele d’Annunzio University of Chieti for the postgraduate course on clinical implantology and biomaterials (academic year 2004–05) and the theoretical-practical refresher course on electrowelded implantology (academic year 2005–06), both of which directed by Stefano Fanali, professor of dentistry. He has authored and coauthored 32 articles that have been published in national and international scientific journals, and has a personal photographic archive about dentistry composed of more than 20,000 slides. He worked with his uncle, Ugo Pasqualini, for 20 years in both daily practice and research work, and shares his scientific principles, outlined in the book Le patologie occlusali. Eziopatogenesi e terapia. He was vice president of AISI (Italian Academy of Implant Stomatology), and is a GISI (Italian Implant Study Group) fellow and a charter member of COM (Cenacolo Odontostomatologico Milanese). He was member of the board of directors of GISIGM (Giordano Muratori Italian Implant Study Group), directed by Prof. Francesco Mangini of the University of Bari. He has been president of the SOMECOI (Società Medico Chirurgica di Odontoiatria Implantoprotesica) since 1999 and is a charter member of AIIP (Academia Internacional de Implantologia y Periodoncia). He is an active member of ICOI (International Congress of Oral Implantologists) and SEI (Sociedad Española de Implantes) and serves as editorial advisor for the scientific journal Doctor Os as well as reviewer for the Journal of Osseointegration, published by Ariesdue (Carimate [Como], Italy). A national and international lecturer, he has taught postgraduate courses for updates on implantology and occlusions. Dr. Pasqualini has a private practice in Milan.
Collaborators

- **DR. PROF. ALBERTO CIANI** Surgeon specialized in odontostomatology and specialist in forensic and insurance medicine, non-tenured professor at the Dental Institute of the University of Milan. Private practice in Bergamo.

- **DR. DOMENICO COLOMBO** Surgeon specializing in dentistry. AISI (Italian Academy of Implant Stomatology) expert in traditional implantology. Private practice in Como.

- **DR. LUCA DAL CARLO** Dentist, AISI head of relations with universities and foreign societies. Private practice in Venice.

- **DR. PAOLO MEZZANOTTE** Surgeon specializing in radiology, non-tenured professor of dental radiology at the Vita-Salute San Raffaele University of Milan. Founder and director of the M.P. Center of Dental Radiology of Milan.

- **DR. PIERANGELO MANENTI** Surgeon specializing in odontostomatology, executive of the AISI (Italian Academy of Implant Stomatology) board, expert in traditional implantology. Private practice in Bergamo.

- **DR. PIER MARIA MONDANI** Surgeon specializing in odontostomatology, non-tenured professor of endodontics and pediatric endodontics for the dentistry degree program and the dental hygiene undergraduate program at the University of Genoa. Private practice in Genoa.

- **DR. FRANCO ROSSI** Surgeon specializing in anesthesiology and intensive care, and dentistry. Health Ministry expert for the CME (Continuing Medical Education) program; President of the AISI Scientific Commission. Private practice in Busto Arsizio (Varese).

- **DR. SILVANO U. TRAMONTE** Surgeon specializing in odontostomatology, professor of the refresher course on electrowelded implantology at the Department of Dental Sciences, Gabriele d'Annunzio University of Chieti. Vice President of IAFIL (International Academy of Immediate Loading). Private practice in Milan.

- **DR. PROF. PAOLO ZAMPETTI** Oral surgeon specializing in general surgery and medical hydrology. Non-tenured professor of history for the degree program in dentistry at the University of Pavia, and the undergraduate program in dental hygiene at the University of Eastern Piedmont (Novara). Private practice in Pavia and Saronno.
Forewords

