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### The Proceedings of the 19th Meeting of Iranian Academy of Periodontology

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## Chairman's Message

**Dear colleagues,**

I am proud to announce the 19th international congress of the Iranian academy of periodontology (IAP) which will be held on October 8-11, 2019 at the Olympic Hotel in Tehran, Iran.

On behalf of IAP and organizing committee it is my great pleasure to invite you to participate in this innovative and informative event.

We thank God for giving us the opportunity to hold this magnificent congress by the able thoughtful collaborators. This scientific congress is an excellent opportunity for co-thinking of researchers and clinicians and collecting and sharing thoughts and idea, hearing interesting recent developments, learn and develop new techniques in the field of periodontology, implantology, tissue engineering and oral health and a place for reunion and friendships.

Regarding the high prevalence of periodontal diseases in most societies, one of the most important concerns of the IAP directors is oral health promotion so the important issues that this congress is dealing with include offering new concepts in oral health field. Additionally, workshops and poster presentations on different topics will also be held. We will also provide an opportunity for interaction and interchange through workshops and posters.

With 4000 gross square meters of exhibition area, IAP congress 2019 provides excellent sophisticated equipment. Concluding contracts with American Academy of Periodontology, European Federation of Periodontology, and International Academy of Dental Implantology for international cooperation in education and research programs will be the other programs of the congress.

We invite you to join us in Tehran and enjoy the historical, cultural, and spiritual attraction of this city. We look forward to your full support and participation in this great scientific event.

**Yours faithfully,  
Dr. Hassan Semyari,  
Congress Chairman**

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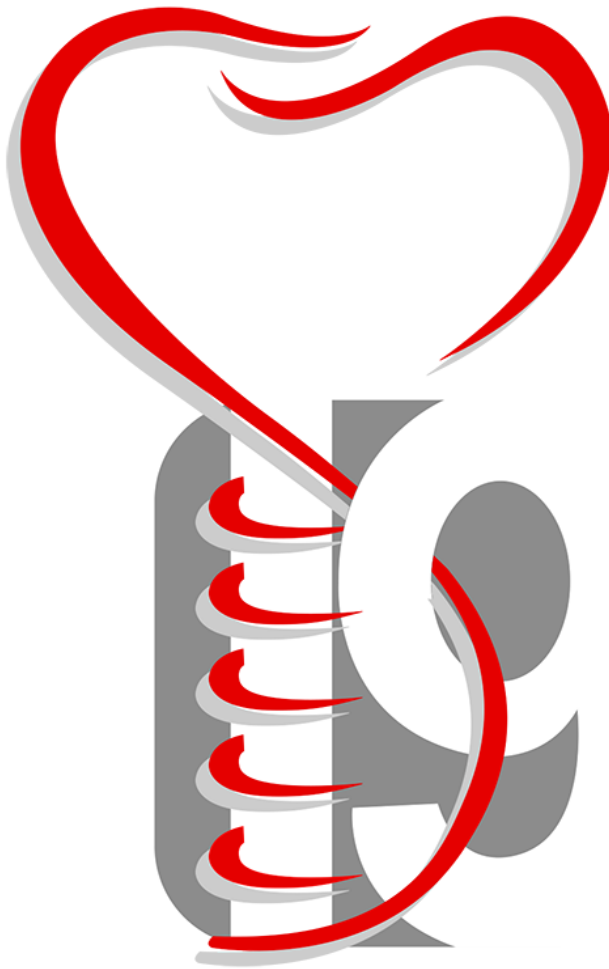


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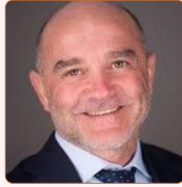
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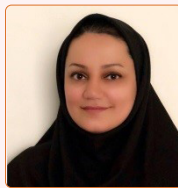
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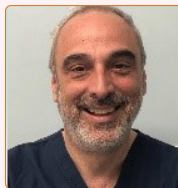
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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 1

### New Considerations in soft tissue stability around dental implants

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#### Abstract

**Background.** The reconstruction of soft tissue around implants is a critical factor in modern Implantology. Presence of sufficient keratinized gingiva may be a beneficial item for long term soft tissue stability.

**Methods.** This article presents a detailed description of a novel and modern flap designs and modified incision techniques for preserved keratinized gingiva around dental implants such as (Modified Palacci technique, Papilla preserving modified roll technique, U-shaped incision, M flap design and papilla reconstruction techniques such as nemcovsky tech, bidra tech.) with related clinical cases.

**Results.** These modern techniques are simple and applicable and more effective and more predictable for create and preserved a keratinized gingiva around dental implant.

**Conclusions.** today use of the new modern techniques for preservation of keratinized gingiva around dental implants are necessary and beneficial for long term soft tissue stability.

**Keywords:** Modified Palacci technique, Papilla preserving modified roll technique, U-shaped incision, M flap design, papilla reconstruction techniques.



