



HISTORY OF DENTISTRY

The Evolution of Oral and Maxillofacial Surgery Over the Past 100+ Years—With Special Emphasis on the Role of Fluoride and the High-Speed Handpiece,

Journal of Oral and Maxillofacial Surgery, Volume 76, Issue 8, 2018, Pages 1611-1615
(<http://www.sciencedirect.com/science/article/pii/S027823911830377X>)

Advances in imaging over 100 years: the impact on oral and maxillofacial surgery

Journal of Oral and Maxillofacial Surgery, Volume 76, Issue 7, 2018, Pages 1387-1399
(<http://www.sciencedirect.com/science/article/pii/S0278239118301964>)

An evolution during a century of leadership, scholarship, mentorship, and fellowship,

The Journal of Prosthetic Dentistry, Volume 119, Issue 6, 2018, Pages 865-866
(<http://www.sciencedirect.com/science/article/pii/S002239131830341X>)

The Journal of Prosthetic Dentistry: A historical perspective

The Journal of Prosthetic Dentistry, Volume 119, Issue 4, April 2018, Pages 497-498
(<https://www.sciencedirect.com/science/article/pii/S0022391318301756>)

Alloplastic temporomandibular joint replacement systems: a systematic review of their history

International Journal of Oral and Maxillofacial Surgery, Volume 47, Issue 6, June 2018, Pages 743-754
(<https://www.sciencedirect.com/science/article/pii/S0901502718300328>)

Abstract:

This systematic review provides an overview of the historical evolution of the prosthetic temporomandibular joint and addresses the challenges and complications faced by engineers and surgeons, in an effort to shed light on why only a few systems remain available. A better understanding of the history of temporomandibular joint prostheses might also provide insights into the origin of the negative public opinion of the prosthesis, which is based on outdated information. A computerized search using the PubMed Central, ScienceDirect, Wiley Online, Ovid, and Cochrane Library databases was performed following the PRISMA guidelines. Out of 7122

articles identified, 41 met the inclusion criteria for this systematic review. Although several historical reviews have been published previously, none has covered such an extensive time period or has described all designs. Furthermore, besides providing a historical overview, this review discusses the rationale behind the evolution in design and biomaterials, which have largely contributed to the outcomes of the prosthetic systems.
Key words: temporomandibular joint; prostheses and implants; literature review; history

The evolution of microvascular and microneurosurgical maxillofacial Reconstruction

Journal of Oral and Maxillofacial Surgery, Volume 76, Issue 4, April 2018, Pages 687-699
(<https://www.sciencedirect.com/science/article/pii/S0278239118300089>)

The history of The Glossary of Prosthodontic Terms

The Journal of Prosthetic Dentistry, Volume 119, Issue 3, March 2018, Pages 311-312
(<https://www.sciencedirect.com/science/article/pii/S0022391317306972>)

Historical perspective and nomenclature of potentially malignant or potentially premalignant oral epithelial lesions with emphasis on leukoplakia—some suggestions for modifications

Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, Available online 29 December 2017

(<https://www.sciencedirect.com/science/article/pii/S2212440317312427>)
Abstract: Of the potentially (pre)malignant oral epithelial lesions, leukoplakia is the most common. A brief overview of the various definitions of leukoplakia that have been used in the past is presented here. A proposal has been made to modify the current definition. Clinically, for decades, leukoplakias have been divided into homogeneous and nonhomogeneous leukoplakias and further into different subtypes. A proposal has been made to slightly rearrange these subtypes. Furthermore, attention has been paid to a number of keratotic lesions that have been reported in the literature. It is expected that the increasing knowledge on carcinogenesis, including various genetic aspects, will be reflected in the definition of oral potentially (pre)malignant lesions in the near future.

The history of cranioplasty



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British Journal of Oral and Maxillofacial Surgery, Volume 55, Issue 10, December 2017, Page e108
(<https://www.sciencedirect.com/science/article/pii/S0266435617303480>)

A historical perspective with current opinion on the management of atrophic mandibular fractures

Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, Volume 124, Issue 6, December 2017, Pages e276-e282
(<https://www.sciencedirect.com/science/article/pii/S2212440317310623>)
Abstract: The management of atrophic mandibular fractures has been a challenge for maxillofacial surgeons for decades. During the past 70 years, various techniques for treating edentulous mandibular fractures have been advocated. These techniques have been praised, criticized, abandoned, improved, and used in combination with other methods. Although some of the principles of management outlined before the end of World War II are still valid in today's technological era, other concepts did not survive the test of time. The aim of this paper is to examine the evolution of treatment modalities for the management of atrophic mandibular fractures that have been employed over the years. Debates and discussions generated by this topic are included. Current techniques and treatment philosophies with thoughts for future therapies are provided.