Prof. Leonard I. Linkow
World-renowned pioneer of implant dentistry

I have given up the surgical phases of implantology after fifty years of practice. Many of those years were not easy for me especially with the envious minds of the mediocre dentists that would rather spend a good part of their empty minds trying to destroy the great strides of those few brave and brilliant colleagues that moved dentistry forward rather than treat their own patients to the best of their abilities. During those many years of pioneering the field of implant dentistry there were only but a few true pioneers that I had respect for. Professor Ugo Pasqualini, by far, was the truest and greatest pioneer of them all. He, and only he, was the true discoverer of osseointegration. Unfortunately, unlike some others he did not have the large sums of money to promote his important findings. He also was a very humble human being and even if he did had the marketing availability, he wouldn’t have used it to promote himself. In 1970, in one of my books titled, “Theories and Techniques of Oral Implantology” by CV Mosby Co., St. Louis (MO), I had displayed some of his magnificent works on osseointegration. Professor Ugo Pasqualini also published a magnificent book on Implantology and Prosthetic Dentistry. As far as his nephew, Marco Pasqualini, who continued with the practice after Ugo passed on, I can only say that he has become a very dear friend of mine. I have listened to his many exhilarating and dynamic lectures, have seen his clinical cases and without any doubts on my part he is and will continue to be a shining light in the field of implant dentistry.

Prof. Cesare Brusotti
Professor of Dental Surgery at the University of Pavia

Few dental disciplines have experienced the dramatic evolution that characterized implant dentistry from its debut until today. To date, however, no author has ever emphasized the key role played by Italian professionals in the development of this important subject. It is with great pleasure that, along with many distinguished colleagues, I present this work, which was missing on the Italian publishing scene, and I am even more delighted to do so given my long friendship with Marco Pasqualini. The text reflects the passion that the authors have always brought to their work, and I would like to take this opportunity to underscore the affection and esteem I have always had for them over all the years we spent together facing thousands of battles at various congresses and conferences. We did not always agree, but our differences of opinion were never transformed into controversy, and we have always been bound by profound friendship. Lastly, I would like to congratulate Paolo Zampetti, non-tenured professor at the University of Pavia, for his fundamental contribution to the historical reconstruction of the evolution of implant dentistry, a subject that has never been fully investigated but is one that allows us to understand how the current clinical results have been achieved. Therefore, I hope that the authors will receive the credit they deserve for their expertise and enormous efforts in writing this book.
Forewords

Dr. Pierluigi Floris
President AISI (Italian Academy of Implant Stomatology)

I am both excited and thrilled to write this brief introduction to the implant dentistry book written by my long-time friend Marco Pasqualini. We first met in Bologna at the GISI (Italian Implant Study Group) directed by Prof. Giordano Muratori, where we would see each other biannually for two of the most prestigious congresses in the world, along with many other talented Italians and foreign implantologists, and our unforgettable teachers. Marco had a special mentor, the late Prof. Ugo Pasqualini, who was not only his uncle, but also his professional advisor on a day-to-day basis. When he told me about this book, my first thought was that there was no one better suited than he for a comprehensive examination of implant dentistry, not only because he had nearly 30 years of knowledge and practice, but above all because he did not limit himself to probing a single technique. He is knowledgeable in different methods and a great expert in immediate-load implant dentistry, and for years he has followed the evolution of this wonderful branch of dentistry. We have discussed divergent scientific opinions, bitterly in some cases, but always fairly. This is why I consider him the champion of great battles and scientific opinions that went “against the tide” for decades, and that today are enormously topical. This book represents expertise, professional maturity, a review of implant dentistry, and a guide for the new generations, but above all it offers those who have passionately practiced this marvelous discipline for years the opportunity to rethink things. My teacher always said, “Learn to be patient, time is a gentleman.” And time has proven him right.

