

New Release

Handbook of Research on Clinical Applications of Computerized Occlusal Analysis in Dental Medicine

A Comprehensive Three-Volume Set

This publication contains:

- 1,350+ pages of emerging research
- Six labeled sections comprised of 19 chapters
- Contributions from 20 industry-leading experts from the United States, Germany, Canada, Poland, and more
- 800+ figures, as well as an extensive list of references

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EDITED BY: **Robert B. Kerstein, DMD** (Former Clinical Professor at Tufts University School of Dental Medicine, USA & Private Dental Practice Limited to Prosthodontics, USA)

Recently Released



Handbook of Research on Clinical Applications of Computerized Occlusal Analysis in Dental Medicine (3 Vols.)

Robert B. Kerstein, DMD (Former Clinical Professor at Tufts University School of Dental Medicine, USA & Private Dental Practice Limited to Prosthodontics, USA)

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In the past, individuals in the dentistry field have struggled to diagnose and treat a variety of dental diseases due to the lack of measurement methods involved in the field. Modern occlusal technology offers solutions to the many commonly observed and frequently encountered occlusal problems that practicing dental clinicians regularly attempt to manage.

The **Handbook of Research on Clinical Applications of Computerized Occlusal Analysis in Dental Medicine** aims to provide a research-based clinical resource for computerized occlusal analysis technology, while also serving as a complete clinical treatment guide to support clinicians in achieving significantly better treatment outcomes than what often presently result from non-digital occlusal indicators. This three-volume compilation has been contributed to by over 20 industry-leading dentistry experts, containing over 800+ full-color figures/charts in addition to many modern-day digital occlusion research studies. This book chronicles Computerized Occlusal Analysis' evolution and improvements, details its evidence-based rationale for employing this technology in place of traditional, non-digital occlusal indicators that rely solely on imprecise operator subjective interpretation, and describes the T-Scan's many clinical applications within the differing practice disciplines of dental medicine. While highlighting topics that include T-Scan use in prosthodontics, orthodontics and dental implants, this book is ideally designed for clinicians, dentists, dental educators, researchers, dental students, and academics working in prosthodontics, occlusion, esthetics, temporomandibular disorders, dental implant prosthodontics, periodontics, orthodontics, and posture and balance.

Covering:

1. Arch-Half Occlusal Force Balance
2. Dental Implants and T-Scan
3. Digitally Measured Occlusion
4. Disclusion Time Reduction
5. Orthodontic Monitoring
6. Force and Timing Occlusal Analysis Technology
7. Hypersensitive Dentition
8. Prosthodontic Insertion Using T-Scan
9. Temporomandibular Disorders
10. Wear, Periodontal Recession, and Occlusal Forces



Pricing

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E-Book: US\$ 765

Hardcover + E-Book: US\$ 925



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Editor Biography:

Edited by a pioneer and academic science advocate for digital occlusal technology, **Robert B. Kerstein**, DMD teaches a measured system which greatly improves the success of bite-related procedures commonplace in every clinical practice by providing predictable, rapid bite comfort for most patients.

Dr. Kerstein received his D.M.D. degree in 1983, and his Prosthodontic certificate in 1985, both from Tufts University School of Dental Medicine. From 1985–1998, he maintained an active appointment at Tufts as a clinical professor teaching fixed and removable prosthodontics in the Department of Restorative Dentistry. In 1984, Dr. Kerstein began studying the original T-Scan I technology, and has since that time, also studied the T-Scan II, the T-Scan III with Turbo Recording, the T-Scan 8 technology, the T-Scan 9 technology, and the present day version, T-Scan 10.

He has conducted original research regarding the role that occlusion and lengthy Disclusion Time plays in the etiology of Chronic Occlusal-Muscle Dysfunction and is recognized as a leading author and researcher in the field of Computerized Occlusal Analysis. He has published forty-five peer reviewed publications and authored four textbook chapters that highlighted the T-Scan computerized occlusal analysis technology. He currently maintains a successful private practice in Boston, Massachusetts, that is limited to prosthodontics, computerized occlusal analysis, and occlusal-muscle dysfunction.

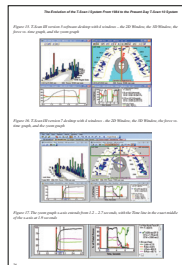


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Robert B. Kerstein, DMD,
Former Clinical Professor at
Tufts University School of Dental
Medicine, USA & Private
Dental Practice Limited to
Prosthodontics, USA

Since its inception in 1984, the development of Computerized Occlusal Analysis technology has revolutionized both dental

Occlusal Science and daily clinical practice, and the most recent T-Scan software Version 10 improves the clinician's ability to diagnose and treat a wide range of occlusal abnormalities. Chapter One details the evolution of the differing T-Scan system versions, while describing the many scientific studies that inspired important system improvements to the T-Scan's accuracy and repeatability, from version to version.