The most important invention in the history of dentistry and what it teaches us about the future

The Journal of the American Dental Association, Volume 148, Issue 10, October 2017, Pages 707-708
(<https://www.sciencedirect.com/science/article/pii/S0002817717307511>)

Globalisation: the evolution of orthognathic norms

International Journal of Oral and Maxillofacial Surgery, Volume 46, Supplement 1, March 2017, Pages 35-36
(<https://www.sciencedirect.com/science/article/pii/S0901502717301911>)

Changes in the field of osteoradionecrosis of the jaw over the past decades, concerning prevention and treatment

International Journal of Oral and Maxillofacial Surgery, Volume 46, Supplement 1, March 2017, Page 121
(<https://www.sciencedirect.com/science/article/pii/S0901502717304848>)

Averting the failing flap a review of the historical and technical advances

British Journal of Oral and Maxillofacial Surgery, Volume 54, Issue 10, December 2016, Page e108
(<https://www.sciencedirect.com/science/article/pii/S0266435616304636>)

A blast from the past: Sir Harold Gillies (1882-1960)

British Journal of Oral and Maxillofacial Surgery, Volume 54, Issue 10, December 2016, Page e126
(<https://www.sciencedirect.com/science/article/pii/S0266435616305125>)

Historical milestones in oral and maxillofacial surgery

Journal of Oral and Maxillofacial Surgery, Available online 13 October 2016.
(<http://www.sciencedirect.com/science/article/pii/S0278239116307686>)
To the Editor: Dr Hupp's editorial¹ stimulated reflection on my career in oral and maxillofacial surgery (OMS), beginning in 1963 and continuing to the present,² and a review of the history of OMS.³ and 4 I have selected the following historical milestones as having had a profound effect on OMS in general and me in particular¹:...

Corpus Hippocraticum: historical source of treatment of craniomaxillofacial trauma

British Journal of Oral and Maxillofacial Surgery, Available online 3 September 2016.
(<http://www.sciencedirect.com/science/article/pii/S0266435616302352>)
Abstract: The works of Hippocrates known in the Western World as the Corpus Hippocraticum have dominated medical thought and surgical practice for centuries. A substantial part of the Hippocratic Collection is dedicated to the description of injuries pertinent to Cranio-maxillofacial surgery and their management. Hippocrates has reached this level of surgical skill despite the limited pre-recorded knowledge and the restriction to perform post-mortem dissections.
Keywords: Hippocrates; Cranio-maxillofacial trauma

Evolution of imaging and management systems in orthodontics

American Journal of Orthodontics and Dentofacial Orthopedics, Volume 149, Issue 6, June 2016, Pages 798-805.
(<http://www.sciencedirect.com/science/article/pii/S0889540616001931>)



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Abstract: Orthodontists have long been among the most progressive of the dental specialists, quick to embrace new technologies for enhancing clinical efficiencies and practice workflow. Orthodontic software innovations, whether for imaging and clinical applications or for managing the business side of a practice, have led the consistent need for more powerful computing requirements for more than 4 decades. This article recounts the history of how computers and orthodontic software have been used in America from their nascence to today and provides an outlook for the future.

The history of orthodontic education: A century of development and debate

American Journal of Orthodontics and Dentofacial Orthopedics, Volume 148, Issue 6, December 2015, Pages 901-913

(<http://www.sciencedirect.com/science/article/pii/S0889540615010586>)

Abstract: The history of orthodontic education in the United States spans more than 100 years. A number of exhortations have been repeated over the years by some of the best minds in orthodontics. First, our standards of excellence must be maintained. Angle set a standard for the specialty by demanding that students in his proprietary school achieve a high level of knowledge in growth and development, biomechanics, and mechanical skills; that standard is no less important today in postgraduate orthodontic departments. Second, orthodontics is not just moving teeth. Throughout our history, authors have stressed that teeth are “incidental” to orthodontics, and we need to be concerned with bone and the dentofacial complex. To be sure, much has changed about our specialty and its biologic foundations; we must adapt along with the discoveries in biology and the innovations in technology. But we should always strive for excellence—in ourselves and our specialty.

Mandibular tissue engineering: past, present, future

Journal of Oral and Maxillofacial Surgery, Volume 73, Issue 12, Supplement, December 2015, Pages S136-S146.

(<http://www.sciencedirect.com/science/article/pii/S0278239115006229>)

Abstract: Almost 2 decades ago, the senior author's (M.T.J.) first article was with our mentor, Dr Leonard B. Kaban, a review article titled “Distraction Osteogenesis: Past, Present, Future.” In 1998, many thought it would be impossible to have a remotely activated, small, curvilinear distractor that could be placed using endoscopic techniques. Currently, a

U.S. patent for a curvilinear automated device and endoscopic techniques for minimally invasive access for jaw reconstruction exist. With minimally invasive access for jaw reconstruction, the burden to decrease donor site morbidity has increased. Distraction osteogenesis (DO) is an in vivo form of tissue engineering. The DO technique eliminates a donor site, is less invasive, requires a shorter operative time than usual procedures, and can be used for multiple reconstruction applications. Tissue engineering could further reduce morbidity and cost and increase treatment availability. The purpose of the present report was to review our experience with tissue engineering of bone: the past, present, and our vision for the future. The present report serves as a tribute to our mentor and acknowledges Dr Kaban for his incessant tutelage, guidance, wisdom, and boundless vision.