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## ABSTRACT 2

### Efficacy of application of platelet-rich fibrin for improvement of implant stability: A clinical trial

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#### Abstract

**Background.** Use of platelet concentrates to increase implant stability, due to their regenerative potential, has recently attracted the attention of researchers. This study aimed to assess the effect of platelet-rich fibrin (PRF) on dental implant stability.

**Methods.** This clinical trial evaluated 10 patients who received 50 dental implants. Each patient received at least two implants. Half of the implants were placed in the sockets along with PRF while the remaining half were inserted conventionally without PRF. Implant stability was measured by resonance frequency analysis on the day of surgery (T1), at one week (T2), and at one month (T3).

**Results.** At the end of the first week (T2), the mean implant stability quotient (ISQ) was  $59.85 \pm 5.32$  in the PRF group and  $55.99 \pm 3.39$  in the non-PRF group. Compared to baseline, the ISQ increased in the PRF group by  $0.12 \pm 0.47$  ( $P = 1.000$ ) and decreased in the non-PRF group by  $2.42 \pm 0.36$  ( $P < 0.001$ ). At one month postoperatively, ISQ significantly increased by  $6.89 \pm 0.96$  in the PRF group and by  $4.82 \pm 0.92$  in the non-PRF group compared to baseline ( $P < 0.001$ ).

**Conclusions.** Application of PRF in the implant osteotomy site can prevent or minimize primary reductions in implant stability and seems to enhance the process of osseointegration.

**Keywords:** Implant stability, platelet-rich fibrin, resonance frequency analysis, implant stability quotient





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## ABSTRACT 3

### Consideration for connective tissue graft harvesting in periodontal plastic surgery

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#### Abstract

**Background.** This presentation contained clinical tip to be consider in harvesting palatal fibromucosa graft base on recent literature and demonstrating the techniques in some clinical cases for root coverage in modern periodontal plastic surgeries and answer the following question: Where is the suggested donor site to be chosen to achieve an increasingly better aesthetic outcome and less patient morbidity and great root coverage predictability? What is the correct anatomical term of the donor site? How much is the proper graft dimension and thickness compare to original technique?

**Conclusions.** This presentation will answer the following question: Where is the suggested donor site to be chosen to achieve an increasingly better aesthetic outcome and less patient morbidity and great root coverage predictability? What is the correct anatomical term of the donor site? How much is the proper graft dimension and thickness compare to original technique?

**Keywords:** root coverage, periodontal plastic surgery, graft



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 4

### Prevention and management of the inferior alveolar nerve injury during implant placement

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#### Abstract

**Background.** With the growing demand for dental implants, trigeminal nerve injuries are increasingly common. Indeed, when analyzing data on neural injuries, it seems that the incidence of lingual nerve injury (mostly related to wisdom tooth surgery) has remained static over the last 30 years, whilst the incidence of inferior alveolar nerve injury has steadily increased. Altered sensation (including paresthesia, dysesthesia and hypoesthesia) after mandibular implant surgery may indicate transient or permanent injury of the inferior alveolar nerve and the mental branch, can considerably lower patients' satisfaction about the therapy and resulting in an increasing number of medico-legal claims.

**Conclusions.** Clinician should recognize and exclude etiological factors leading to nerve injury. Proper pre-surgery planning, timely diagnosis and treatment are the key to avoid nerve sensory disturbances.

**Keywords:** Inferior alveolar nerve injury, dental implant.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 5

### *In vitro* evaluation of primary stability of the implants placed in D4 and D2 bovine bone densities at different angles

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#### Abstract

**Background.** Implant and bone and is under effect of quality and quantity of bone, surgery method, length and form of implant. Primary stability of implant is a prerequisite for successful Osseointegration of implant. Hence, this study has evaluated primary stability of implants placed in different angles of 30, 20, 10 and 0 and in bone densities of D2 and D4 in vitro and using Resonance Frequency Analysis (RFA) and Insertion Torque Value (ITV) and Reverse Torque Value (RTV).

**Methods.** 25 bone blocks prepared from Femur and Tibia bovine bones are used in this study and 13 blocks were placed in D2 group and 12 blocks in D4 group in terms of bone density determined by Computed Tomography (CT). Using milling machine, the desired angle determined previously by survivor machine was drilled on the stent. Applied implants were made by DIO Co (UF11 3811S) with length of 11mm and diameter w of 3.5mm. Input torque (ITV) was determined and was recorded on paper related to relevant bone block. ITV is one of the parameters required to measure primary stability of implants. After placement of implant, ISQ index was measured using (AB, Gothenburg, Sweden) Ostell machine.

**Results.** Using RFA method, no significant difference was observed among different angles in bone type D2 in terms of ISQ index (10>20>30>0). Although in bone type D4, comparison of ISQ values showed significant difference between angles 0 and 10 degrees; no significant difference was observed between other groups such as 0 & 20 and 10 & 20. Although increase in angle has led to increase in ISQ level; this value has been in max level between 0 and 10 degree angles (9 units) and the value was not significant between other angles and 0 degree statistically.