Chapter 2

Comparing the Force and Timing Limitations of Traditional Non-Digital Occlusal Indicators to the T-Scan Computerized Occlusal Analysis Technology55

Sarah Qadeer, BDS, MSD,
Thammasat University,
Thailand; Lertrit Sarinnaphakorn,
DDS, Chulalongkorn
University, Thailand

This chapter evaluates the force reporting limitations of static occlusal indicators and compares non-digital occlusal indicators to the T-Scan computerized occlusal analysis technology. The diagnostic occlusal capabilities of the T-Scan's digital force and timing data are presented by two separate studies that compared measured closure and excursive occlusal contact force and timing parameters in orthodontic and non-orthodontic young adults. A commentary is included regarding the clinical pitfalls of using maximally invasive, subjective interpretation to choose occlusal contacts for treatment instead of employing minimally invasive, computer-guided occlusal contact selection.

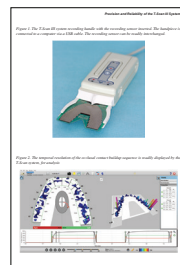


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**Bernd Koos, University
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Holstein, Germany**

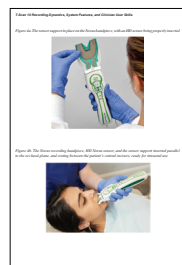
Precise analysis of occlusal contacts and occlusal force is a problem in functional diagnostics that has not yet been satisfactorily resolved, despite the fact that the deleterious consequences of an unbalanced occlusion are widespread and can be severe. A detailed occlusal force and timing analysis can only be provided by performing a computer-assisted analysis, using the T-Scan III system (Tekscan, Inc. S. Boston, MA, USA). The following chapter demonstrates the accuracy and reliability of this computer-based occlusal measurement method that reliably describes the time-dependent distribution of occlusal force evolution.



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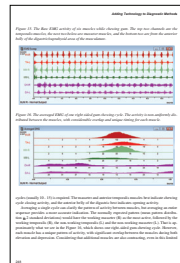
**Robert Anselmi, McGill
University, Canada; Robert B.
Kerstein, DMD, Former Clinical
Professor at Tufts University
School of Dental Medicine, USA
& Private Dental Practice Limited
to Prosthodontics, USA**

The T-Scan 10 has revised desktop graphics with additional toolbar buttons that enhance T-Scan functionality and improve chairside T-Scan clinical implementation. The system's most recent important advancement, discussed in this chapter, is the melding of T-Scan digital occlusal force and timing data with digitally scanned dental arches to overlay T-Scan data on a patient's virtual arch. The chapter details the five useful diagnostic occlusal recordings to treat commonly observed occlusal problems, and lastly outlines the three learning levels of T-Scan mastery that must be accomplished for a clinician to become an effective and competent T-Scan user.

SECTION 3: DIGITAL TECHNOLOGIES THAT COMPLEMENT THE T-SCAN SYSTEM

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Adding Technology to Diagnostic Methods225



**John Radke, BioRESEARCH
Associates Inc., USA**

The most recent evidence suggests that the emotional aspects of temporomandibular disorders (TMD) are more the result of pain and dysfunction than the cause. This chapter discusses several dental technologies that are now available that provide objective bio-physiologic measurements of masticatory functions. Each diagnostic technology is illustrated with an example of its output data, recorded from both an asymptomatic subject, as well as a patient with masticatory dysfunction. Recommendations are provided regarding the acceptance of the use of modern digital technology as an indispensable part of modern clinical practice.

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Joint Vibration Analysis (JVA) and the Diagnostic Process in TMD299

**Ray M. Becker, DDS, Private
Practice, USA**

This chapter describes joint vibration analysis technology (JVA), which assesses pathological changes that can occur within the temporomandibular joints. The diagnostic process and a simplified approach to better understand and efficiently treat temporomandibular dysfunction (TMD) will be overviewed. This chapter provides an overview of the various vibratory waveforms that indicate TM Joint pathology is present and illustrates the utility of joint vibration analysis as a temporomandibular joint diagnostic adjunct.



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**Robert B. Kerstein, DMD, Former Clinical Professor at
Tufts University School of Dental Medicine, USA & Private
Dental Practice Limited to Prosthodontics, USA**

This chapter discusses chronic occluso-muscle disorder and how its symptoms are resultant from occlusally activated muscle hyperactivity as well as its computer-guided treatment known as disclusion time reduction (DTR). T-Scan-based research since 1991 has determined that a significant etiologic component of occlusomuscle disorder is prolonged (in time) occlusal surface friction shared between opposing posterior teeth during mandibular excursions that occurs in both normal chewing function and during parafunction. Additionally, this chapter will highlight the newest disclusion time reduction therapy (DTR) studies that support the clinical implementation of this highly effective measured occlusal treatment for occluso-muscle disorder.

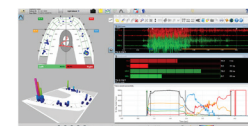


Figure 22a - The 2D ForceView shows the right excursion building significant force on the palatodistal aspect of tooth #2 (pink and yellow sensels), while there is light force on the mesiolingual and mersibuccal aspects. In the companion EMG data, the right temporalis and the right masseter muscles are firing excessively resultant from the lingual-to-lingual contacts between teeth #s 2 and 31.