Oral and Maxillofacial Surgery 2025: 50 years of evolution of a surgical specialty

Journal of Oral and Maxillofacial Surgery, Volume 73, Issue 12, Supplement, December 2015, Pages S155-S159.

(<http://www.sciencedirect.com/science/article/pii/S027823911501006X>)

The evolution of thinking about temporomandibular pain

The Journal of the American Dental Association, Volume 146, Issue 12, December 2015, Pages 925-926.

(<http://www.sciencedirect.com/science/article/pii/S0002817715002408>)

The AJO-DO and the history of orthodontics

American Journal of Orthodontics and Dentofacial Orthopedics, Volume 148, Issue 5, November 2015, Pages 703-705.

(<http://www.sciencedirect.com/science/article/pii/S0889540615008884>)

Current assessment of reciprocation in endodontic preparation: a comprehensive review—Part I: historic perspectives and current applications

Journal of Endodontics, Volume 41, Issue 11, November 2015, Pages 1778-1783.

(<http://www.sciencedirect.com/science/article/pii/S0099239915005774>)

Abstract: AbstractIntroduction

During the evolution of mechanical instrumentation in endodontics, an important role has been played by reciprocating stainless steel files using horizontal rotational, vertical translational, or combined movements. These



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kinds of systems are still in use mainly as an accessory to help in the first phases of the treatment.

Methods

The literature concerning these systems has been analyzed using selected criteria.

Results

The latest evolution of horizontal rotational reciprocating movement brought to the development of a different kind of movement in which the angles are asymmetrical and that appears to be ideal in conjunction with modern nickel-titanium (NiTi) files with a greater taper. Initially, this movement was limited to particular handpieces available on the market that was used with existing NiTi files to complete root canal instrumentation. Later on, specific files and proprietary motors were introduced into the market. The differences between reciprocating motion used for NiTi and stainless steel files are described and critically analyzed.

Conclusions

A classification of the different mechanical reciprocating motions used is presented, thus enabling an easier understanding of these systems and anticipated future developments.

Key Words: nickel-titanium instruments; reciprocation; review; root canal preparation; stainless steel instruments

Osteonecrosis of the jaw by white phosphorous: how the historical industrial disease ‘phossy jaw’ may provide lessons in our approach to bisphosphonate-related osteonecrosis and public health obligations in oral and maxillofacial surgery

International Journal of Oral and Maxillofacial Surgery, Volume 44, Supplement 1, October 2015, Page e77, ISSN 0901-5027, <http://dx.doi.org/10.1016/j.ijom.2015.08.590>. (<http://www.sciencedirect.com/science/article/pii/S0901502715008814>)

Microstructural evolution and physical behavior of a lithium disilicate glass–ceramic

Dental Materials, Volume 31, Issue 8, August 2015, Pages 928-940 (<http://www.sciencedirect.com/science/article/pii/S0109564115001438>)
Abstract: Background

Elucidating the microstructural responses of the lithium disilicate system like the popular IPS e.max® CAD (LS2), made specifically for computer-aided design and computer-aided manufacturing (CAD-CAM), as a

temperature-dependent system unravels new ways to enhance material properties and performance.

Objective

To study the effect of various thermal processing on the crystallization kinetics, crystallite microstructure, and strength of LS2.

Methods

The control group of the LS2 samples was heated using the standard manufacturer heating-schedule. Two experimental groups were tested: (1) an extended temperature range (750–840 °C vs. 820–840 °C) at the segment of 30 °C/min heating rate, and (2) a protracted holding time (14 min vs. 7 min) at the isothermal temperature of 840 °C. Five other groups of different heating schedules with lower-targeted temperatures were evaluated to investigate the microstructural changes. For each group, the crystalline phases and morphologies were measured by X-ray diffraction (XRD) and scanning electron microscope (SEM), respectively. Differential scanning calorimeter (DSC) was used to determine the activation energy of LS2 under non-isothermal conditions. A universal testing machine was used to measure 3-point flexural strength and fracture toughness, and elastic modulus and hardness were measured by a nanoindenter. A one-way ANOVA/Tukey was performed per property ($\alpha = 0.05$).

Results

DSC, XRD, and SEM revealed three distinct microstructures during LS2 crystallization. Significant differences were found between the control group, the two aforementioned experimental groups, and the five lower-targeted-temperature groups per property ($p < 0.05$). The activation energy for lithium disilicate growth was 667 (± 29.0) kJ/mol.

Conclusions

Groups with the extended temperature range (750–840 °C) and protracted holding time (820–840 °C H14) produced significantly higher elastic-modulus and hardness properties than the control group but showed similar flexural-strength and fracture-toughness properties with the control group. In general, rapid growth of lithium disilicates occurred only when maximum formation of lithium metasilicates had ended.