Prof. Enrico Cislaghi
Director of the Dental Department of the National Cancer Institute, IRCCS Foundation, Milan

When my dear friend and colleague Marco Pasqualini asked me for honest comments on this difficult and complex scientific effort, I suspected that he had turned to me not only as a friend, but also as an “old” implantologist. I have always been an implantologist a latere and, in effect, I have not only dealt with this topic but my friendship with almost all the “pure” implantologists has allowed me to learn a great deal and sometimes even offer criticism. This is a comprehensive book that can be defined as historical-scientific, and it is one that must therefore be read, consulted and followed. Nearly half a century after the true advent of implantology, nearly all of us - young and old alike - still need to learn, discuss and analyze, in order to improve and shed light on the confusion created by numerous commercial intrusions. Materials and techniques have been very useful - they are crucial in our profession - and scientific and commercial research cannot be ignored. This is another aim of a work as comprehensive and passionate as this one. We should thus be grateful to Marco Pasqualini, who with his abiding enthusiasm has masterfully pieced together the history and purposes of oral implantology. I must thus join the chorus of praise offered by my distinguished colleagues and continue to insist that, even today, there is a great need to teach the practical evolution of implant techniques, overcoming differences that have created nothing but confusion and uncertainty. In the wake of such unexpected enthusiasm, many critics have changed their stance. Even periodontologists who, for years, were the most tenacious opponents of implant dentistry have now turned into implantologists, hopefully in a positive way. Once again, I wish this groundbreaking book every success.

Dr. Pierluigi Floris
President AISI (Italian Academy of Implant Stomatology)
Dr. Dino Garbaccio
Pioneer of immediate-load implant dentistry and the inventor of bicorticalism

I am immensely pleased to present this work by my dear friend Marco Pasqualini. Marco was one of my first students, a pupil who understood and embraced everything he considered valid. I have followed his career for the past 25 years and can say that his scientific knowledge has always become more profound and continues to grow. Marco is one of the few links between past and present and, growing up beside his distinguished uncle, Ugo Pasqualini, he was also able to exploit his mentor’s vast scientific knowledge, assimilating and learning from it. Marco witnessed the evolution of Italian implant dentistry. He met every pioneer, was able to grasp the best of each one, and can now convey his knowledge to his pupils. With this work he aims to illustrate - to those who were not there or did not want to be there, in Italy and abroad - the state of the art of the Italian school of implant dentistry. Lastly, I hope Marco will continue the journey that we old implantologists first undertook many years.

Prof. Hans Grafelmann
Honorary President of DGZI (Deutsche Gesellschaft für Zahnärztliche Implantologie)

The evolution of European oral implant dentistry started in the early 1960s, when a few brave pioneers placed implants on their patients, raising hostility in academic circles. Prof. Ugo Pasqualini, from Milan, was one of them. His research led to the development of revolutionary techniques, along with the success that brought him fame in his own country and Germany. It was fortunate that he was able to introduce his young nephew, Marco Pasqualini, to this specialized field, assisting him in the treatment of many implant cases and then allowing him to take over his private practice, which he runs with the same high professional standards. Marco Pasqualini has also been active in academia and, as an author, he stimulated the interest of many students in implant dentistry, ideally carrying on his uncle’s work. The Garbaccio bicortical screw, modified by me, and the blade implants that Linkow and I introduced in Europe, evolved in Italy and Germany, and new implant placement techniques were developed. For example, the polymorphic blade can be adapted to different anatomic conditions and has allowed many dentists to treat borderline cases. Marco Pasqualini has also developed prosthetic techniques that yield excellent cosmetic results. Thanks to Pasqualini and a group of Italian implantologists— including Bertolini, Ciuffini, Colombo, Garbaccio, Hoffer, Lo Bello, Mondani, Muratori, Pierazzini, Tramonte and others— Italy, France and Germany are considered the cradle of European oral implant dentistry. It is crucial that young colleagues carry on this work and develop new methods, contributing to solving problems related to bone augmentation (with or without membranes), sinus lift procedures, the use of laser, and so on, and research into implant surfaces in order to shorten ossification time. I wish Marco the best of luck and great success on both a professional and personal level. I would like to praise both men— uncle and nephew— on behalf of the world of implant dentistry for the results they have achieved in our field.
Talking about implant dentistry today means talking about a dental field that is technologically advanced and absolutely on the cutting edge. There is no congress, course or symposium that fails to discuss its many aspects, not to mention the multitude of events that it can produce every year. There is no doubt that its advent in the dental field completely changed assumptions, and it is precisely this aspect of modernity that I would like to emphasize.

