

International Symposium on Ceramics 'Simplicity meets Esthetics' San Diego 9 – 11 juni 2023

ISC 2023 | The 26th International
Symposium on Ceramics
SIMPLICITY MEETS ESTHETICS



TOWN AND COUNTRY RESORT, SAN DIEGO | JUNE 9-11, 2023

Integrating digital design and 3D printing technology of the esthetic outcome in (full mouth) reconstructions door Laplana en Anabell Bologna.

Advancements in dental technology, restorative materials, and adhesive dentistry have led to a wider range of treatment options, which maximize the likelihood of an attractive outcome. The relevance of facially generated treatment planning to improve facial harmony and proportions is recognized in esthetic restorative dentistry. Prior to any restorative treatment, it is important to visualize the desired outcomes, as the main purpose must be to restore the optimal esthetics and enhance occlusal stability through minimally invasive procedures. The constant evolution of digital technology allows their application during planning to preview the result before performing an irreversible procedure on the patient.

Anabell E. Bologna, DDS, CDT, graduated from Universidad Central de Venezuela before training in dental technology in the prosthodontics program at the University of Texas at Houston. She interned and trained with recognized technicians in laboratories in Mexico, Brazil, USA, and Europe. Dr Bologna has 25 years of clinical experience, working in private practice focused on cosmetic dentistry, oral rehabilitation, and implants. She is an associate professor in the graduate esthetic program at Central University of Venezuela, the implants program in University Santa Maria, and the training center Sinergia Dental Instituto, all located in Caracas, Venezuela.

Anabell verhoogt de beet om minimaal invasief te kunnen werken. Lijkt een 'open deur' maar er zit echt iets in.

Ik vond dit écht een eye opener! Zo simpel maar zó wáár?! Mondscans maken, VDO verhogen (met Leaf gauge) en inscannen, nieuw incisiefpunt boven bepalen (mock up), in 3Shape nieuwe occlusie designen, restauraties printen in restloos uitbrandbare kunststof, omzetten met behulp van perstechniek in Lithium disilicaat (cutback en/of monolytisch)

Eric van Dooren – Bottlenecks in Digital Dentistry

It is important to explore meaningful use of available technologies, understand bottlenecks, and discuss workarounds. This can ultimately lead to rethinking design beyond the classic literal conversion from analog dentistry. This presentation identifies the key elements for realistic interdisciplinary planning and examines how to shift the timeline of the design to create more leverage in digital workflows. Eric Van Dooren, DDS, maintains a private practice in Antwerp, Belgium, which is limited to periodontics, fixed prosthodontics, and implants. He is a visiting

professor at the University of Liege (Belgium) and the University of Marseille (France). Dr Van Dooren is an active member of the European Academy of Esthetic Dentistry and also lectures nationally and internationally on esthetics, implants, and esthetic periodontal surgery.

Implanteert sinds 1983 en vertelde eigenlijk dat hij momenteel zo lang mogelijk de implantologie ontwijkt, dat implantaten veel complicaties kunnen brengen – implantaten - the last resort. Eric zegt: we implanteren veel te veel. Bewaar de natuurlijke elementen zo lang mogelijk en plaats implantaten als het echt niet anders kan.

Als hij dan toch implanteert doet hij dat in 100% van de gevallen guided om het implantaat exact op de juiste plaats te kunnen zetten. Hij implanteert ook vaak immediaat, werkt zonder bone graft maar met vrije mucosa grafts. Hij heeft gezien dat de soft tissue ontzettend goed vast groeit aan het implantaat oppervlak. Hij transplanteert vrije mucosa palatinaal van het liefst tweede maar ook eerste molaren en brengt dus voldoende dik weefsel over het implantaat op de implanteer site aan.

Eric verschroeft als z'n implantaat kronen en bruggen. Hij maakt het liefst zo weinig mogelijk (brug) verbindingen omdat hij verbindingen altijd minder mooi vindt dan solitaire kronen. Hij plaatst daarom (bijvoorbeeld) liever meerdere implantaten om zoveel mogelijk solitair te kunnen werken.

Eric gebruikt geen Variobase omdat hij denkt dat de cementspleet niet overal even dik wordt – door de ttn gecementeerd) en uit kan spoelen. Hij gebruikt Cares (of in ieder geval Zirconia) abutments, verschroeft deze in de mond, prepareert deze als je dat bij een natuurlijke pijler zou doen en maakt dan een mondscan om de kronen te laten maken. Als de kroon klaar is wordt deze verlijmd met het Zirconia abutment. Dan worden opbouw en kroon als één geheel verschroefd.

De kronen worden monolytisch gemaakt in veldspaat en alleen gestaind.

Eric vind geprinte modellen nauwkeuriger dan stone modellen. Hij noemde daarbij een specifieke modelprinter maar die naam kreeg ik niet mee.

Eric zegt dat 50% van zijn full arch zirconia bruggen breken

Zijn presentatie zat tegen – beeld was fors vervormd.

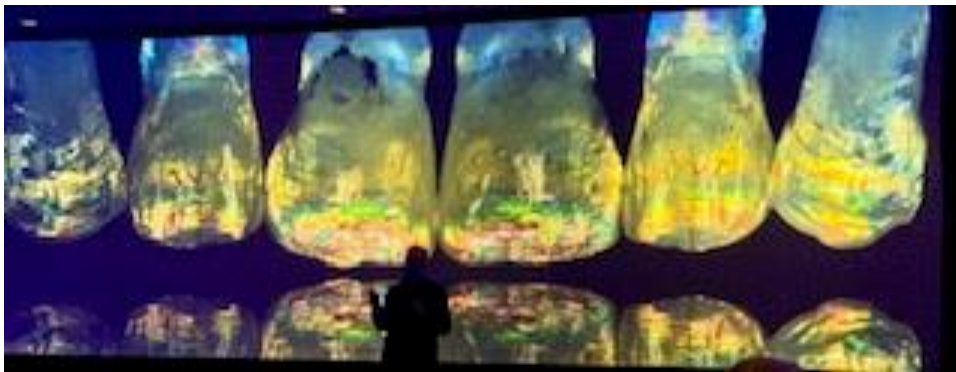


Foto boven: gewoon een prachtig plaatje – én je ziet een beetje de verhouding in grootte tussen poppetje en scherm 😊

3D Ceramic Printing Marta Revilla León

Additive manufacturing technologies introduce a new way to fabricate all kinds of dental devices, redesigning the whole process and creating a new way to understand and experiment with the digital

workflow. We have already experimented with polymer and metal printing. Now it is time for ceramic printing, including lithium disilicate and zirconia. But what is the current status? What are the current possibilities? Is this new way of manufacturing ceramic ready to be applied in treating our patients? In this lecture, we review the status of ceramic printing, the different printing technologies to process ceramic, the studies that have analyzed the properties of printed ceramics, and the prosthodontic applications.