Keywords: IPS e.max® CAD; Lithium disilicate; Lithium metasilicate; Glass–ceramic; Nanoindentation; Microstructure; Phase transformation; Heating schedule; Temperature threshold; Differential scanning calorimetry; Nucleation; Crystallization

Sixth World Workshop on Oral Medicine: historical context



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Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, Volume 120, Issue 2, August 2015, Pages 125-131
(<http://www.sciencedirect.com/science/article/pii/S2212440315005738>)

Ossifying Fibroma of the Maxilla With A Long-Term Evolution

Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, Volume 120, Issue 2, August 2015, Page e21
(<http://www.sciencedirect.com/science/article/pii/S2212440315001005>)

Evolution of Class III treatment in orthodontics

American Journal of Orthodontics and Dentofacial Orthopedics, Volume 148, Issue 1, July 2015, Pages 22-36
(<http://www.sciencedirect.com/science/article/pii/S0889540615005259>)
Abstract: Angle, Tweed, and Moyers classified Class III malocclusions into 3 types: pseudo, dentoalveolar, and skeletal. Clinicians have been trying to identify the best timing to intercept a Class III malocclusion that develops as early as the deciduous dentition. With microimplants as skeletal anchorage, orthopedic growth modification became more effective, and it also increased the scope of camouflage orthodontic treatment for patients who were not eligible for orthognathic surgery. However, orthodontic treatment combined with orthognathic surgery remains the only option for patients with a severe skeletal Class III malocclusion or a craniofacial anomaly. Distraction osteogenesis can now be performed intraorally at an earlier age. The surgery-first approach can minimize the length of time that the malocclusion needs to worsen before orthognathic surgery. Finally, the use of computed tomography scans for 3-dimensional diagnosis and treatment planning together with advances in imaging technology can improve the accuracy of surgical movements and the esthetic outcomes for these patients.

In Vivo Intracanal Temperature Evolution during Endodontic Treatment after the Injection of Room Temperature or Preheated Sodium Hypochlorite

Journal of Endodontics, Volume 41, Issue 7, July 2015, Pages 1112-1115
(<http://www.sciencedirect.com/science/article/pii/S0099239915001387>)
Abstract: Introduction
Heating a sodium hypochlorite solution improves its effectiveness. The aim of this study was to measure the in vivo temperature changes of sodium

hypochlorite solutions that were initially preheated to 66°C or at room temperature inside root canals during routine irrigation.

Methods

Thirty-five root canals were prepared to ISO size 40 with 4% taper. A type K (nickel-chromium-nickel) thermocouple microprobe (Testo NV, Ternat, Belgium) was positioned within 3 mm of the working length to measure the temperature at 1-second intervals. In each canal, 2 test protocols were evaluated in a randomized order with 3% sodium hypochlorite solutions: (1) preheated to 66°C and (2) at room temperature. The temperature measurements began 5 seconds before the 25 seconds of irrigant injections and continued for 240 seconds. This resulted in 270 data points for each protocol.

Results

The temperature of the irrigant at room temperature increased from the initial intracanal temperature after injection of 20.7°C ($\pm 1.2^\circ\text{C}$) to 30.9°C ($\pm 1.3^\circ\text{C}$) in 10 seconds and to 35°C ($\pm 0.9^\circ\text{C}$) after 240 seconds. The temperature of the preheated to 66°C solution decreased from 56.4°C ($\pm 2.7^\circ\text{C}$) to 45.4°C ($\pm 3.0^\circ\text{C}$) after 5 seconds, reached 37°C ($\pm 0.9^\circ\text{C}$) after 60 seconds, and reached 35.7°C ($\pm 0.8^\circ\text{C}$) after 240 seconds.

Conclusions

The original temperatures of the sodium hypochlorite solutions were buffered inside the root canal and tended to rapidly evolve to equilibrium. The findings of this study contribute to an improved understanding of the thermodynamic behaviors of irrigant solutions inside root canals in vivo.
Key Words: In vivo; intracanal temperature; irrigation; sodium hypochlorite

Historical maxillofacial surgery: the Bradmore extractor and the removal of an arrowhead from the left cheek of the future Henry V in 1403

British Journal of Oral and Maxillofacial Surgery, Available online 16 June 2015
(<http://www.sciencedirect.com/science/article/pii/S0266435615002028>)

Piezocision™-assisted orthodontics: Past, present, and future

Seminars in Orthodontics, Available online 10 June 2015
(<http://www.sciencedirect.com/science/article/pii/S1073874615000341>)
Abstract: The past decade has seen a surge in innovations pertaining to the field of orthodontics aimed at shortening the length of the treatment for the adult patient. Today we are presenting an innovative, minimally



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invasive surgical technique designed to help achieve such a goal and perhaps, more importantly, help solve orthodontic challenges through timely bone density modification. Piezocision™ is an orthodontically guided surgical procedure. It has evolved from being initially a minimally invasive surgical alternative to conventional corticotomies to a more sophisticated philosophy where the orthodontist is given the tools to control the anchorage value of teeth by selectively altering the bone density surrounding them, using the piezoelectric knife at key time intervals, in an effort to successfully solve orthodontic challenges. Piezocision™ gives the periodontist and the orthodontist another tool to expand their scope of practice.