"Some dentists are afraid of using computer technology or other modern technologies that they are not familiar with, or may feel that the old clinical methods of hands-on diagnosis are good enough. Clinical methods are sufficient for routine cases, but not for those patients with complex dysfunctional conditions. Every dentist that accepts the challenge of treating complex cases can benefit from the extra diagnostic and treatment planning information that modern technology can bring to the case [which is found in this book]."

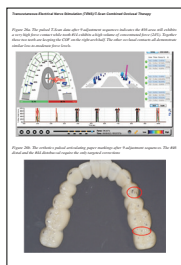
- John Radke, MS.
BioRESEARCH Associates, USA

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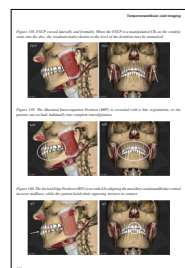
The Transcutaneous Electrical Nerve Stimulation (TENS)/T-Scan Combined Occlusal Therapy for Musculoskeletal and Posturo-Occlusal Disorders.....515

*Curtis Westersund,
MICCMO, Canada*

This chapter will discuss TENS as a treatment modality for temporomandibular disorders (TMD), explain how to employ TENS to obtain a neuromuscular maxillomandibular relationship, and illustrate in a clinical case report the use of TENS in combination with the T-Scan Computerized Occlusal Analysis System to measurably and physiologically balance a removable overlay anatomical acetyl resin orthotic prosthesis. This chapter will also detail the interrelationships between TMD musculoskeletal problems and posturo-occlusal disorders and how disclusion time reduction therapy (DTR) with occlusal rebalancing, performed with the T-Scan 9/ BioEMG synchronization, can improve whole body alignment. The chapter concludes with discussions about the problems with direct anatomic relationships, and the three problems of occlusion.

**Chapter 9**

Temporomandibular Joint Imaging582



*Mark Piper, Piper Educational
and Research Center, USA*

This chapter's four distinct sections review the key concepts about the temporomandibular joint foundation anatomical structures, detail structurally intact and structurally altered temporomandibular joint anatomy, clarify how structurally altered temporomandibular

joints influence occlusal function, and classify the stages of temporomandibular joint structural degeneration. The concept of joint-based malocclusion is explored with numerous temporomandibular joint foundation anomalous software renderings and sample CT and MR images. Lastly, the chapter addresses the specific requirements a clinician must technically master to perform a comprehensive CT or MR examination.

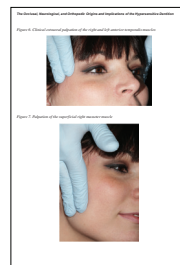
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Chapter 10

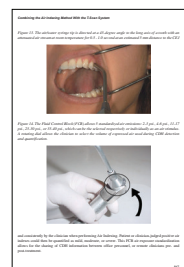
The Occlusal, Neurological, and Orthopedic Origins and Implications of the Hypersensitive Dentition699

*Nick Yiannios, Private
Practice, USA*

This chapter will outline how occlusion, many muscular TMD symptoms, and FDH are all interrelated. Both a pilot study and a 100 subject cold ice water swish follow-up study are presented, and consideration for the orthopedic influences that may directly affect the occlusion and neurology of the system are outlined, as well as the medical concept of tooth allodynia. Furthermore, trigeminal neurological influences are compared and contrasted to autonomic sympathetic inputs in relation to the influence that they each have upon the hypersensitive dentition. Lastly, the greater auricular diagnostic nerve block is discussed, as is the influence that this nerve may have upon the hypersensitive mandibular posterior dentition.

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Combining the Air Indexing Method With the T-Scan System to Detect and Quantify Cervical Dentin Hypersensitivity829



*Thomas A. Coleman, Brandon
and Shaftsbury, USA*

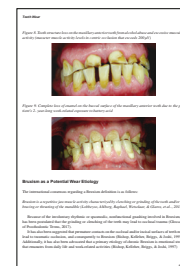
This chapter introduces the air indexing method for detecting and quantifying cervical dentin hypersensitivity (CDH) as a companion to the T-Scan Occlusal Analysis System. This chapter presents the clinical benefits of melding the T-Scan Occlusal Analysis System with the Air Indexing Method when clinically assessing and treating cervical hard tissue pathologies. This chapter will also highlight CDH symptoms and NCCLs while presenting two case reports of how T-Scan guided occlusal adjustments can be effective at reducing CDH and prohibiting the progression of gingival recession.

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Tooth Wear: Prevention, Treatment, and Monitoring Using the T-Scan/BioEMG Synchronization Module879

*Teresa Sierpińska, Medical
University of Białystok, Poland*

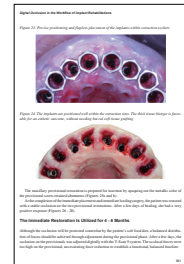
The focus of this chapter is to present the consequences of tooth wear resultant from mechanical reasons, such as parafunction, excessive masticatory forces, imbalanced occlusal contacts, and hyperactive masticatory muscles. This chapter will also outline preventative strategies that can predictably reduce the progression of pathologic wear, which employ the T-Scan 8/BioEMG synchronization module. These two objective companion technologies assess the occlusion before, during, and after dental treatment, as well as predictably control the long-term stability of newly-installed fixed, implantsupported, or removable prostheses.



