

A paradigm shift in increasing the occlusal vertical dimension: community dental health care



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Dear readers, Dear authors,

The increase in the life expectancy of the population in high-income countries, members of the Organization for Economic Co-operation and Development (OECD) [1], has generated a number of challenges in dental practice, related to factors such as: complex medical and dental scenarios, financial limitations, patients' resistance to treatment [2], dental wear [3].

At the same time, there is an increase in the prevalence of tooth wear in the adult population due to the loss of dental substance by acid attack. The paradigm shift emphasizes the minimally invasive dentistry objective by using adhesive dental restorative materials, following a biomimetic approach [4].

A better understanding of the importance of erosion in dental wear and the ability to create occlusal space for those teeth that require restoration with axial tooth movement (the Dahl concept) have revolutionized the conservative principle in restoring damaged and worn teeth with digital technology [5].

Increasing the occlusal vertical dimension (OVD) is often indicated in complex prosthetic rehabilitation to gain restorative space and improve the occlusal and aesthetic outcomes. The effect of increasing the occlusal vertical dimension on the lower facial height and the perceived facial aesthetics remains a complex matter [6].

This finding prompted me to examine the literature on the criteria for assessing the occlusal vertical dimension (OVD) from the perspective of its increase within physiological limits. Not identifying any book that pursues such a comprehensive approach to the issue, I outlined the structure of a writing originally entitled **Restore Functional Occlusal Vertical Dimension: A Measurable and Predictable Clinical Reality**.

In addition to the contents of this book, I followed the guidelines established in 2013 together with Prof. Jean-François Roulet, from the University of Florida, Gainesville, FL, USA, editor of several quoted journals, in establishing the Stomatology Edu Journal (*Stoma Edu J*). In more than eight years of the *Stoma Edu J*'s uninterrupted appearance, we have managed to bring together over 120 editors from among well qualified professionals in over 40 countries with whose support we have published over 120 articles. Now I have tried to identify the professionals with the largest audience, recognized experts in OVD restoration, first among our well-known editors.

As the defining chapter of the book is functional occlusal vertical dimension: an additive rehabilitation perspective, I invited Prof. Marco Ferrari, dean of the School of Dental Medicine, University of Siena, founder of the Style Italiano Group, to outline it, which is why I renamed the book **Restore Functional Occlusal Vertical Dimension: An Additive Rehabilitation Perspective** [7].

The book is divided in three parts:

- Part One - Fundamentals of Functional Occlusal Vertical Dimension;
- Part Two - OVD: Measurable and Predictable Clinical Reality;
- Part Three - Treatments Addressing the Functional Occlusal Vertical Dimension.

Basically, we intended to reach a better understanding of Contemporary Fixed Prosthodontics by analyzing the paradigm shift in increasing the occlusal vertical dimension to achieve better community dental health care in a global roundtable.

Thus, in Part One - *Fundamentals of Functional Occlusal Vertical Dimension*, together with the father of European gnathology - Prof. Rudolf Slavicek, I also invited Prof. Gregor Slavicek to write the inaugural chapter on the stomatognathic system - anatomy and physiology.