Evolution of treatment mechanics and contemporary appliance design in orthodontics: A 40-year perspective

American Journal of Orthodontics and Dentofacial Orthopedics, Volume 147, Issue 6, June 2015, Pages 654-662
(<http://www.sciencedirect.com/science/article/pii/S0889540615002589>)
Abstract: Until the early 1970s, successful treatment with the Begg technique and the Tweed edgewise technique required tedious wire bending. The introduction of Andrews' straight wire appliance changed that, and it was one of the most significant contributions in the history of orthodontics. The straight wire appliance significantly reduced the amount of wire bending and also brought along other options in treatment mechanics. Retraction of the canines with elastic chains and ligature wires became more common. Sliding mechanics in place of closing loops became the method of space closure for a significant number of clinicians. Edgewise force levels were initially used to close spaces; however, it was soon observed that lighter forces were more effective with sliding mechanics. Along with these changes, it became apparent that compensation in the appliance was needed, depending on the type of malocclusion and particularly with varying extraction sequences. Various appliance designs were developed to accommodate changes in mechanics and force levels. These modifications improved tooth positions at the end of treatment as long as the brackets were properly placed. These major changes in appliances, force levels, and treatment mechanics can be traced back to the work of Dr Lawrence Andrews and the straight wire appliances.

Evolution of occlusion and temporomandibular disorder in orthodontics: Past, present, and future

American Journal of Orthodontics and Dentofacial Orthopedics, Volume 147, Issue 5, Supplement, May 2015, Pages S216-S223
(<http://www.sciencedirect.com/science/article/pii/S0889540615001079>)
Abstract: Occlusion has been an important consideration in orthodontics since the beginning of the discipline. Early emphasis was placed on the alignment of the teeth, the stability of the intercuspal position, and the esthetic value of proper tooth positioning. These factors remain important to orthodontists, but orthopedic principles associated with masticatory functions must also be considered. Orthopedic stability in the masticatory structures should be a routine treatment goal to help reduce risk factors associated with developing temporomandibular disorders.

Orthodontic material applications over the past century: Evolution of research methods to address clinical queries

American Journal of Orthodontics and Dentofacial Orthopedics, Volume 147, Issue 5, Supplement, May 2015, Pages S224-S231
(<http://www.sciencedirect.com/science/article/pii/S0889540615002024>)
Abstract: The advances in the field of materials as they relate to orthodontics can be divided into the actual evolution of materials applied to daily practice and the changes in research methods to study the performance and the biologic properties of the materials. Although it is evident that new materials have saturated the market during the past century, the basic concepts of attaching one appliance to the enamel to use as a grip and inserting wires into that to control the spatial orientation of a tooth are identical to the original concepts. In contrast to that, the numbers of treatises about those subjects and the complexity of instrumentation and analytic tools used in published research have advanced tremendously and at a frenetic pace. This highly specialized pattern of research may effectively raise boundaries across research areas, since the complexity of the issues allows researchers to comprehend the content of journal articles in a narrow spectrum of disciplines. The purposes of this article were to review the advances in the research methods for investigating the various properties of orthodontic materials and to assist the reader in navigating this topic. A synopsis of the materials is also provided, listing future applications that already exist at the experimental stage or are yet unavailable but with the relevant technology already presented in broader scientific disciplines.



The evolution of bonding in orthodontics

American Journal of Orthodontics and Dentofacial Orthopedics, Volume 147, Issue 4, Supplement, April 2015, Pages S56-S63

(<http://www.sciencedirect.com/science/article/pii/S0889540615000347>)

Abstract: In the early days of fixed-appliance orthodontic treatment, brackets were welded to gold or stainless steel bands. Before treatment, the orthodontist had to create enough space around each tooth to accommodate the bands, and then those spaces had to be closed at the end of treatment, when the bands were removed. This was time-consuming for the orthodontist and uncomfortable for the patient. Banded appliances frequently caused gingival trauma when fitted, and decalcification could occur under the band. In the mid-1960s, Dr George Newman, an orthodontist in Orange, New Jersey, and Professor Fujio Miura, chair of the Department of Orthodontics at Tokyo Medical and Dental University in Japan, pioneered the bonding of orthodontic brackets to enamel. Many developments have occurred in the decades that followed, including many new adhesives, sophisticated base designs, new bracket materials, faster or more efficient curing methods, self-etching primers, fluoride-releasing agents, and sealants. The purpose of this article is to review the history of orthodontic bonding, especially the materials used in the bonding process.