SECTION 5: T-SCAN TECHNOLOGY AND DENTAL IMPLANTS

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Digital Occlusion in the Workflow of Implant Rehabilitations.....945



*Henriette Lerner, Goethe
University Frankfurt, Germany*

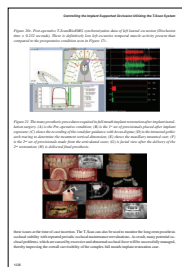
The aim of this chapter is to show the integration of digital occlusion in the different phases of full arch implant rehabilitation with immediate implant placement and immediate loading procedures. Digital occlusal analysis raises the precision of functional occlusal adjustments, while improving the long-term predictability and stability of both case function and esthetics. This chapter will present a systematic digital workflow detailing every stage of full arch rehabilitation treatment, while showcasing digital occlusal diagnosis with the T-Scan 9 system, to install a precise implant prosthesis occlusal scheme. A full arch rehabilitation case involving immediate implant placement and immediate implant loading will be presented, with it occlusally finished with the T-Scan.



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Jinhwan Kim, Seoul National University School of Dentistry, South Korea



This chapter discusses how in daily dental practice, clinicians spend a great deal of time making corrective occlusal adjustments using solely articulating paper as their intended guide, leaving dentists to poorly Subjectively Interpret the appearance characteristics of the markings, such that

implant occlusal force control is highly compromised, leading to peri-implant tissue loss, de-osseointegration, and elevated frequency rates of breakage of implant restorative components. By using the T-Scan technology, the clinician eliminates the subjectivity involved in using articulating paper, ensuring prosthesis longevity. Case examples are presented of how occlusal adjustments that employ T-Scan force and timing data with simultaneously recorded EMG data aid in implant restoration occlusal force control.

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Julia Cohen-Levy, University of Montréal, Canada

This chapter reviews T-Scan use in orthodontics from diagnosis to case finishing, and then in retention, while defining normal T-Scan recording parameters for orthodontically-treated subjects versus untreated subjects. T-Scan use in the case-finishing process is also described, which compensates for changes in the occlusion that occur during "post-orthodontic settling," as teeth move freely within the periodontium to find an equilibrium position when the orthodontic appliances have been removed. The clinical use of T-Scan in "fragile" cases of patient muscle in-coordination, mandibular deviation, atypical pain, and/or TMJ idiopathic arthritis are illustrated by several case reports.



"The chapter, *Understanding Posturo-Occlusal Interrelationships by Combining Digital Occlusal and Posture Diagnostic Technologies*, in the

Handbook of Research on Clinical Applications of Computerized Occlusal Analysis in Dental Medicine, introduces the concept of posture from the perspective of dental occlusion through clinical cases examples documented objectively with Biometrics. It brings to light the existing relationship of dental occlusion and posture with undeniable evidences and measures. The digital technologies bring attestations that cannot be ignored or refuted by opinions... the facts speak loud and clear about the existence of a posture-occlusal interrelationship!"

-Patrick Girouard, DMD MS,
Acadia University, Canada



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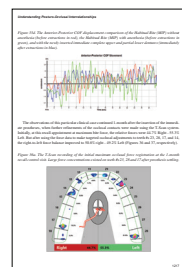
Nicolas Cohen, DDS, Private Practice, Canada & University of Paris Diderot, France



This chapter outlines the controversial subject of the role of occlusion in the progression of periodontal disease in great detail, from the perspective that the absence of a validated occlusal force and timing measuring device that can quantify the occlusion has contributed to the confusion and questions that exist in the scientific community about the relationship between periodontal disease, peri-implantitis, and the occlusion. The T-Scan 10 system is particularly adapted for treating patients who demonstrate tissue loss combined with occlusal issues. Indeed, after having controlled the major etiologic and risk factors of periodontal disease and peri-implantitis, adjusting the occlusion after active tissue and implant therapy favors healing.

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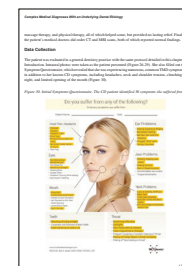
Patrick Girouard, Acadia University, Canada



The specific aims of this chapter are to outline how posture and dental occlusion interrelate through the stomatognathic system's afferent neural inputs into the central nervous system (CNS). Three differing clinical posturo-occlusal cases, diagnosed and treated with the combined use of the T-Scan 9 computerized occlusal analysis technology, the MatScan/MobileMat foot pressure mapping technology, and the Footmat Research software version 7.10 are explored. The presented cases emphasize there exists a whole-body concept that depends upon a variety of differing systems, whereby changes in the dental occlusion produce a phenomenon of bio-functional neuro-reprogramming for the stomatognathic system and the whole body.

