In addition, a preview of the new technique of implant site preparation using ultrasound is presented. An exclusive illustration and summary of the surgical protocol is provided and not the underlying scientific and clinical research.

The reader is referred to the soon-to-be-published book "The Piezoelectric Bone Surgery: A New Paradigm" (written by Tomaso Vercellotti MD, DDS, and published by Quintessence) for insight on each scientific, technological and clinical aspect of piezoelectric bone surgery and for details on the surgical protocol of each technique and for how to use the surgical instruments correctly.

This book, Essentials in Piezosurgery - Clinical Advantages of the Use of Ultrasonic Bone Cutting Technology in Dentistry, should not be considered sufficient for correct clinical application of the techniques outlined.

Neither the author nor the other parties involved use this to make a statement or issue a guarantee on the completeness of the content published and they decline all liability for any damages (including, without limitation, direct, indirect, consequential or incidental damages or loss in profits) incurred as a result of using the information contained in the book Essentials in Piezosurgery. The information contained herein is not sufficient to acquire the theoretical and/or surgical skills necessary for correct and effective use of Mectron-Piezosurgery® technology.

The information contained in this book cannot in any way be considered as a replacement for individual assessment by the doctor, and using the technology described when treating patients is under the sole responsibility of the doctor.

Any mention or reference to a particular product, method, technique or material related to those products, methods or techniques in Essentials in Piezosurgery does not constitute advice on the matter or endorsement of the values, characteristics or statements put forth by the respective manufacturers. All rights reserved. In particular, the information published in Essentials in Piezosurgery is protected by Copyright. Any reproduction, whether partial or total, without prior written authorization from the author is strictly prohibited. The information contained in the material published may be protected by additional intellectual property rights. This information must not be used for any reason without prior written consent from the holder of those intellectual property rights.

Any names referring to products and manufacturers within this publication may be registered trademarks regardless of whether there is explicit mention therein. Therefore, the presence of a name that is not identified as private property does not intend to provide any guarantee whatsoever by the author on the fact that it is in the public domain.
It provides the reader an opportunity to visualize a variety of applications and serves as a surgical guide that can be immediately implemented for patient care. It is particularly valuable for procedures that enhance localized edentulous ridges for the purpose of placing dental implants. A distinct value is recognized when performing an osteotomy to lift the maxillary sinus floor, because it will not endanger the Schneiderian membrane, as it stops when encountering soft tissue if properly applied. This results in an intact fold or receptacle to reuse the osteopromotive materials. Thin ridges can be expanded and spread to sufficient dimensions to accept implant dimensions, or intraoral autogenous block grafts can be harvested to add to the thickness.

Piezosurgery offers the clinician the opportunity to perform difficult extractions and to preserve surrounding thin buccal plates in the esthetic zone. These procedures are useful when removing damaged roots without elevators and to section ankylosed or impacted teeth in a precise fashion.

There are infrequent innovations that result in paradigm shifts in the surgical armamentarium for intraoral surgical procedures. Piezosurgery offers distinct advantages to the surgeon as it allows for finite bone incisions with minimal invasiveness and a hemostatic field of vision that significantly reduces the thrust to soft tissues, ie, nerves and blood vessels adjacent to the treatment arena. Equally significant is a quieter, less traumatic experience for the patient that has the potential to reduce postsurgical swelling and discomfort compared to many traditional methods, as it achieves optimal healing.

This exacting atlas of surgical applications presents each surgical technique in a step-by-step manner, demonstrating the surgery and clinical advantages over traditional techniques. Illustrations, diagrams and photographs provide the cutting characteristics that simplify the complexity of intraoral surgical procedures.
Piezosurgery enables the periodontist to perform osteoplasty, ostectomy and root planing without the noise of conventional handpieces and manual curettes, which are annoying to patients. It is valuable for crown lengthening procedures as well as regenerative efforts.

Exciting recent additions include the preparation of corticotomies to enhance tooth movement in orthodontics and implant site preparation. An upcoming textbook entitled “The Piezoelectric Bone Surgery: A New Paradigm” will expand the opportunity for readers to further their knowledge in these procedures beyond this atlas.

Myron Nevins, DDS
“Essentials in Piezosurgery” contains a summary of all the elements needed to gain insight into the clinical benefits of piezoelectric bone surgery in dentistry, implantology and oral surgery.

Each surgical technique is presented in a technique-specific manner, showing the surgical, intraoperative, and clinical advantages over traditional techniques. Illustrations, diagrams, and photographs show the cutting characteristics that make it possible to simplify the complexity of advanced surgery, thus reducing surgical risks and accelerating healing mechanisms. The result is to achieve the highest level of treatment effectiveness with the lowest amount of discomfort for the patient.

The clinical advantages of using piezosurgery over traditional instruments are presented for tooth extraction, ridge expansion, sinus lift, bone grafting, and clinical crown lengthening.

“Essentials in Piezosurgery” also introduces, for the first time in the world, the new technique for ultrasonic implant site preparation and orthodontic microsurgery.

This publication also presents the new bone classification of Tomaso and Giuseppe Vercellotti, which is quantitative and qualitative for each surgical site and enables the highest degree of intraoperative precision.

The surgical protocol of each technique is presented in photographic sequences in “Essentials in Piezosurgery”.


Tomaso Vercellotti, MD, DDS
SECTION I  Introduction

1  History of the Invention of Piezoelectric Bone Surgery  3
  1.1  Clinical Perspective: The Osteotomy Technique from The Surgical Bur to Piezosurgery
  1.2  Technological Perspective: from Ultrasonic Dental Scaler to Piezosurgery

2  Characteristics of Piezosurgery Surgical Instruments  11

SECTION II  Technology and Surgery

3  Clinical Characteristics and Surgical Protocols  21
  3.1  Clinical Characteristics of Piezosurgery Cutting Action
  3.2  Surgical Protocol Development

SECTION III  Clinical Advantages of Piezosurgery in Dentistry

4  Tooth Extraction Techniques  31

5  Crown Lengthening Technique  47
SECTION IV  New Concepts and New Surgical Techniques using Piezosurgery

9  New Bone Classification for Analysis of the Single Surgical Site  91
10 New Technique of Ultrasonic Implant Site Preparation  95
11 Orthodontic Microsurgery: New Corticotomy Technique  109

References  117