The journey from the past to the future

American Journal of Orthodontics and Dentofacial Orthopedics, Volume 147, Issue 4, April 2015, Pages 415-416

(<http://www.sciencedirect.com/science/article/pii/S0889540615000037>)

A Brief History of Vascularized Free Flaps in the Oral and Maxillofacial Region

Journal of Oral and Maxillofacial Surgery, Volume 73, Issue 4, April 2015, Pages 786.e1-786.e11

(<http://www.sciencedirect.com/science/article/pii/S0278239114017959>)

Abstract: Vascularized free flaps are now the reference standard for the reconstruction of defects after cancer resection in oral and maxillofacial surgery and other specialties and have an interesting and surprisingly long history. We reviewed the history of free flap use in oral and maxillofacial surgery and show their place in the wider context of surgical progress. An overview is given of both soft tissue and bony reconstruction in the pre-

free flap era and the development of vascular anastomosis and microsurgery—one of the main foundations of free flap surgery. The emergence of free flaps from 1959 through to the early 1970s is documented. The history of 19 of the more common free flaps used in oral and maxillofacial surgery is described, from the jejunal flap in 1959 through to the posterior tibial artery flap in 1985. For each, the origin and first reported use in the head and neck are discussed. Free flap surgery has continued to evolve, with developments in perforator and chimeric flaps, and new flaps continue to be described. An appreciation of the surgical history is important in understanding where we are today. Our review should give the practicing surgeon an idea of the origins of the currently used techniques.

The evolution of journal communication

American Journal of Orthodontics and Dentofacial Orthopedics, Volume 147, Issue 2, February 2015, Pages 153-157

(<http://www.sciencedirect.com/science/article/pii/S0889540614009883>)

The evolution of a new Craniofacial Procedure: From Concept to established Intervention. The 8 year history of Posterior Calvarial Osseodistractor and its use in Craniofacial Surgery

British Journal of Oral and Maxillofacial Surgery, Volume 52, Issue 8, October 2014, Page e46

(<http://www.sciencedirect.com/science/article/pii/S0266435614002770>)

A Brief History of Vascularised Free Flaps in the Oral and Maxillofacial Region

British Journal of Oral and Maxillofacial Surgery, Volume 52, Issue 8, October 2014, Page e107

(<http://www.sciencedirect.com/science/article/pii/S0266435614004616>)

The Management of First World War Jaw Injuries at the First Scottish General Hospital 1914 – 1918

British Journal of Oral and Maxillofacial Surgery, Volume 52, Issue 8, October 2014, Page e126

(<http://www.sciencedirect.com/science/article/pii/S0266435614005178>)

Role of filler and functional group conversion in the evolution of properties in polymeric dental restoratives



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Dental Materials, Volume 30, Issue 5, May 2014, Pages 586-593
(<http://www.sciencedirect.com/science/article/pii/S0109564114000669>)

Abstract: Objectives

To examine effects of shrinkage and modulus on the dynamic development of shrinkage stress as a function of methacrylate conversion and filler loading in a model photocurable dimethacrylate-based resin with a silanized barium glass filler.

Methods

BisGMA/TEGDMA samples with filler loading levels of 0–70 wt% were evaluated. Irradiation times and intensities were varied to achieve a wide range of conversion. Shrinkage stress measurements were accompanied with real-time conversion monitoring, while shrinkage and modulus measurements were made at different static conversion points.

Results

Shrinkage increased nearly linearly with respect to conversion, while for a given value of conversion, it decreased proportionally with increasing filler content. Modulus advanced in an exponential fashion with conversion and also increased incrementally with filler content; however, modulus values rose disproportionately rapidly for the highest filler loading. At either high or low filler loading levels, stress at limiting conversion, which was inversely proportional to the filler load, was high while at an intermediate filler content, a minimum in stress was observed due to the combined effects of filler based shrinkage reduction, restricted limiting conversion and only moderately enhanced modulus. The level of polymerization stress predicted from the conversion-indexed shrinkage and modulus measurements over-estimated the experimental stress states as modulus evolved due to system compliance that to some degree mimics the clinical situation presented by photocuring bonded composite restorations.

Significance Measurement of monomer conversion provides a common basis by which different material properties can be rationally compared.

Keywords: Shrinkage; Modulus; Stress; Fillers; Degree of conversion; Composite dental restorative; Property evolution

Acknowledging historical precedence

Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, Volume 117, Issue 2, February 2014, Pages 253-254
(<http://www.sciencedirect.com/science/article/pii/S2212440313003817>)

Property evolution during vitrification of dimethacrylate photopolymer networks

Dental Materials, Volume 29, Issue 11, November 2013, Pages 1173-1181
(<http://www.sciencedirect.com/science/article/pii/S0109564113004338>)

Abstract: Objectives

This study seeks to correlate the interrelated properties of conversion, shrinkage, modulus and stress as dimethacrylate networks transition from rubbery to glassy states during photopolymerization.