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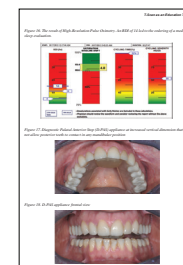
Ben A. Sutter, Private Practice, USA



This chapter presents four chronic pain clinical cases that were originally diagnosed as being something other than temporomandibular disorders (TMD). Specifically, the individual patient diagnoses were Phantom Bite Syndrome (PB), Meniere's Disease (MD), Cervical Dystonia (CD), and Trigeminal Neuralgia (TN), where the prior treatments rendered to each patient that were based upon these diagnoses, were all unsuccessful. Each patient was re-evaluated with a series of biometric occlusal measurement technologies, including the T-Scan 9/BioEMG III synchronization module, and treated with disclusion time reduction (DTR), which greatly improved or resolved completely their symptoms. This suggests TMD can present as one of these alternative diagnoses, or that TMD was misdiagnosed, absent the objective occlusal force and timing data offered by the T-Scan 9 system.

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John R. Droter, The Pankey Institute, USA & Spear Education, USA



When used as part of an educational strategy, the T-Scan can lead the patient to accept procedures that would benefit their long-term dental health. Chapter 19 outlines the four stages of creating optimum dental health, the steps required to perform effective teaching and learning, the differing styles of teaching and learning utilized in educational forums, and how to best employ the technique of Feature, Function, and Benefit. A few case examples illustrate how T-Scan data can educate a patient about their own occlusal problems, while describing both normal and abnormal occlusal function to a dentist.

RESEARCH IN ACTION:

REAL-WORLD APPLICATIONS OF THIS RESEARCH IN THE DENTAL INDUSTRY

Dr. Kerstein's must-have titles have been implemented and featured globally through leading dental technology companies, at industry events and conferences, as well as notable press outlets showcasing it as a critical resource for all dental professionals.



DENTAL COMPANIES & ORGANIZATIONS UTILIZING THIS RESEARCH:



Learn More at:
www.tekscan.com

Tekscan is the creator and innovator of T-Scan®, dentistry's only clinically recognized and research-validated digital occlusion analysis system.



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Society

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The Digital Dentistry Society seeks to educate dentists, students, technicians, software developers, and engineers on the use of digital technologies in dentistry.



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BioRESEARCH Associates, Inc. is a dental technology company in Wisconsin, USA. During their annual conferences, Dr. Kerstein's publications have been presented to world-renowned professionals.

CONFERENCES & EVENTS THAT HAVE FEATURED THIS RESEARCH



CONTRIBUTORS FEATURED IN THE MEDIA:

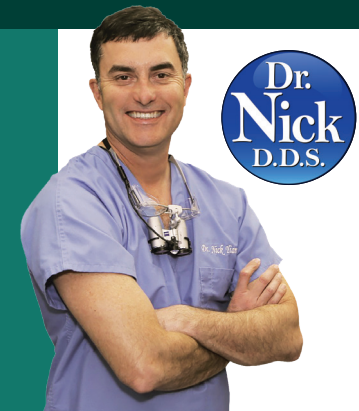


Dr. Ray Becker has been featured in an interview on Midday Maryland, a news program that airs out of the United States, to discuss the benefits of this research and how he utilizes it in his private practice, Howard County Smiles.

Find the interview at:
<http://bit.ly/MMIBecker>

Dr. Nick Yiannios also demonstrates the clinical applications of this research within his own daily practice through his professional YouTube channel, Nick Yiannios DDS PLLC.

Find the YouTube channel at:
www.youtube.com/user/dnickdds



Hear from the experts of the publication, including Dr. Kerstein, in the IGI Global video: <https://youtu.be/wpS1jOUH3io>

Contributor Biographies



Nick Yiannios, DDS,
Rogers, Arkansas, USA

Nick Yiannios obtained his B.S. in microbiology from Texas A&M University, USA, which led him into the dental profession. In 1993, Dr. Yiannios graduated from the University of Texas Health Science Center at San Antonio Dental School with his D.D.S. degree. After earning a fellowship in the organization, Dr. Yiannios was asked to serve on the Board of the Academy of CAD/CAM Dentistry, an international organization mandated to disseminate the efficient and ethical practice of digital CAD/CAM dentistry. He began integrating digital bite T-Scan® technology to complement and improve upon his dental treatment outcomes.



Tom Coleman, DMD,
Brandon, Vermont, USA

Tom Coleman received his DDS degree, from SUNY at Buffalo, School Dental Medicine, USA. Over the next two years, he practiced in Public Health on a Navajo reservation. He is a leading clinician, researcher and educator using objective means to assess masticatory system imbalance relating to the functional contact of teeth. He has published eight peer-reviewed articles in *Quintessence International*, the *Journal of Esthetic & Restorative Dentistry*, *Incisal Edge*, and *Compendium* and has lectured nationally at the Dawson Center, University of Southern California, the American Equilibration Society, the Gelb Center, and the Vermont State Dental Hygiene Association.



Jinhwan Kim, DDS, MS, PhD,
Seoul, South Korea

Dr. Jinhwan Kim received his D.D.S. degree in 1999, M.S. degree in 2004 and Ph. D. degree in 2011, from Seoul National University, School of Dentistry. He has used T-Scan system since 2006, and is a T-Scan expert in South Korea. He has published a T-Scan case book in South Korea to guide T-Scan users. He also introduced the concept of Timing with the T-Scan system to Korean dentists, while studying implant occlusion with the T-Scan. He is specialized in digitalization in dentistry and is a board member of the Korean Academy of Digital Dentistry, the Korean Academy of Stomatognathic function and occlusion, and the Korean Academy of Esthetic Dentistry. He has lectured on digitalized occlusal analysis, implant occlusion using T-Scan system, and about intra-oral scanners.