Marta Revilla León, DDS, MSD, PhD, is faculty and Director of Research and Digital Dentistry at the Kois Center in Seattle, Washington. She is a specialist in digital dentistry with more than 140 publications in peer-reviewed journals related to intraoral scanning methods; digital implant scans with photogrammetry systems; virtual patient integration; and polymer, metal, and ceramic additive manufacturing technologies. Dr Revilla León is also affiliate faculty in the graduate prosthodontic programs at the University of Washington in Seattle and Tufts University in Boston, and she is a member of the Council of Scientific Affairs of the American Dental Association.

Marta zegt dat Lithium Disilicaat en Zirconia kunnen 3D geprint worden. Momenteel met de Ricoh 3D printer ADT en CE approved. Het zirconia dat geprint kan worden in het opake 3Y TCP. Het wordt geprint vanuit een soort 'slurry' ofwel modderige substantie.

ZIPRO Dental uit zuid Korea maat op dit moment een mooie printer om Zirconia mee te printen. Er worden kronen, bruggen, inlays en abutments mee geprint. Het systeem werkt op basis van Vat photo polymerisatie. Aan de zirconia slurry is een liquid polymeer toegevoegd die ultra violet licht uithardend is. Het te printen object wordt laagje voor laagje ge(foto)print.

De firma Lithoz uit Oostenrijk (kijk ff op www.lithoz.com) heeft ook al mooie D printers waar van alles mee gemaakt kan worden. Ook voor Dental doeleinden. Voor het printen van zirconia tot het printen van een grofmazige structuur die Hydroxyapatiet kan printen - voor augmentatie bijvoorbeeld. Lithoz heeft een samenwerkingsverband met Ivoclar ... dus daar kunnen we binnenkort ook al wat van verwachten. Ivoclar kan ook al zirconia printen maar heeft nog geen CE ADT approval.

Er wordt veel onderzoek gedaan naar de eigenschappen van geprint zirconia. Geprint zirconia verouderd bijvoorbeeld sneller dan gefreesd zirconia. Maar geprint zirconia is verder eigenlijk op alle fronten gelijk aan gefreesd materiaal. Wordt vervolgd.



Foto boven: 400 deelnemers (in plaats van de gebruikelijke 1100)

Lee Culp - Battle of the Titans: Lithium Disilicate vs Zirconia

The concept of digital dentistry and computerassisted milled ceramics started small but has accelerated progressively with seemingly endless boundaries. The two current “titans” of dental

ceramics have reduced the use of metal-ceramic restorations to near obsolescence. From a single inlay to a full-arch implant-supported all-ceramic restoration, these high-strength ceramic materials fulfill most requirements in restorative dentistry. This presentation overviews 20+ years of experience with these ceramic materials and their advantages/disadvantages as well as laboratory and clinical successes and failures.

Lee Culp, CDT, is the CEO of Sculpture Studios, a dental laboratory and research and product development center for new and innovative diagnostic and restorative and digital applied applications to surgical and restorative dentistry. He is a leading resource/inventor for many of the materials, products, and techniques used in dentistry today, holds numerous patents for his ideas and products, and is the recipient of numerous awards. His writing, photography, and teaching have brought him international recognition in the specialties of digital dentistry, dental ceramics, and functional esthetics.

Lee Culp (tandtechnicus) zegt dat hij steeds meer digitaal werkt. Begonnen met software voor tandtechnische producten maar steeds meer werkt hij met dentale medische programma's zoals 3D planningen voor ortho en operaties. Zo schuift hij steeds meer op richting 'clinical technician'. Maar er ontstaan ook tandartsen die meer richting tandtechniek verschuiven. De 'technical dentist' noemt hij dat. En dan ook nog de kaakchirurg die zich meer richting het werkveld van de restauratief tandarts begeeft. Dat wordt dan de 'restorative surgeon'.

Als tandtechnicus gebruikt Lee voor z'n gefreesde Emax restauraties de blokken BL4 HT. In 90% van de cases die hij maakt komt hij daar goed mee uit. Hij kan dan vanaf BL4 tot aan A1.5 stain & glaze werken.

Wael Att: Zircomania: Full-Arch Zirconia Rehabilitations

The application of ceramic materials in dentistry has been increasing rapidly. The demand for more esthetic rehabilitations as well as advancements in technology and the introduction of new materials made it possible to utilize machinable ceramics for nearly all indications. Compared to the conventional approach, the goal of a combination between new materials and technology is to achieve faster, better, and cheaper patient services. For these purposes, zirconia became the material of choice for many clinicians. This is more significant for full-arch rehabilitations, especially on implants. However, clinicians face challenges when dealing with zirconia and may prefer conventional or alternative materials. This presentation will provide an overview of the application of zirconia materials and related digital workflow in fullarch implant rehabilitations. Guidelines will be presented to clinicians to help them identify when to opt for zirconia or alternative materials, reducing the risk of experiencing complications and facilitating a successful outcome.

Wael Att, DDS, Dr med dent, DMD, PhD, is a professor and Chair of the Department of Prosthodontics at Tufts University School of Dental Medicine. He is also a professor of prosthodontics at the School of Dentistry, University of Freiburg, Germany. Additionally, Dr Att is the Head of the United States Education Delegate of the ITI and the United States Ambassador of the European Association for Osseointegration. Dr Att has been a boardcertified prosthodontist from the German Society of Prosthodontics and Biomaterials since 2004 and an active member of multiple professional organizations. He is a past president of the International Academy for Digital Dental Medicine and the Prosthodontics Group of the International Association for Dental Research. He is president of the Arabian Academy of Esthetic Dentistry. A widely published and internationally respected clinician and

lecturer, Dr Att's main focus is esthetic and implant dentistry as well as the implementation of cutting-edge digital technologies in both reconstructive and multidisciplinary dentistry.

Wael vertelde veel over zirconia full arch bridges op implantaten. Ook hoorde ik deze dagen dat veel van deze (onder andere Zirconzahn) bruggen breken. Tevens is 'clicking' een veel gehoord probleem – het hard tikken van zirconia op zirconia tijdens het gebruik. Het hoofd wordt een 'klankkast'.