Methods

An unfilled BisGMA/TEGDMA resin was photocured for various irradiation intervals (7–600 s) to provide controlled levels of immediate conversion, which was monitored continuously for 10 min. Fiber optic near-infrared spectroscopy permitted coupling of real-time conversion measurement with dynamic polymerization shrinkage (linometer), modulus (dynamic mechanical analyzer) and stress (tensometer) development profiles.

Results

The varied irradiation conditions produced final conversion ranging from 6% to more than 60%. Post-irradiation conversion (dark cure) was quite limited when photopolymerization was interrupted either at very low or very high levels of conversion while significant dark cure contributions were possible for photocuring reactions suspended within the post-gel, rubbery regime. Analysis of conversion-based property evolution during and subsequent to photocuring demonstrated that the shrinkage rate increased significantly at about 40% conversion followed by late-stage suppression in the conversion-dependent shrinkage rate that begins at about 45–50% conversion. The gradual vitrification process over this conversion range is evident based on the broad but well-defined inflection in the modulus versus conversion data. As limiting conversion is approached, modulus and, to a somewhat lesser extent, stress rise precipitously as a result of vitrification with the stress profile showing little if any late-stage suppression as seen with shrinkage.

Significance

Near the limiting conversion for this model resin, the volumetric polymerization shrinkage rate slows while an exponential rise in modulus promotes the vitrification process that appears to largely dictate stress development.

Keywords: Dental materials; Dimethacrylate; Polymers; Shrinkage; Stress; Modulus; Vitrification; Dark cure



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Transmission of surgical knowledge of the head and neck from the ancient Greek-Roman period to early medieval Europe: the significance of Islamic role from Baghdad to Cordoba

International Journal of Oral and Maxillofacial Surgery, Volume 42, Issue 10, October 2013, Pages 1253-1254
(<http://www.sciencedirect.com/science/article/pii/S0901502713005754>)

Evolution of virtual treatment planning and CAD/CAM manufacturing in mandibular reconstruction with microvascular tissue transfer

International Journal of Oral and Maxillofacial Surgery, Volume 42, Issue 10, October 2013, Page 1255
(<http://www.sciencedirect.com/science/article/pii/S090150271300581X>)

Spotlighting articles from past ADA Journals that have achieved landmark status thanks to their lasting impact on dental care and the dental profession

The Journal of the American Dental Association, Volume 144, Issue 10, October 2013, Pages 1104-1108
(<http://www.sciencedirect.com/science/article/pii/S0002817714605225>)

Immunostaining of Cadherin-Catenin In Evolution From Dysplasia to Oral Cancer

Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, Volume 116, Issue 3, September 2013, Pages e199-e200
(<http://www.sciencedirect.com/science/article/pii/S2212440313003015>)

Historical Review: First Facial Pain Patient Admitted to Massachusetts General Hospital, February 1823 and First Case Series

Journal of Oral and Maxillofacial Surgery, Volume 71, Issue 8, August 2013, Pages 1322-1333
(<http://www.sciencedirect.com/science/article/pii/S0278239113004291>)
Abstract: Founded in 1811, the Massachusetts General Hospital recently celebrated its bicentennial. The War of 1812 delayed construction of the building so the first patient actually was admitted to the hospital 10 years later, on September 3, 1821. By 1823, the 60 hospital beds were full. Patient 66 was admitted on February 28, 1823, and his hospital course, as described in the admissions book, was transcribed for the Massachusetts General Hospital bicentennial celebration. That case history is reproduced

and a case series of 6 similar patients published in 1828 by Dr John Warren, surgeon-in-chief and a founder of the hospital, is presented. In this report, the authors comment on the diagnosis, treatment, and outcome of these patients in the context of the contemporaneous health care environment and in light of the current knowledge of facial pain disorders. This article was adapted from the authors' commentary for the bicentennial celebration.

Dentine sensitivity: Past, present and future

Journal of Dentistry, Volume 41, Supplement 4, July 2013, Pages S3-S17
(<http://www.sciencedirect.com/science/article/pii/S0300571213700022>)
Abstract: AbstractObjective

This review defines dentine sensitivity (DS), its prevalence, its aetiology, the mechanism(s) responsible for DS, its diagnosis and its treatment. The review then examines the modes of action of various treatments for DS including potassium salts, strontium salts, bioglasses, arginine/calcium carbonate and professional treatments such as adhesives and oxalates. The methods used to evaluate the various treatment modalities are discussed, including laboratory studies and randomised controlled clinical trials.

Data sources and study selection

A literature search was conducted using PubMed, Ovid Medline and Cochrane reviews for information on DS and its treatments, as well as laboratory and clinical studies used to evaluate the efficacy of various DS treatments. With regard to efficacy of treatments for DS only reports of clinical studies that were randomised, controlled and blinded were reviewed. The authors offer new insights into the shortcomings of the recent systematic review of the use of oxalates for DS.