Nicolas Cohen, DDS,
Montréal, Canada

Nicolas Cohen received his dental degree from the University of Paris 7 in 2000. There, he performed research at the French Institut Paris-Sud sur les Cytokines, which focused on the oral immunity, and more particularly, on the stress-induced tolerance of oral biofilm. From 2003 to 2007, his work was published in the high-level, peer-reviewed *Journal of Dental Research* (2004), and in *Blood* (2003, 2006, and 2007). At the same research institute, Dr. Cohen obtained a Master of Science MS and a PhD. Dr. Cohen was for many years an Associate Professor in the Department of Periodontology at the University of Paris, France, in the Pitié Salpêtrière Hospital, before recently moving to Montréal, Canada, where he has an ongoing private practice. During his years at the University Pitié-Salpêtrière Hospital, Dr. Cohen was co-director of the post-doctoral clinical program in Implantology at Paris 7 and Paris 6, while at the same time working with a research team in the Laboratory of Orthopedic Research. He also was a member of the Faculty at the Laboratory Medicine Saint-Louis, Université Denis Diderot, also in Paris. Dr. Cohen has been a national and international lecturer discussing periodontal disease and its relationship to general health illnesses, and to Peri-Implantitis. He is currently studying dental occlusion's effect on periodontal lesion progression, as well as occlusion's impact on tissue healing following active therapy.



Ben A. Sutter DMD,
Eugene, Oregon, USA

Ben A. Sutter received a BA in psychology, as well as a BS in biology from the University of Nevada at Las Vegas, USA. He earned his DMD from the University of Medicine and Dentistry of New Jersey, USA, where he received numerous academic awards. While in New Jersey, he completed a one-year, hospital-based residency at the Overlook Hospital in Summit.

Dr. Sutter is the author of several articles and abstracts, and has vast clinical, research, and teaching experience. He has been awarded Fellowship status in the Academy of General Dentistry, Las Vegas Institute, and the International College of Cranio Mandibular Orthopedics. Dr Sutter also serves as a manuscript reviewer for *General Dentistry*.



Ray Becker, DDS,
Ellicott City, Maryland, USA

Ray Becker is internationally renowned as a pioneer, innovator, and integrator of advanced technologies in Dental Medicine. His focus is on comprehensive, reconstructive, esthetic dentistry. Becker's delivery is centered on complex and demanding cases, in which he has developed and personally used a protocol that allows for successful diagnosis, treatment, and evaluation of every patient within the practice. Becker has keynoteed international conferences in Australia, Finland, and Canada, as well as throughout the United States since 1991, and he has authored numerous journal articles, DVDs, and entire published works. His unique material, protocols, and solutions have had strong resonance with many dentists who frequently face "real world" practice issues, day to day. By applying this diverse knowledge into practical solutions, he has developed, evolved, and benefitted from the many unique approaches, which he now teaches others.



Dr. Teresa Sierpińska,
Bialystok, Poland

Teresa U. Sierpińska has conducted original research regarding the effect the mastication process has on the gastrointestinal tract, as well as performing research regarding advanced tooth wear. Since the beginning of her professional career, Dr. Sierpińska has been a member of the Polish Dental Association. Currently, she is the President of the Section of Prosthetics Dentistry of the Polish Dental Association (second term), and is also a member of the European Prosthodontic Association (EPA). Dr. Sierpińska has conducted original research regarding the effect the mastication process has on the gastrointestinal tract, and is performing research about advanced tooth wear and the physiology of the masticatory system. Her investigations have focused on the functional analysis of masticatory system, which included her becoming certificated in 2006 on all BioRESEARCH Diagnostic technologies. She has published numerous peer-reviewed publications that appeared in the *International Journal of Prosthodontics*, the *Journal of Clinical Densitometry*, *Osteoporosis International*, *Advances in Medical Sciences*, and in Polish professional journals. In 2014, she was appointed to the Editorial Board of the *Journal of Craniomandibular and Sleep Practice*. Dr. Sierpińska maintains a successful private practice in Bialystok, Poland.



John Radke, MS,
BioRESEARCH Associates, USA

John Radke received his BM degree from Cornish College in Seattle, WA and his MBA degree from the Keller Graduate School of Management, Chicago, IL. He is currently Chairman of the Board of BioRESEARCH Associates, Inc., located in Milwaukee, Wisconsin. Since 1972 he has actively developed electronic and computer software-based diagnostic products for dentistry. These include devices for electronic jaw tracking, temporomandibular joint vibration analysis, electromyography, and TENS. Mr. Radke has lectured nationally and internationally in more than 30 countries. He has published numerous articles on the scientific methods (Fourier series, wavelet transforms, artificial neural networks and genetic algorithms) used for analyzing physiologic measurements such as; 1) vibrations recorded from the temporomandibular joints, 2) electromyographic data from active muscles of mastication and 3) functional and parafunctional jaw movements. Mr. Radke is a long-standing member of the International Association for Dental Research and the American Association for the Advancement of Science. He's an honorary member of the Italian Academy of Electromyography and Kinesiology and Medica Odontologia Craneo-mandibular A. C. of Mexico. Since 1969, he has received numerous patents for his innovative instrument designs.