Wael zei een oplossing gevonden te hebben tegen het breken van de bruggen. Eerst worden een stevige titanium baar gefreesd met forse cantilevers. Het titanium wordt geioniseerd (titaan coating?) zodat het een soort gouden kleur krijgt (tegen doorschemeren later). Daar overheen wordt een soort matrix uit PEEK gefreesd die op het titanium vast klikt. Dáár weer over heen volgt de zirconia brug. De tanden en kiezen van de brug zijn één geheel met de brug (dus monolytisch) en worden ingekleurd (stain & glaze). Het roze deel van de brug (cut back) wordt opgebakken (multi layering) met diverse kleuren roze opbak porselein. Het PEEK gedeelte wordt in het zirconia deel adhesief bevestigd en kan (digitaal bestand) vervangen worden indien gewenst/nodig.

Ivan Contreras Molina: Mucogingival Rotational Tooth Preparation in the Management of Soft Tissues in Fixed Prosthesis: Where Is the limit?

The tooth preparation finish line plays an important role in the success of the prosthesis, and the configuration of a horizontal finish line (chamfer, bevel, shoulder) is often held responsible for soft tissue changes or instability. Exposure of the restoration-tooth interface jeopardizes the success of the restoration, especially in the esthetic zone. However, a vertical preparation has no defined finish line; the dental technician designs the gingival margin according to the patient's gingival architecture. The literature has recently shown that a vertical preparation reduces the marginal gap and lessens irritation within the gingival sulcus to create greater stability of the gingival margin over time. With vertical preparations, there is no defined finish line, so the technician places it according to the distinct needs of the patient. Horizontal preparations are therefore static, while vertical preparations are dynamic.

Ivan Contreras Molina, DDS, MSc, PhD, holds a degree in dentistry from the Michoacana de San Nicolás de Hidalgo University in Morelia in Mexico, and has specialized in prosthodontics at the Centro de Estudios Odontológicos de Querétaro (Mexico). He earned both master's and doctoral degrees in implant dentistry from the Federal de Santa Catarina University at Florianópolis in Brazil. Dr Contreras Molina was a visiting PhD scholar in Pascal Magne's esthetics program at the University of Southern California, and as of 2019, he has an ITI fellowship at the University of Indiana Center for Implant, Esthetic, and Innovative Dentistry. He maintains a private practice limited to prosthodontics, implants, and periodontal plastic surgery in Morelia, Mexico.

Ivan vertelde onder andere over het herkennen van de verschillende Biotypes gingiva/mucosa.

Het belangrijkste is om de transparantie van het slijmvlies te checken. Is het een fijn Biotype, is het gemiddeld of is het een dik Biotype. Als de onder de 1mm gingiva geschoven pocketsonde zichtbaar is door de gingiva heen is het een fijn biotype, is hij niet zichtbaar dan is het een dik Biotype. Bekend verhaal.

Gerard Chiche: Esthetic Full-Mouth Rehabilitations: 40-Year Experience and Perspective

This presentation outlines how the simultaneous management of the most relevant factors of esthetics and risk in a step-by-step fashion can maximize the success of esthetic fullmouth rehabilitations. A long-term perspective on VDO decision-making will be discussed along with ceramic material selection. The final material decision will be analyzed based on esthetics and strength properties according to the etiology of attrition and the severity of the malocclusion.

Gerard J. Chiche, DDS, is a clinical and emeritus professor at Louisiana State University School of Dentistry. He is a past president of the American Academy of Esthetic Dentistry and has lectured on esthetic dentistry in 35 countries. He is the author of two textbooks published by Quintessence: Esthetics of Anterior Fixed Restorations and Smile Design. In 2009, Dr Chiche became the first recipient of the Endowed Chair sponsored by the Thomas P. Hinman Dental Society during his tenure as Director of the Center of Esthetics and Implants at Augusta University. He is the 2020 recipient of the Icon Award of the Seattle Study Club for Lifetime Achievement in Dentistry.

Gerard vertelde dat hij vind dat je in slijtage dentities de beet maximaal met 5 mm mag verhogen. De display van het bovenfront mag zo'n 1.5 a 2 mm zijn, die van de ondertanden maximaal 3 mm. Hij vertelde ook dat monolytisch zirconia minimaal 1.0 mm dik moet zijn (3Y Tzp) dan zal het niet breken – ook niet bij bruxers. Het 3Y Tzp zirconia moet dan wel adhesief bevestigd worden. Als het adhesief bevestigd is, is het net zo sterk als 5Y Tzp zirconia. Hij gaf een mooi overzicht.



Foto boven: mooie digitale oplossing om een centraal diasteem te sluiten met indirecte restauraties. Zou ik zelf niet snel bedacht hebben op deze manier 😊

Stephen J. Chu and Adam J. Mielezsko: Decoding Color Matching in SingleTooth Restorations

Color matching maxillary anterior teeth is a persistent challenge in esthetic restorative dentistry. Regarding teeth, substrate color can increase the complexity of shade matching, and remediation of the stump shade is imperative for a successful outcome. Clinical options for the dentist to facilitate the transition to the technician will be presented. Both teeth and dental implant material selection, such as all-ceramic vs metal-ceramic, are crucial for predictable results. CAD/CAM has streamlined restoration fabrication in the dental lab; however, traditional techniques may still hold value in some cases. What, when, why, and how to use various materials will be shown as well as the advantages and limitations of systems such as stock or custom titanium angulated screw channel abutments.

Stephen J. Chu, DMD, MSD, CDT, is a former adjunct clinical professor at New York University College of Dentistry in the departments of periodontology, implant dentistry, and prosthodontics, having served for 26 years. He currently maintains a private practice in fixed prosthodontics, esthetics, and implant dentistry in New York City. Dr Chu has contributed over 100 publications, including 7 textbooks in dental literature, and lectures nationally and internationally on esthetic, restorative, and implant dentistry. He serves as the associate editor of the Journal of Esthetic and Restorative Dentistry. Adam J. Mieleszko, CDT, graduated from New York City Technical College with a degree in dental laboratory technology before becoming certified in dental ceramics. Since then, he has worked in close collaboration with leading prosthodontists in the field, and daily interactions with patients have allowed him to master challenging skills in dental esthetics. Mr Mieleszko has coauthored two books, Fundamentals of Color (Quintessence, 2004, with a second edition in 2011) and Color in Dentistry (Quintessence, 2017). He has also contributed to numerous clinical and technical articles in industry journals.