Prof. Mariano Rocabado, dean of the Faculty of Rehabilitation, Sciences University Andres Bello, Santiago of Chile, Chile, an expert in human body biomechanics, develops the craniocervical biomechanics within his global Tri-Centric concept. The author of the successful 11th edition of Wheeler's Dental Anatomy, Physiology, and Occlusion, Prof. Stanley J. Nelson of the University of Texas Health Science Center at San Antonio, USA, delves into The Anterior Determinant of Occlusion, while the Posterior Determinant is presented by Rashmi GS Phulari from Manubhai Patel Dental College and Hospital, Vadodara, Gujarat, India. As knowing the plane of occlusion from the perspective of craniofacial development is fundamental for the design of a functional oral rehabilitation, I invited Prof. Letizia Perillo, dean of the University of Campania "Luigi Vanvitelli", Naples, Italy, to describe it. The well-known MDT Stefan Schunke presents details on the principles of occlusal biomechanics, and the understanding and importance of the envelope of function is made by Prof. Luigi Maria Gallo from Zurich University, Switzerland. The importance of the centric relationship and its relationship to the occlusal vertical dimension are commented by Prof. Em. Gary Robert Goldstein of New York University, New York, NY, USA. For the uniqueness of the approach to the prevalence of depressive symptoms and suicidal ideation among patients with collapsed occlusion, we invited the well-known psychologist Prof. Daniel-Ovidiu David, rector of the Babeş-Bolyai University, Cluj-Napoca, Romania, and Adjunct Professor, at Icahn School of Medicine at Mount Sinai, New York, USA since 2008.

The topics proposed for comment in Part Two - *Measurable and Predictable Clinical Reality* tackle the basics of Occlusal Vertical Dimension (OVD) knowledge and understanding.

First, the field of additive rehabilitation is defined by an authority in the field, Prof. Marco Ferrari. Then prosthetic determinants and occlusal concepts are presented by Prof. Marian-Vladimir Constantinescu and Prof. Joseph Nissan of Tel Aviv University, Israel. Dr. Clayton A. Chan, a trained gnathologist, who has combined expertise in gnathology and neuromuscular approaches, describes the architecture of the occlusal plane in dentulous subjects and clarifies the clinical significance of the occlusal plane from the perspective of variation and effect on head posture and postural body alignment and balance. Dr. Fray Adib, together with Prof. Bernd Kordaß and Prof. Luigi Maria Gallo, make an analysis of the systems for measuring and evaluating the functional occlusal vertical dimension. The President of the School of Stomatology (PKUSS) at Peking University, Prof. Yongsheng Zhou undertakes a comprehensive analysis of the digital prediction of the aesthetic outcome and digital implementation for restoring the functional occlusal vertical dimension. The masticatory function, EMG activity and occlusal contact area in subjects with different facial types are presented by Prof. Simone Guimarães Farias Gomes from the Federal University of Pernambuco, Recife, PE, Brazil. Professors Aler Fuentes and Rodolfo Isaac Miralles Lozano from the University of Chile, Santiago, Chile approach the clinical relevance of anterior and lateral occlusal guidance and its effects on the mandibular and cervical and electromyographic activity. Dr. Łukasz Lassmann from Gdańsk, Poland presents the consequences of increased occlusal vertical dimension. Prof. Daniel Edelhoff of University of Munich, Munich, Germany looks into materials and concepts for the temporary and definitive restoration. Prof. Jaafar Abduo of Melbourne University, Melbourne, Australia conducts a comprehensive up-to-date assessment of the safety of increasing the functional occlusal vertical dimension. At the end of the second part, Prof. Noshir Mehta from Tufts University, Boston, MA, USA, performs a three-dimensional assessment of the functional dental occlusion, and Dr. Nazzareno Bassetti highlights the importance of the occlusal mandibular repositioning technique - OMRT.