John Droter, DDS,
The Pankey Institute and
Spear Education, USA

Dr. John Droter graduated from the University of Maryland Dental School in 1985 with a void in his understanding of Temporomandibular Disorders. To gain more TMD knowledge, he studied at the Pankey Institute, The Dawson Center for Advanced Dental Study, and the University of Florida's Facial Pain Center. Dr. Droter maintains a private practice diagnosing facial pain with computer imaging and analyses of the Temporomandibular joints and the masticatory muscles. He provides non-surgical TMJ rehabilitation and restores occlusal harmony to damaged dentitions. Dr. Droter is visiting faculty member at the Pankey Institute and the Spear Educational Center. At the Anne Arundel Medical Center in Annapolis, MD, he rounded with orthopedic surgeons to understand the medical approach to treating damaged joints. He lectures nationally and has been honored as a Top Clinician in Dentistry Today's top 100 list.



Robert Anselmi,
McGill University, Canada

Robert Anselmi received his BA in English, Film, and Communications from McGill University in Montreal, Canada, in 1994. Since then, he has worked for various companies in a technical writing, web design, web administration, quality assurance, and course design capacity. He has strived to teach users how to operate and use complex hardware and software technologies via print, video, and other media and is a self-published author, writing and filming several online tutorials and articles.



Julia Cohen-Levy, DDS,
University of Montréal,
Quebec, Canada

Julia Cohen-Levy has been in private practice in Paris since 2003 and has been a T-Scan III user beginning in 2006. She has authored in several international journals and scientific articles focused on computerized occlusal analysis use in orthodontics, lingual orthodontics, and radiological anomalies. Additionally, she is a member of the editorial Board of the *Journal of Dento-facial Anomalies and Orthodontics* and serves as President of the Sleep Apnea Commission for the French Federation of Orthodontics (FFO). She is both a national and international IXXV lecturer, and teaches courses about sleep apnea, lingual orthodontics, and computerized occlusal case finishing in orthodontics.



Patrick Girouard, DDS,
Moncton, Canada

Patrick Girouard received his D.M.D in 1993 from the Université de Montréal and has been a dentist at the Dental Health Centre since 1997. He has lectured internationally, sharing his experience and knowledge. He is involved in research projects with universities, including Acadia, NYU, and Tufts University.

Dr. Girouard is one of the few who has received intensive university training in craniofacial pain for the diagnosis, management and treatment of temporomandibular disorders, jaw pain, headaches, sleep disorders, orofacial pain, and other abnormalities associated with craniofacial structures. This advanced university education led to a unique master's degree of sciences awarded to him by Tufts University School of Dental Medicine Craniofacial Pain Centre.



Dr. Lertrit Sarinnaphakorn,
Faculty of Dentistry, Chulalongkorn
University, Bangkok, Thailand

Dr. Lertrit Sarinnaphakorn is an assistant professor, full-time lecturer and clinical instructor in the Faculty of Dentistry at Chulalongkorn University in Bangkok, Thailand. Prior to this, he served as a full-time faculty member of Thammasat University, Rangsit campus, Pathumthani, Thailand for 16 years, where he was also the Chairman of the Master's degree program in Dental Implantology. Owing to his successful academic career, from 2005-2009, Dr. Sarinnaphakorn was awarded the Royal Thai Government Scholarship to pursue a Ph.D. in Biomaterials and Tissue Engineering at King's College London Dental Institute, in London, UK. It was at Thammasat University that Dr. Sarinnaphakorn and Dr. Sarah Qadeer collaborated on research projects, published articles, and successfully organized a mini-residency program designed to educate Asian dental practitioners how to gain objective insight into a patient's occlusion, and how to develop a comprehensive understanding of the Stomatognathic System, by implementing digital technologies that afford better clinical case treatment outcomes.



Curtis Westersund, DDS,
Calgary, Canada

Curtis Westersund is a dentist in Calgary, Alberta, Canada, for the past 40 years. His practice is focused on the treatment of Temporomandibular Disorders (TMD), with a physiologic approach to diagnosis and treatment. He holds a Mastership with the International College of Cranio-Mandibular Orthopedics (ICCMO). In addition, Dr. Westersund has been published in *The Journal of Craniomandibular & Sleep Practice*, presenting a clinical trial on the effects that postural alignment has on the dental occlusion. He has also published in two books about using physiologic protocols in the treatment of TMD. Dr. Westersund is a trainer and lecturer for the T-Scan 10 digital occlusal analysis system. And finally, Dr. Westersund lectures on the treatment of TMD/chronic pain using physiologic and neuromuscular principles that include the use of the T-Scan, throughout the United States, Russia, Europe, Japan, India, Brazil and Canada. He also lectures on the diagnosis and treatment of obstructive sleep apnea, using the Zephyr MATRx system.