It is a great honor for me to write a few lines for this book, as this allows me once more, but certainly not for the last time, to remind everyone that we owe this implant dentistry to Ugo Pasqualini and Stefano Tramonte, the pioneering masters of the past who contributed to its growth in Italy and Spain.

Dr. Doña Araceli Morales Sánchez
President SEI (Sociedad Española de Implantes)
They laid the foundations for all we know and apply in our profession today. Marco Pasqualini and Silvano Tramonte are well aware of this and it may well be that genetics deeply influenced them: They are respectively Ugo's nephew and Stefano's son, but they have unquestionably demonstrated that they can fully live up to the legacy of their forebears. Both men boast an impeccable scientific background, but they also have extraordinary human qualities. I hope these words will suffice as a tribute to everything I have learned from them, everything our predecessors have taught us, and this book, which is much more than a treatise on implant dentistry. Indeed, it is a book full of life and history.

In 1961, Ugo Pasqualini (a university assistant at our dental clinic at the time) completed the studies that provided extraordinary proof of the biocompatibility of his “two-step” cylinders, kept in a quiescent state during the reparative osteogenic period and fitted with an external prosthetic abutment only later. The trial, which required four years of work, was awarded the top “Campione D’Italia 1962” prize and was published in the official journal of the Italian Dental Association. This work elevated implant dentistry to the level of medical science. Therefore, I was honored to write the preface to this book, which confirms once again his value and scientific integrity, and reminds me of the many battles we fought together.
# Table of contents

## INTRODUCTION

## THE AUTHORS

## COLLABORATORS

## FOREWORDS

Prof. Leonard Linkow  
Prof. Cesare Brusotti  
Prof. Enrico Cislaghi  
Dr. Pier Luigi Floris  
Dr. Dino Garbaccio  
Prof. Hans Grafelmann  
Dr. Doña Araceli Morales Sánchez  
Prof. Benito Vernole

## CHAPTER I

**THE HISTORY OF IMPLANTOLOGY**  
in collaboration with prof. Paolo Zampetti

- The Classical Age  
- The Middle Ages  
- The Renaissance  
- The 1700s  
- The 1800s  
- The 1900s  
- References

## CHAPTER II

**ANIMAL TESTING**  
Ugo Pasqualini

- The four issues addressed by research on endosseous implants  
- Study on biocompatibility of the materials  
- The retention of endosseous inclusions  
- Communication with the external environment  
- References
# Table of contents

## CHAPTER III

- **THE EVOLUTION OF ENDOSSEOUS IMPLANTS IN THE 1960s**
  - Muratori modified and transformed Formiggini's spiral
  - Linkow's Vent-Plant
  - References
  - 64
  - 65
  - 67
  - 69

## CHAPTER IV

- **Part I**  
  - **THE IMPLANTS OF THE ‘60s**
    - Jacques Scialom's needle implants
    - References
    - 70
    - 70
    - 75
  - **Part II**  
    - Stefano Tramonte's Drive Screw
      - in collaboration with dr. Silvano Tramonte
      - References
      - 76
      - 84
  - **Part III**  
    - Comparative histology of the neck area of a natural tooth and three Tramonte screws
      - in collaboration with dr. Silvano Tramonte
      - References
      - 85
      - 93

## CHAPTER V

- **THE BLADE IMPLANT**
  - Linkow's blade implants
  - References
  - 95
  - 95
  - 97

## CHAPTER VI

- **MODIFICATIONS TO THE LINKOW BLADE IMPLANT**
  - Giordano Muratori's universal blade
  - Ugo Pasqualini's polymorphic blade implant
  - Other modifications of Linkow's blade
  - References
  - 99
  - 99
  - 100
  - 101
  - 104