Stephen zegt in een indrukwekkende presentatie samen met z'n tandtechnicus Adam: het leren werken met een materiaal = als het leren van een taal. Daar doe je jaren over. Zij werken samen in één praktijk en weten heel veel van kleurbepalen; zijn daar altijd mee bezig. In 90% van de cases van de implantaat gedragen solitaire kroon is tijdens de 1^e pasfase niet goed.

Ze passen geen metaal/porselein restauraties meer toe op natuurlijke pijlers maar op implantaten nog regelmatig en werkt het nog steeds heel goed.

Irena Sailer (doet ook veel onderzoek met indirecte restauraties) zegt dat Zirconia restauraties op implantaten altijd een fractie te licht overkomen. Dat wordt op dat moment door veel personen beaamd. Volgens hen (en haar) geven metaal/porselein restauraties nog steeds de mooiste resultaten.

Effie Habsha: Digital Workflow for Full-Arch Rehabilitation

The recent evolution in CAD/CAM, ceramic, and resin bonding technologies offers an entirely new range of esthetic, less invasive, and long-lasting treatment options. Many research efforts have focused on exploring and improving physical and optical properties of ceramic materials to match the expectations of modern esthetic dentistry. Following current trends of minimally invasive treatment protocols, new adhesive materials and resin-bonding technologies are gaining popularity as they become integral aspects of daily clinical practices. To ensure long-term clinical success, however, proper material selection, surface treatment, and bonding protocols are essential. Additionally, biologic integration is key for soft tissue health and clinical success, especially for implant-supported restorations, which can vary significantly among different materials and surface treatment configurations. This presentation will review the current state of the science regarding functional and biologic interfaces as well as demonstrate clinical possibilities with current CAD/CAM ceramics.

Effie Habsha, DDS, MSc, is an adjunct assistant professor in the Department of Dentistry at the Eastman Institute for Oral Health of University of Rochester Medical Center. Dr Habsha has served as an assistant professor at the University of Toronto and continues to instruct prosthodontics there at both the undergraduate and graduate levels. She is also the founder of Women in Dentistry: Work.Life.Balance, a group created in 2010 that aims to educate, empower, and connect women in the dental field. Dr Habsha maintains a private practice limited to prosthodontics in Toronto and lectures nationally and internationally on prosthodontic and surgical topics.

Had een heel goed verhaal over digitale tandtechniek, micro layering & Zirconia, + digitale chirurgische planning en prosthodontische planning. Je hebt bij deze voordracht niet veel aan mijn

commentaar/aanvulling maar je kan niet over álles iets opschrijven. Ook al niet vanwege het tijdsverschil van 9 uren ;) als een summary je interesseert kan je altijd op Youtube kijken of je iets kan vinden of deze persoon op een andere manier traceren 😊

Edwin Zanabria: The Opacious Area: The Baseline for a Lifelike Restoration

The restoration of a single central incisor requires the reproduction of many elusive elements of nature (eg, hue, chroma, value, surface texture, and luster) as well as optical features of fluorescence, opalescence, translucency, transparency, and opacity. Thanks to emerging materials and technology, such reproduction is becoming more of a task of planning rather than an arduous challenge. This presentation focuses on the opacious area and its significance in emulating nature and demonstrates how to identify it with the aid of dental photography and a few digital tools.

Edwin Zanabria, CDT, became certified as a CDT in 2008 in Peru. To improve his craft and increase his knowledge, he has traveled globally for practical courses and trainings with numerous MDTs. Mr Zanabria has been a key opinion leader for Dentsply Sirona since 2017 and has lectured across Asia, Europe, and South America and published articles in industry journals. Curiosity moves Mr Zanabria and keeps him eager to learn and share knowledge in a simple and fun ways.

Mooie presentatie over kleur en layering.

Ricardo Mitrani and Domenico Cascione: Calibrating Visions: A Perpetual Endeavor Between Technicians and Clinicians

Full-mouth reconstructions on implants are meticulous, so communication between the clinical and technical team is key to a successful and uneventful outcome. Direct communication between patient and ceramist is ideal but often unfeasible. This presentation will guide the audience through the communication process between clinicians and technicians when they do not practice in the same city. By focusing on four essential elements of esthetic dentistry (color, contour, arrangement, and position and functional parameters), the team has a better chance to communicate successfully and exceed everyone's expectations.

Ricardo Mitrani, DDS, MSD, currently holds academic affiliations at the University of Washington and is a resident faculty at SPEAR Education in Scottsdale, Arizona. Dr Mitrani is a member of several associations including the American Academy of Esthetic Dentistry and the American Academy of Restorative Dentistry and is part of the editorial boards for the Journal of Esthetic and Restorative Dentistry, the Journal of Cosmetic Dentistry, and Compendium, as well as the executive director of Spear Digest. He has authored numerous scientific publications and textbook chapters on implant prosthodontics and esthetic dentistry and has given more than 600 lectures around the globe. Dr Mitrani maintains a private practice limited to prosthodontics, implants, and esthetic dentistry in Mexico City.

Domenico Cascione, MDT, BS, is a master ceramist and specialist in dental metallurgy, implant work, and complex esthetic rehabilitation. He is lead faculty of the Department of Restorative Dentistry Dental Laboratory Technology Program at the Division of Health Sciences at Pasadena City College as well as a faculty member and lecturer at the UCLA School of Dentistry Division of Advanced Prosthodontics. In addition to publishing several articles, he is an editor-in-chief of Spectrum Dialogue Magazine and has authored a book, Symbiosis: Art & Technique (Palmeri, 2011). Mr Cascione is the president of OPERART dental laboratory in Santa Monica, California. 2023 c

Laten prachtig werk zien. Op dit moment werkt iedereen monolytisch en micro layering in de esthetische zone. Dat is al het werk wat deze dagen voorbij komt. Ook van de tandtechnici die echte 'masters' zijn in traditioneel opbakken.

Domenico gebruikt net zoals alle anderen de stain, glaze en microlayering techniek. Na het glanzen in de oven polijst hij het oppervlak van de restauratie (kroon of partiele restauratie) met puimsteen gemixt met het porselein poeder waar hij mee opgebakken heeft voor een extra abrasief effect.

German O. Gallucci: Restorative Materials for Full-Arch Implant Rehabilitations

Treatment of edentulous patients with fixed implant rehabilitations has been discussed widely in peer-reviewed publications and scientific meetings around the world. This is partly due to the vast amount of scientific evidence collected since the beginning of implant dentistry. Today, several protocols for reducing treatment time and improving prosthodontic design are being proposed; however, evidence from modern clinical trials calls for a critical assessment. Treatment sequences will be presented and categorized according to their corresponding prosthetic designs and preferred restorative materials. This lecture intends to present clinical, scientific, and implant-related information leading to translational clinical recommendations in the treatment of edentulous jaws with fixed prosthesis.