Conclusion

The authors introduce the concept of a novel desensitising mouthrinse containing 1.4% potassium oxalate: Listerine® Advanced Defence Sensitive mouthrinse. Readers of this supplement issue of the Journal of Dentistry are invited to review the significance of managing the clinical problem of DS. They are also invited to assess data from laboratory and randomised controlled clinical studies in order to understand the advantages offered by regular use of 1.4% potassium oxalate-containing mouthrinse, Listerine Advanced Defence Sensitive, in particular its resistance to daily erosive and/or abrasive challenges.



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Keywords: Dentine sensitivity; Tooth sensitivity; Dentine hypersensitivity; Tubule occlusion; Nerve stabilisation; Potassium oxalate; Mouthrinse

A brief history of LED photopolymerization

Dental Materials, Volume 29, Issue 6, June 2013, Pages 605-617
(<http://www.sciencedirect.com/science/article/pii/S0109564113000328>)

Abstract: Objectives

The majority of modern resin-based oral restorative biomaterials are cured via photopolymerization processes. A variety of light sources are available for this light curing of dental materials, such as composites or fissure sealants. Quartz-tungsten-halogen (QTH) light curing units (LCUs) have dominated light curing of dental materials for decades and are now almost entirely replaced by modern light emitting diode light curing units (LED LCUs). Exactly 50 years ago, visible LEDs were invented. Nevertheless, it was not before the 1990s that LEDs were seriously considered by scientists or manufactures of commercial LCUs as light sources to photopolymerize dental composites and other dental materials. The objective of this review paper is to give an overview of the scientific development and state-of-the-art of LED photopolymerization of oral biomaterials.

Methods

The materials science of LED LCU devices and dental materials photopolymerized with LED LCU, as well as advantages and limits of LED photopolymerization of oral biomaterials, are discussed. This is mainly based on a review of the most frequently cited scientific papers in international peer reviewed journals. The developments of commercial LED LCUs as well as aspects of their clinical use are considered in this review.

Results

The development of LED LCUs has progressed in steps and was made possible by (i) the invention of visible light emitting diodes 50 years ago; (ii) the introduction of high brightness blue light emitting GaN LEDs in 1994; and (iii) the creation of the first blue LED LCUs for the photopolymerization of oral biomaterials. The proof of concept of LED LCUs had to be demonstrated by the satisfactory performance of resin based restorative dental materials photopolymerized by these devices, before LED photopolymerization was generally accepted. Hallmarks of LED LCUs include a unique light emission spectrum, high curing

efficiency, long life, low energy consumption and compact device form factor.

Significance

By understanding the physical principles of LEDs, the development of LED LCUs, their strengths and limitations and the specific benefits of LED photopolymerization will be better appreciated.

Keywords: LED; Photopolymerization; Light curing; Photocuring; Quartz-tungsten-halogen; Materials science; Clinical aspects

Computer-aided technology for fabricating complete dentures: Systematic review of historical background, current status, and future perspectives

The Journal of Prosthetic Dentistry, Volume 109, Issue 6, June 2013, Pages 361-366

(<http://www.sciencedirect.com/science/article/pii/S0022391313603182>)

Abstract: Statement of problem

Computer-aided technology is an emerging method for fabricating complete dentures. Consolidated information about historical background, current status, and scope for the future is lacking.

Purpose

The purpose of this systematic review was to analyze the existing literature on computer-aided technology for fabricating complete dentures and provide the reader with a historical background, current status, and future perspectives on this emerging technology.

Material and methods

An electronic search of the English language literature between the periods of January 1957 and June 2012 was performed by using PubMed/MEDLINE with the following specific search terms: CAD-CAM complete dentures, digital complete dentures, computer dentures, designed dentures, machined dentures, manufactured dentures, milled dentures, and rapid prototyping dentures. Additionally, the search terms were used on the Google search engine to identify current commercial manufacturers and their protocols.

Results

A total of 1584 English language titles were obtained from the electronic database, and the systematic application of exclusion criteria resulted in the identification of 8 articles pertaining to computer-aided technology for complete dentures. Since the first published report in 1994, multiple authors have described different theoretical models and protocols for



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fabricating complete dentures with computer-aided technology. Although no clinical trials or clinical reports were identified in the scientific literature, the Google search engine identified 2 commercial manufacturers in the United States currently fabricating complete dentures with computer-aided design and computer-aided manufacturing (CAD/CAM) technology for clinicians world-wide. These manufacturers have definitive protocols in place and offer exclusive dental materials, techniques, and laboratory support. Their protocols contrast with conventional paradigms for fabricating complete dentures and allow the fabrication of complete dentures in 2 clinical appointments.

Conclusions

A body of scientific literature related to computer-aided technology for complete dentures is emerging. Significant advancements in this technology have now resulted in their commercial availability with shorter clinical protocols. However, prospective clinical trials with true clinical endpoints are necessary to validate this technology. This could affect dental education, patient care, research, and public health worldwide.