## CHAPTER VII

- **THE LONG JOURNEY TOWARD POSTLESS BLADES**  
  - Ugo Pasqualini
  - Implants and health conditions
  - Reasons for the success or failure of the Linkow blade implant
  - The causes for failures of unknown etiology
  - References
  - 105
  - 105
  - 107
  - 110
  - 113

## CHAPTER VIII

- **THE POLYMORPHIC TWO-STEP BLADE IMPLANTS**
  - The anatomopathological and histological behavior of the integrating tissue of blade implants with screwable abutments
  - The improvements to the polymorphic blades with “screwable abutment”
  - References
  - 114
  - 115
  - 118
The static superiority of polymorphic blades with screwable abutments 121
The biomechanical principle of the mini-blades in thin ridges 127
References 127

<table>
<thead>
<tr>
<th>CHAPTER IX</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THE MONDANI INTRAORAL SOLDER</strong> in collaboration with dr. Piermaria Mondani 129</td>
</tr>
<tr>
<td>References 133</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHAPTER X</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OSSEOINTEGRATION OR “INTEGRATING BONY ANKYLOSIS”</strong> in collaboration with dr. Pierangelo Manenti 135</td>
</tr>
<tr>
<td>“Bony ankylosis” of emerging needles 136</td>
</tr>
<tr>
<td>References 140</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHAPTER XI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THE QUICK SCREWS</strong> in collaboration with dr. Franco Rossi and dr. Domenico Colombo 141</td>
</tr>
<tr>
<td>The MUM mini-implants 144</td>
</tr>
<tr>
<td>Deep balancing of the implant 148</td>
</tr>
<tr>
<td>References 156</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHAPTER XII</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THE GARBACCIO BICORTICAL SCREWS</strong> in collaboration with dr. Luca Dal Carlo 158</td>
</tr>
<tr>
<td>Bicortical stabilization 159</td>
</tr>
<tr>
<td>The histological behavior of the tissues integrating the Garbaccio screws 160</td>
</tr>
<tr>
<td>Practical application of the Garbaccio screw 162</td>
</tr>
<tr>
<td>Speed of application 163</td>
</tr>
<tr>
<td>References 165</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHAPTER XIII</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IMMEDIATE FIXED TEMPORARY PROSTHESES AND DEFINITIVE PROSTHESES ON IMPLANTS</strong> 168</td>
</tr>
<tr>
<td>Implant-anchored definitive prostheses 177</td>
</tr>
<tr>
<td>Impression taking with implant abutments 177</td>
</tr>
<tr>
<td>Complete fixed prostheses on implants in place of dentures 179</td>
</tr>
<tr>
<td>Implant-anchored removable dentures 180</td>
</tr>
<tr>
<td>References 183</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHAPTER XIV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OPERATING PROTOCOL FOR THE IMMEDIATE-LOAD IMPLANTOLOGY OF THE ITALIAN SCHOOL</strong> in collaboration with dr. Silvano Tramonte 184</td>
</tr>
<tr>
<td>First or preoperative phase 185</td>
</tr>
<tr>
<td>Second or surgical phase 189</td>
</tr>
<tr>
<td>Third or postoperative phase 191</td>
</tr>
<tr>
<td>References 195</td>
</tr>
</tbody>
</table>
# Table of contents

## CHAPTER XV

- **PRE-IMPLANT RADIOLOGY** in collaboration with dr. Paolo Mezzanotte  
  - Radiological protocol  
  - The (already present) future  
  - Suggested readings  
  
  198  
  200  
  205  
  207

## CONCLUSIONS

  210

## SUGGESTED READINGS

- **Needle implantology**  
  - Blade implantology  
  - One-step screw implantology  

  211  
  212  
  222

## SUBJECT INDEX

  227

## SCIENTIFIC ASSOCIATIONS OF REFERENCE

  232