German O. Gallucci, DMD, PhD, is chair of the Department of Restorative Dentistry and Biomaterials Sciences at Harvard School of Dental Medicine. He actively participates in clinical research related to implant prosthodontics and digital dentistry, and his work has been published in international peer-reviewed journals. Dr Gallucci is a member of the editorial board for several scientific dental journals and has been an invited lecturer at international and national conferences and congresses. He is a fellow of the Academy of Prosthodontics and ITI Switzerland as well as an active member of the Academy of Osseointegration, European Academy of Osseointegration, Greater New York Academy of Prosthodontics, and International Academy of Dental Research.

German prefereert totale implantaat gedragen bruggen in PMMA en ziet daar een business model in. Er zijn zo veel complicaties met full arch zirconia bruggen op implantaten en ze zijn erg kostbaar. De patiënt verlangt levenslange garantie en die kunnen we niet geven. Dus is German voorstander van gefreesde PMMA bruggen – ook al vanwege de mooie kwaliteit van de kunststof. Twee voor de prijs van één. Als een PMMA brug na verloop van tijd problemen vertoont, bestel je gewoon een nieuwe en vervangt de eerste. Gefreesd PMMA heeft prachtige eigenschappen zegt hij.

Yu Zhang: The New Generation of Ceramics as Restorative Materials

The aim of this presentation is to critically examine the current understanding of dental ceramics for the digital workflow and identify future research needs for these materials regarding novel fabrication and processing methodologies. With rapid advances in material development and digital technology, time efficiency of dental workflow and fit accuracy of ceramic restorations are improving. Zirconia and lithia-based glass-ceramics are at the head of this advance. The trend in fabrication is to move from CAD/CAM grinding partially sintered/crystallized blocks to fully sintered/crystallized materials, thereby avoiding the need for post-machining heat treatment or drastically reducing the ceramic sintering time. In these endeavors, a better understanding of mechanical properties and evolving shaping and densification technologies such as ductile grinding and ultrafast sintering is paramount. Challenges facing the implementation of new technologies in the efficient development and production of high-quality dental ceramic prostheses will be addressed.

Yu Zhang, PhD, is a professor in the Department of Preventative and Restorative Sciences at the University of Pennsylvania School of Dental Medicine. He has received many NIH R01 and NSF research grants and is a recipient of the Arthur R. Frechette Award from the Prosthodontic Society of International Association of Dental Research (IADR). Dr Zhang is a fellow of the American Association of Dental Research and Academy of Dental Materials as well as a past president of the IADR Dental Materials Group. He has published around 150 journal articles and book chapters and holds three US patents. Dr Zhang's research interests include the development of functionally graded and nanostructured ceramics as well as novel ductile machining and ultrafast sintering technologies.

Don Cornell: Esthetics in the Age of Monolithic Restorations

Rapid improvements in CAD/CAM materials have increased the demand for monolithic restorations. With about 85% of all metal-free restorations now monolithic, dentistry must find new materials and techniques for attaining esthetic outcomes that were traditionally only possible with ceramic layering. This presentation discusses the paradigm shift in materials and techniques for achieving exceptional esthetic outcomes with monolithic restorations. It will also explore the influence of various core materials on esthetic outcomes, how we interpret translucency, and the role of color and contrast in achieving 3D depth and vitality.

Don Cornell, CDT, began his career in dental technology in 1980. In 1985, he opened his own laboratory in California and soon after began lecturing and teaching high-end ceramic techniques to dentists and technicians. Mr Cornell has published extensively in clinical and technical journals worldwide and has lectured and given hands-on courses in more than 30 countries. In addition to maintaining his laboratory, Mr Cornell currently serves as vice president of Research and Development for Jensen Dental in North Haven, Connecticut. 2023

Don zegt dat 80% van de indirecte restauraties op dit moment monolytisch gemaakt wordt. onze toekomst in monolytisch, niet layered. Hij werkt met MIYO van Jensen; dat is niet zoals staining en ook niet voor micro layering maar iets er tussen in. MIYO heeft een soort one layer techniek met verschillende kleuren er in. In het 'natte' stadium zie je meteen al het eindresultaat. Mooie resultaten en slechts 0.15 mm dik.

Masayuki Okawa: Challenges in Digital Workflow: Minimally Invasive Digital Dentistry and Micro Precision

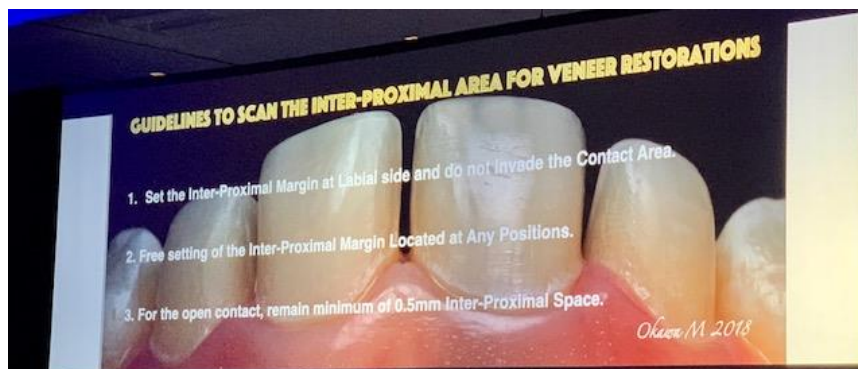


Foto boven: uit deze presentatie. Om een goede scan voor veneers te kunnen maken moet de outline van de veneers in het labiale gebied van het element liggen. Inter approximaal moet de ruimte minimaal 0.5 mm zijn.

In modern restorative dentistry, developments in digital technology and adhesive dentistry make it easy to assume that the future focus of this field will be on minimally invasive esthetics combined with digital dentistry. In addition, the use of the microscope has allowed prosthodontists to obtain more precise and predictable outcomes. The prospect of minimally invasive dentistry adapting digital dentistry would require the following clinical discussions: (1) What will be the appropriate design and location of the finish line for the marginal morphology to avoid any of the STL data edge loss? (2) How can the precise fitting of the internal interface between the tooth and veneer restoration be managed by using digital technology? (3) How do we manage scanning inaccuracies when the tooth's interproximal area is not wide enough? The presenter will propose guidelines for these discussion points through illustration of clinical cases.