Dr. Bernd Koos,
University Medical Center
Schleswig-Holstein, Germany

Dr. Bernd Koos is an orthodontist and senior physician in the clinic of orthodontics at the University Medical Center Schleswig-Holstein in Kiel, Germany. He finished his specialist training in the orthodontic postgraduate residency program at the University of Tübingen, Germany, where he focused his patient examination and consultation hours on the functional diagnosis of and therapy for temporomandibular disorders. His research studied juvenile idiopathic arthritis with TMJ involvement, functional occlusal diagnosis, therapy for temporomandibular disorders, computerized occlusal analysis and diagnosis, treating patients with cleft lip and palate, and children with obstructive sleep apnea syndromes. About each of these fields, Dr. Koos has lectured extensively, and has authored several important publications that include the T-Scan technology in the *Journal of Orofacial Orthopedics*.



Paul Mitsch, DMD,
Augusta, Kansas, USA

Dr. Paul Mitsch received his D.M.D. degree in 1977 from Washington University, St. Louis, MO. He purchased Augusta Family Dentistry in Augusta, Kansas in 1979. In 2005, Dr. Mitsch created *Dental Impact*, a publication written by area dentists and distributed through Butler and Sedgwick counties. In 2008, Dr. Mitsch founded the American Family Dentistry Training Center. AFD Training Center was established to aid in the training of those in the dental industry. It has been his mission to offer classes and seminars from skilled professionals in the dental field for those who wish to refine their skills and bring a higher level of care to their practices. Dr. Mitsch has lectured on the implementation of state-of-the-art technology in dentistry throughout the nation. He holds fellowships with the Academy of General Dentistry, the Academy of Dentistry International and the International Congress of Oral Implantologists with a distinguished fellowship from the American Academy of Craniofacial Pain. Dr. Mitsch has also completed his Mastership from BioRESEARCH, Inc.



Mark Piper, DMD, MD,
Piper Educational and Research
Center, St. Petersburg, Florida, USA

Mark Piper currently maintains a private practice at the Piper Clinic in St. Petersburg, Florida. He devotes his skills exclusively to debilitated pain and TMJ patients, including adults with failed surgery and children with joint injuries. He is also the founder and full-time director of the Piper Education and Research Center, an institution dedicated to the advancement of TMJ education through lectures, hands on experiences, clinical fellowships, and research study groups.



Sarah Qadeer, BDS, MSD,
Basel, Switzerland

Dr. Sarah Qadeer graduated from Sardar Patel Institute of Dental and Medical Sciences (SPIDMS) in Lucknow, India, with a Bachelor of Dental Surgery (BDS) and went on to pursue a Master of Science in Dentistry (MSD) in Advanced Prosthodontics at Korea University Guro Hospital, Seoul, South Korea. It was in Korea that she learnt about T-Scan Occlusal Analysis Technology, which triggered such an interest in her that it became the subject for her master's thesis. Currently based in Basel, Switzerland, she has been an International Speaker for T-Scan Technology, Tekscan Inc. Boston since 2012 and for BioRESEARCH Inc. Milwaukee since 2013, conducting lectures and workshops on occlusal analysis and biometrics in Asia-Pacific, Middle East, Australia and Europe.



Dr. Henriette Lerner,
HL Dentclinic and Academy,
Baden-Baden, Germany

Dr. Henriette Lerner is the founder and Director of HL Dentclinic and Academy in Baden-Baden, Germany, which is an academic clinical, teaching, and research facility of the Johann Wolfgang Goethe University, in Frankfurt on Main, Germany. She is the current President of the Digital Dentistry Society International (DDS). She is a Board Member & Expert for the DGOI (the German Society of Oral Implantology,) and is an ICOI Diplomate. Dr. Lerner is also an Editorial Advisor for 2 scientific journals (*Practical Implantology* and *DGOI Oral Implantology*) and the author of a number of scientific papers and book chapters (*Esthetics in Dentistry; Implant Esthetics*), which detail esthetics in implantology, grafting procedures, biomaterials science, and digital technologies.

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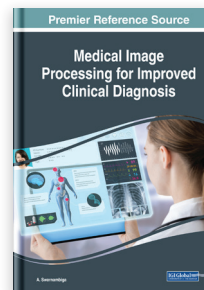
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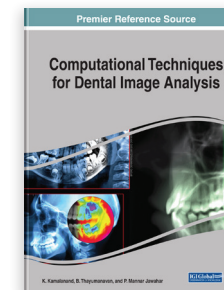
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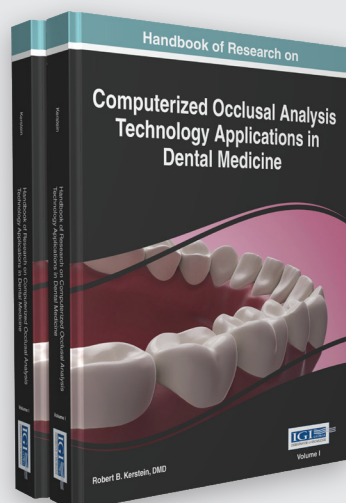
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