Part Three - *Treatments Addressing the Functional Occlusal Vertical Dimension* presents the oral rehabilitation of different clinical situations by renown clinicians. First, Prof. Feng Liu, director of the department of general dentistry at Peking University Hospital of Stomatology, Beijing, China, editor of the third edition of Dental Digital Photography book, makes a synthesis of the principles of clinical dental photography in regard to the treatment planning process. A pioneer in the use of the operating microscope in dental aesthetics, Dr. Domenico Massironi, was invited to support a rational for smile analysis in restoring the functional occlusal vertical dimension. Well-known gnathologist Prof. Jean-Daniel Orthlieb, Dr. Michael Rebibo and Dr. Estelle Casazza from Aix Marseille University, Marseille, France present key decisions in establishing the functional occlusal vertical dimension, and Dr. Piero Silvestrini Biavati and Dr. Riccardo Ammannato, describe their personal restoration methods, 'Global Occlusion Method', and respectively, the 'Technical Index'. For the presentation of the experience regarding conventional vs. digital full-arch impressions in restoring the functional occlusal vertical dimension, professors Carlo Ercoli, Marco Ferrari, Hsun-Liang Chan, Francesco Guido Mangano, and Sorin Uram-Țuculescu were invited. The recording of conventional vs. digital intermaxillary relationships will be supported by Drs. Stefano Lombardo, Mariam Margvelashvili-Malament, Costanza Micarelli and Prof. Sorin Uram-Țuculescu. Dr. Henriette Lerner from HL-Dentclinic & Academy, Baden Baden, Germany, presents her experience on conventional vs. digital facebow in oral rehabilitation. Based on their personal case studies, professors Marco Ferrari, Francesco M. Mangani, Roberto Carlo Spreafico, Bernard Touati, and Dean Vafiadis

illustrate various clinical scenarios in restorative dentistry. Case studies on aesthetic dentistry restorations are masterfully supported by professors Douglas A. Terry, Lucian Ciocan, Daniel Edelhoff, Galip Gürel, and Niraj Kinariwala. Restoring the functional occlusion by orthodontics is eloquently exemplified by professors Birte Melsen, Abdolreza Jamilian, Moschos A. Papadopoulos, Letizia Perillo, and Andreu Puigdollers-Pérez. Professors John C. Kois, Andreas Bindl, Henriette Lerner, Joseph Nissan, and Maciej Zarow make use of their experience with partial dentate cases. The cases of restoring the severely worn dentition are illustrated by Gregor Slavicek, Riccardo Ammannato, Florin-Eugen Constantinescu, Niraj Kinariwala and Feng Liu. Relating to their experience in oral implantology, restorative solutions are presented by professors Hom-Lay Wang, Nardi Casap-Caspi, Pablo Antonio Galindo Moreno, Tidu Mankoo, and Constantinus Politis. Restoring the functional occlusion in temporomandibular disorders is illustrated by professors Markus Oliver Ahlers, Rafael Benoliel, Jules Hesse, Noshir R. Mehta, and Grigorios Polyzois.

The abundance of contributions on the Restoration of the Functional Occlusal Vertical Dimension is to be presented to the reader in two volumes. The first volume will contain - Part One - Fundamentals of Functional Occlusal Vertical Dimension and Part Two - OVD: Measurable and Predictable Clinical Reality. The second volume Part Three - Treatments Addressing the Functional Occlusal Vertical Dimension presents examples of different clinical situations in the form of an atlas, a guide of good practices, in accordance with quality criteria of evidence-based practice (EBP).

For the sake of clarity, consistency and homogeneity each volume will have a volume coordinator. The first volume will benefit from the experience and expertise of Prof. Jean-François Roulet, from the University of Florida, Gainesville, FL, USA, and the second volume from that of Prof. Feng Liu, from the Peking University, Beijing, China.

The completion of this book is supported by the efforts of a representative number of authors eager to fill as much as possible a gap in the literature, working in concert with the editors of the Stomatology Edu Journal, Prof. Marco Ferrari, from the University of Siena, Italy, Editor of the Journal of Osseointegration, Prof. Em. Stephen F. Rosenstiel of the Ohio State University, Columbus, OH, USA, Editor of the Journal of Prosthetic Dentistry and myself.

We would like to express our gratitude to all the authors who joined us in this project, committing valuable time to this effort, and offering their expertise to provide the reader with updated views on Contemporary Fixed Prosthetics, with a focus on such a complex issue as increasing the occlusal vertical dimension. I assume that, after studying this two-volume box set, the reader will be better equipped to provide intelligent holistic dentistry to their patients, backed by Quintessence's high standard of quality.

Sincerely yours,

Marian-Vladimir Constantinescu 
 Editor-in-Chief

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