Masayuki Okawa, DDS, is a part-time professor in the Crown and Bridge Department at Nippon Dental University. He is chairman of the board and supervisor at the Society of Japan Clinical Dentistry and the Alumni Association Academic Department Director at Ohu University Faculty of Dentistry. Dr Okawa is a member of the Japan Academy of Esthetic Dentistry as well as the Japan Academy of Gnathology and Occlusion, and he is also an affiliate of the European Academy of Esthetic Dentistry. He maintains a practice in Tokyo.

Om een goede scan voor veneers te kunnen maken moet de outline van de veneers in het labiale gebied van het element liggen. Inter approximaal moet de ruimte minimaal 0.5 mm zijn.

Kenneth A. Malament: An Advanced Perspective on Lithium Disilicate Restorations in the Age of Zirconia.

Ceramics are the most consistently predictable esthetic dental material. The single phase or monolithic all-ceramic materials have become more popular and do not chip, unlike all bilayered ceramic materials. These types of dental ceramic materials are dominating the market and future development, promising more long-term success. Metal-ceramics and monolithic zirconia are the "state of the art" for complex splinted teeth and implant prosthodontics. All-ceramic materials were developed to improve ceramic color and marginal fit. Until recently, few research reports attempted to study their long-term use or factors relating to their performance without modeling the data. The e.max lithium disilicate and zirconia mono-layered all-ceramic material is changing dentistry and the realization of long-term ceramic survival. Original research will be presented that studied the clinical behavior of more than 8,000 all-ceramic restorations and more than 4,500 e.max lithium disilicate restorations. Understanding methods to manage simple and complex restorative issues are critical to improving patient acceptance and long-term ceramic success. Methods to integrate the efforts of laboratory technologists and patients' desires as well as managing occlusion and final cementation protocols can have a profound impact on dentistry.

Kenneth A. Malament, DDS, MScD, is a clinical professor at Tufts University and a course director in the Postgraduate Department of Prosthodontics. He is the immediate past president of the American Academy of Esthetic Dentistry, a fellow of the American and International College of Prosthodontists, and a member of the American Academy of Fixed Prosthodontics and the Academy of Osseointegration. Dr Malament is the recipient of numerous awards in prosthodontics and esthetic dentistry, including most recently the Greater New York Academy of Prosthodontics Schweitzer

Award. He was on the research and development teams for two different well-known ceramic products and developed instrumentation used in clinical practice. Dr Malament maintains a full-time private practice limited to prosthodontics in Boston, Massachusetts, that includes a dental laboratory with master dental technologists.

*De **MOOISTE** presentatie van het hele congres! Zie ook het boek QDT 2023 voor de hele presentatie.*



Gustavo Giordani and Victor Clavijo: Digital Interdisciplinary Treatments in the Esthetic Zone

Joining specialties and fast procedures has become fundamental for the success of esthetic rehabilitation. When an interdisciplinary case involves cosmetic surgery, digital planning for a precise and fast guided execution combined with prosthetic rehabilitation offers the patient and staff a more predictable, quick, and less invasive treatment, seeking dentistry planned and nonreactive results. During this presentation, we will demonstrate how to work with a fast and predictable digital workflow integrating implants, surgical periodontics, and esthetic rehabilitation.

Gustavo Giordani, DDS, is a specialist in oral and maxillofacial surgery and traumatology, with a postgraduate degree in periodontics and implantology and having completed an international fellowship in periodontal and peri-implant plastic surgery with Dr Eric Van Dooren. Published in national and international scientific publications, he is considered one of the most important names in contemporary periodontics and implantodontics. Dr Giordani travels the world sharing his knowledge at dentistry's most important congresses and works on cases with some of the greatest names in dentistry. He maintains a private practice in São Paulo, Brazil.

Victor Clavijo, DDS, MSc, PhD, is a professor in the Advanced Program for Implantology and Restorative Dentistry at the ImplantePerio Institute in São Paulo, as well as a visiting professor in the Advanced Operative and Adhesive Dentistry Department at the University of Southern California in Los Angeles, where he returns annually for scientific research. He has authored or coauthored more than 50 journal articles and book chapters in English, Portuguese, and Spanish, all based on both clinical and scientific evidence. His book, *Restaurações Cerâmicas Anteriores: Detalhes que Fazem a Diferença* (Editora Napoleão, 2022), has also been translated into Spanish and English. He maintains a private practice in São Paulo, Brazil.

Martina Stefanini: Successful Soft Tissue Management: From Literature to Clinical Aspects

What is the definition of a peri-implant buccal soft tissue dehiscence? What are the main predisposing factors? How can these defects be classified? Is it possible to obtain predictable coverage results in both the short and long term? All these questions will be discussed and analyzed through evidence-based clinical cases. Martina Stefanini, DDS, PhD, is a researcher in the Department of Biomedical and Neuromotor Sciences at Bologna University as well as Deputy Head of teaching at its dental clinic. She is a skilled dental surgeon with expertise in periodontology and was the recipient of an 8-year research grant to work with Prof Giovanni Zucchelli.

Dr Stefanini is an active member of both the Italian Society of Periodontology and the National Osteology Group Italy, and she is active with the International Team for Implantology (ITI), as a fellow, a Study Club director, and a member of the ITI Leadership Development Committee. As editor-in-chief of the International Journal of Esthetic Dentistry, Dr Stefanini has authored several publications in PubMed and coauthored a book with Prof Zucchelli, *Mucogingival Esthetic Surgery Around Implants* (Quintessence, 2022). She maintains a private practice in Bologna, Italy.

Mooie presentatie over tissue management – mucosa grafts - door deze Italiaanse parodontoloog.

Mirela Feraru and Giuseppe Romeo: Factors Related to the Success and Survival of Ceramic Restorations in Modern Dentistry

The collaboration between the members of any restorative treatment team is fundamental to achieve optimal results and avoid unexpected obstacles. This means that the entire team should plan the treatment in advance and closely collaborate through most of the clinical and technical steps. Although facilitated digital communication between the dentist and technician is adequate, it could be improved by making the steps of the restorative workflow more manageable and predictable. Through various clinical cases, the speakers will share their experiences in clinical and technical cooperation in treating an ensemble of esthetic challenges.

Mirela Feraru, DMD, graduated in 2005 from the Dental Faculty of the Timisoara University in Romania. After joining the Bichacho Clinic team in Tel-Aviv, Israel, in 2009, she focused on interdisciplinary modalities with a concentration on restorative and perioplastic surgery treatments. As well as publishing widely, she shared her experience and skills with others by lecturing and teaching on complex esthetic restorative treatments and interdisciplinary perio-prosthetic concepts and treatment. Dr Feraru has also acquired extensive experience in high-quality dental photographic documentation and is the author of *Dental Visualization* (Quintessence, 2018).

Giuseppe Romeo, MDT, is the owner and operator of the Oral Design Center in Turin, Italy. He trained in dental technology in Turin, studied at the University of Geneva, and completed his education in Italy and abroad, working in the United States and Switzerland. Mr Romeo has published extensively in both Italian and international journals, is an associate editor in dental technology for the International Journal of Esthetic Dentistry, and has contributed to books on esthetic dentistry. He is also an active member in many prestigious organizations, such as the Oral International Foundation, American Academy of Esthetic Dentistry, European Academy of Esthetic Dentistry, Italian Academy of Esthetic Dentistry, European Society of Cosmetic Dentistry, European Academy of Digital Dentistry, and American Microscope Enhanced Dentistry.

Slijtage dentities: verhoog de beet en maak zo ruimte voor de restauraties (minimaal invasief werken volgens Fradeani – dat volgen ze) ook om failures te voorkomen. Breuken dus van restauraties. Als er

restauraties breken geef dan niet de schuld aan het materiaal maar aan de verkeerde keuze die je gemaakt hebt en/of het materiaal technisch gezien niet goed behandeld hebt (Marcus Blatz).

Mirela zegt: als het gaat om adhesief werken wordt bij haar re restauratie alleen in de praktijk voorbehandeld en niet door de tandtechnicus. De reden is dat er in het lab meerdere mensen aan de restauraties kunnen werken en ze dan niet zeker is van de juiste voorbehandeling. Daarom doet zij dat altijd zelf in de praktijk.

Taiseer Sulaiman: Clinical and Science-Based Elements of Lithium Disilicate and Zirconia Restorations—What Every Clinician Must Know!

There is a lack of evidence-based research supporting the use of contemporary ceramics in dental practices today. Poor clinical trials eventually lead to poor systematic reviews, and load-to-failure laboratory tests have little clinical relevance. This leaves clinicians unsure of which ceramic restorative material is best for their patients. This presentation focuses on lithium disilicate and monolithic zirconia, including the various generations. This includes a discussion of mechanical and optical properties, wear of natural antagonists, as well as ceramic adjustment, finishing, and polishing. A series of new retrospective studies will also be introduced to evaluate the survival of these ceramics.

Taiseer Sulaiman, DDS, PhD, is a tenured associate professor and the Director of the Advanced Operative Dentistry and Biomaterials Research at the Adams School of Dentistry, University of North Carolina at Chapel Hill. He is a wet-handed clinician and a researcher who is passionate about bridging the gap between dental research and clinical application. Dr Sulaiman's research focuses on dental ceramics, adhesion, cements, color and appearance in dentistry, and biomimetics. He has published over 80 peer-reviewed articles, abstracts, and book chapters. Dr Sulaiman is a member of many academies including the Academy of Operative Dentistry (where he serves as councilor), the Society of Color and Appearance in Dentistry, IADR/AADR, and the American Dental Association. He has presented on numerous national and international stages and is a reviewer for many peer-reviewed journals.

Niet elke soort zirconia kan speed gesinterd worden. 7 minuten kan – 5 minuten ook. Maar het heeft een consequentie voor het materiaal; sterkte, porositeit, translucentie etc.

Joshua Polansky: Prosthodontic Protocols for the Modern Dental Team: Navigating the Prosthodontics Restorative Landscape Modern dentistry is rapidly changing.

CAD/CAM as well as new techniques and materials are evolving almost daily. To succeed, it is crucial to change with the times while also maintaining a foundation in prosthodontic protocols. This foundation helps the dental team adapt in a more productive and predictable manner. This lecture discusses updated techniques from full-mouth rehabilitations using CAD/CAM and photo protocols with shade taking to alternative restorative techniques like noninvasive veneers. The focus of this presentation is to demonstrate how the dental technician and dentist collaborate through the entire treatment process for predictable results and patient satisfaction.

Joshua Polansky, MDT, is the owner and operator of Niche Dental Studio in Cherry Hill, New Jersey. Mr Polansky apprenticed in the US and abroad before earning his MDT at the UCLA Center for Esthetic Dentistry under Dr Edward McLaren and also training under Jungo Endo and Hiroaki Okabe at UCLA's Advanced Prosthodontics and Maxillofacial Program. He is a key opinion leader for major dental manufacturers such as GC America, is a member of Bio-Emulation representing the USA, and

sits on the advisory/editorial board for Inside Dental Technology and Inside Dentistry. Mr Polansky has been published in many publications including the Journal of Cosmetic Dentistry, Quintessence of Dental Technology, and the Journal of Prosthetic Dentistry.

Joshua is een zeer ervaren tandtechnicus, kon álles met was maar gebruikt met opwassen geen was meer en doet alles digitaal. Hij noemt zijn werkzaamheden 'Digital Dental Technology'. Heeft een hele mooie presentatie over de manier waarop hij tegenwoordig tandtechniek doet in zijn lab.

Hij noemt ook nog even 'en passant' dat grote implantaatgedragen bruggen van zirconia gewoon kunnen breken. Dat is ook zijn ervaring dus.

Diego Bechelli: Predictable Integration Between Esthetics and Occlusion

This lecture underscores the rationale of adhesive oral rehabilitation focused on integrating esthetic and occlusal aspects in young patients with worn dentitions. The current approaches have features such as full-digital workflow, esthetic and occlusal virtual planning, guided implant surgeries, adhesive resin prototype, conservative tooth preparations, and ceramic restorations. The proposed technique integrates both esthetic and occlusal factors, splitting the dental arches into four sectors and following a sequence with specific objectives.

Diego Bechelli, DDS, graduated from the University of Buenos Aires in 2000 and specialized in periodontics in 2006. Dr Bechelli has gone on to become an international lecturer. He is active with the International Team for Implantology (ITI) as a speaker and fellow and is chairman of the Argentina and Uruguay ITI Section. Dr Bechelli maintains a private practice in Buenos Aires with an interdisciplinary team focused on oral rehabilitation.

Galip Gürel and Hilal Kудay: Technique and Material Selection for the Anterior Esthetic Zone

Today, patients have higher esthetic expectations, which poses challenges when handling esthetic anterior cases. To achieve precise, successful outcomes, a well-planned workflow is essential. The starting point of these cases should always be the creation and visualization of the final result. During this creative phase, it is crucial to select the right techniques and materials. Building a strong interaction between the dentist, patient, and ceramist is the most demanding step of this process. Creating a smile design that precisely predicts the final result has always been a challenge. In some cases, dentists directly design a mock-up in the patient's mouth, while others leave it to the ceramist as a wax-up. To obtain optimal results, an interdisciplinary team approach with good communication is necessary. Every member of the team, including specialists, lab technicians, and the patient, should be aware of the treatment planning and desired result from the beginning.

Galip Gürel, DDS, MSc, is the founder and honorary president of the Turkish Academy of Aesthetic Dentistry, a past president of the European Academy of Esthetic Dentistry, and a visiting professor at the New York University, Marseille Dental University, and Istanbul Yeditepe University. He received the 2014 Smigel Prize, which is granted biennially by New York University College of Dentistry to honor the best esthetic dentists in the world. Dr Gürel is the author of The Science and Art of Porcelain Laminate Veneers (Quintessence, 2003), which has been translated into 12 different languages. He is the editor-in-chief of Quintessence Magazine in Turkey and serves on the editorial boards for several journals.

Hilal Kuday, CDT, graduated as a dental technician from Istanbul University in 1999. After working several years in his own laboratory in Istanbul, he began working with the Ivoclar training team. He lectures widely and now has his own training center and laboratory.

Note 1: *het zou mooi zijn als we vanuit een mondscan in een verhoogd geregistreerde CR een occlusie design zouden kunnen maken, van daaruit selecteren welke restauraties we indirect zouden kunnen maken, en vervolgens die restauraties zouden kunnen frezen in composiet of (nog mooier!) printen in composiet. Dat zou mijns inziens de ultieme vorm van het restaureren van een slijtage dentitie zijn. Alles wat je niet indirect kan printen (= dunner dan 1 mm) zou dan uit de hand met direct composiet gedaan moeten worden. Met of zonder siliconen mallen/stempeltechniek. = minimaal invasief én voordelig.*

De tekst hierboven schrijf ik op basis van wat ik hoorde in de eerste presentatie op dit congres gehouden door Anabell Bologna. Anabell verhoogt de beet om minimaal invasief te kunnen werken. Lijkt een 'open deur' maar er zit echt iets in. Die 'techniek' is trouwens afkomstig van Mauro Fradeani. Ik vond dit écht een eye opener! Zo simpel maar zó wáár?! Mondscans maken, VDO (=beethoogte) verhogen (= met Leaf gauge instelbaar) en deze inscannen, nieuw incisiefpunt boven bepalen (fonetische en esthetische mock up), in 3Shape nieuwe occlusie/disclusie designen, restauraties printen in restloos uitbrandbare kunststof, omzetten met behulp van perstechniek in Lithium disilicaat (cutback en/of monolytisch) en TUTTI 😊

Maar in plaats van het printen in restloos uitbrandbare kunststof zou je ook in composiet kunnen printen. Ik heb toen ik op dit congres was contact gehad met Peter Schouten van Kuraray en volgens hem is het printen in composiet al mogelijk. Dus is het van belang dat we dat volgen en er bovenop zitten.

Note 2: *in de tandheelkunde (en dus ook tandtechniek) werken we in de zorg, in cosmethiek/esthetiek en in lifestyle. Vond ik mooi geformuleerd (wat mij betreft: als Zorg maar altijd maar eerst op 1 staat en daarna cosmethiek en lifestyle zouden kunnen volgen).*

Note 3: *Ik vind het een geweldige ontwikkeling dat we binnen afzienbare tijd restauraties in Zirconia kunnen printen in een 3D printer. Volgens Peter Schouten van Kuraray kan dat dus momenteel ook al in composiet. Veelbelovend als het om de restauratie van slijtage dentities gaat.*

Note 4: *op zich vind ik het al (als prothesetechnicus van origine) een heel gedoe om grote implantaat gedragen bruggen van zirconia te zien maken. De techniekgevoeligheid, de krimp van het opbakmateriaal etc. etc. en nog veel meer factoren geven allemaal onzekerheden die enorm tegen kunnen werken. Het lijkt allemaal geweldig wat we in de 'dental technology' kunnen maken met Zircozahn en dergelijke systemen maar het blijkt dat dit zircoon geweld op dit congres 'zircomania' genoemd wordt. Er gaat 50% stuk en dat wil je niet met zo'n voorziening die een klein vermogen (en bloed, zweet en tranen van de tandtechnicus) gekost heeft. Los van het 'Klicking' waar je veel over hoorde, waar patienten/eindgebruikers veel hinder van kunnen ondervinden. Hun hoofd als 'klankkast'*

Dus spreekt mij de digitaal ontworpen, PMMA implantaat gedragen brug heel erg aan. Een mooi product, digitaal vervaardigd, met behulp van een materiaal met mooie eigenschappen, eenvoudig aanpasbaar, goed te servicen, en eenvoudig en voordelig te vervangen.

Note 5: *in de (voor mij) derde wereldlanden (zuid Amerika, Azie/China en zuid-oost Europa) staan fantastisch getalenteerde tandartsen, tandtechnici en dentale wetenschappers op, geïnspireerd onder*

andere door dit soort congressen waar ik aan deel nam, die met hun gedrevenheid én talent hun landen en werelddelen op de dentale kaart zetten; zoals Roemenie, diverse landen in zuid Amerika, en Azie. Zij zijn zo baanbrekend en gedreven dat zij, met Noord Amerika als voorbeeld, de westerse tandheekunde van dit moment het komende decennium zullen overtreffen.

Tot slot: in 2005 bezochten we dit fantastische congres voor het eerst in een groepje van vijf; twee tandtechnici (Jos van Dijk en ondergetekende) en drie tandartsen (Frans-Jozef Dams, Frank Geurts en Pieter Pijnenburg). We waren allemaal flabbergasted over wat gepresenteerd werd. Het was geweldig om deze unieke ervaring te beleven en met elkaar te delen.

Ik kan het iedereen aanraden om deze trip een keer te ondernemen. Maar dan wel als 'teams' tandarts/tandtechnicus en dan met meerdere personen. Het leuke is dat je je opgedane kennis en informatie met elkaar kan delen en bespreken.

Dit congres heeft normaal gesproken 1100 deelnemers die vanuit de hele wereld afkomstig zijn. 60% is tandarts, 40% is tandtechnicus. Het congres vindt eens in de drie jaar plaats; de ene keer in san Diego, de andere keer in Los Angeles.

Sinds 2005 hebben we er geen één overgeslagen.

Aonceinadentallifetimeexperience 😊

Juni 2023

Paul Goedegebuure