**Conclusions.** This study showed that in bones with high quality, implant angle has no significant effect on increase in ISQ and all angles provide suitable stability indices for different treatment protocols. Hence, taking all treatment protocols of implant (early, delay and late) would not be changed in angled implants, but also they allow clinician to think about immediate loading protocol when required. As there is significant correlation between ITV and ISQ in D2 bone and ISQ>66 and ITV>32 was observed in all desired angles, it is possible to take immediate loading protocol under conditions that the abovementioned results are obtained in clinic. As giving angle to implant in D4 can increase ISQ and stability in this bone type is the most important point for its success, it is suggested to consider 10 degree angle for implants to improve stability in cases that one has no tendency to 2-stage implantation to prevent repeating the surgery.

**Keywords:** Implant, primary stability, bone density, angulation.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 6

### Evidence-based periodontics, a 'must' in future dental practice

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#### Abstract

**Background.** Evidence-based decision making implies the practice of dentistry in a sophisticated way in patient care. The aims of this presentation were first to define and evaluate types of scientific evidence; second, to classify some guidelines for a simplified evidence based decision making for both general dentist & specialist and show what exactly the inspiring forces for a misleading result are.

**Methods.** This is a theoretical discussion which explores the nature and validity of evidence from an Expert opinion to meta-analysis within the EBD framework. Uncertainty of statistical evidence, pitfalls of authority statements and decision making, low reproducibility rate, multiple bias and poor interpretation are the topics that is being explained to contribute to the uncertainty surrounding use of traditional medicine.

**Results.** Philosophy of EBD privileges different level of evidence as compared with traditional practice. An alternative ontology of evidence is provided; however evidence is usually depicted according to a pyramid, where higher levels on the pyramid represent higher levels of evidence, which in turn indicates a lower risk for bias.

**Conclusions.** This lecture suggests that EBD uses a staged evidence and a naive conception of the relationships between evidence and practice. The current amount of evidence is limited in respect of both the functionality of EBD, and its inherent scientific processes. Finally, when there are no clinical practice guidelines, critical summaries, or systematic reviews on your topic of interest, it is highly demanded to look for our own personal research to answer our clinical question, however, level of evidence should be considered all the time.

**Keywords:** Evidence-based, periodontology, dental practice.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 7

### Using NDI narrow diameter implants and a report of their long-term application results in more than 10 years

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#### Abstract

**Background.** Every day, implantologists are faced with the challenge of choosing the right diameter for the implants placed in the patient's mouth. Considering the anatomical condition of the jaw, should we think of a larger diameter of the titanium, or keep layer of the bone to hold it intact? Although implant size may have clinical and biomechanical significance, its selection is affected by bone dimensions and anatomical landmarks.

**Methods.** To apply narrow diameter implants, the following questions should be answered: What are the implications of these implants? Have certain benefits been proposed for using NDI? If these implants are designed for special site, then can they be used in another situation? How have the short-term and long-term results of its application been in systematic and meta-analytic studies? How have the results of their application been, using either single-unit or multiple-unit types or in combination with standard and wide implants? Are there special considerations taken during this type of implant surgery? What considerations should be taken in the prosthetic treatment of this type of implants? Is there a preference in different designs of these implants?

**Results.** The present speech is intended to provide reasonable answers to the above-mentioned questions. Also, by presenting a report on the application of this type of implant in a private clinic (more than 10 years), along with a report on the long-term results of meta-analyzes and systematic studies

**Conclusions.** I hope it will be useful in helping colleagues to make the correct decision for application of this type of implant and obtain successful results.

**Keywords:** Narrow diameter implants, NDIs, long term results.



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## ABSTRACT 8

### Partial extraction therapy; new world for predictable esthetic reconstruction

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#### Abstract

**Background.** Socket Shield Technique is a concept in implant dentistry that utilizes the partial extraction therapy principles, with the goal of preserving the hard and soft tissues around the dental implants. This presentation outlines the evidence-based, biological, esthetic and technical aspects of utilizing Partial Extraction Therapy (PET), such as Socket Shield technique, in everyday practice.

**Methods.** Combining PET with immediate post extraction implant placement, seems to be an effective way to maintain anatomy, minimizing bone level's change after the bone remodeling period, and maximizing the aesthetic outcome, due to adequate soft tissue's levels and contour.

**Results.** The socket shield procedure entails a partial extraction of the root of the tooth indicated for extraction and implant placement. The partial extraction is done maintaining the labial fragment of bone attached by the intact periodontal ligament to the intact labial bone. The implant is placed on the palatal part of the socket in the most desirable restoratively driven position. The intact periodontal ligament prevents loss of labial bundle bone due to the undisturbed blood supply. This has shown to be useful in preventing the loss of the bundle bone, thus maintaining the labial architecture. The technique also helps in maintaining the zone of keratinized tissue which is essential for the long-term success of any implant-based therapy. In most cases there is no requirement of bone substitute materials and barrier membranes, thus reducing the cost of treatment.

**Conclusions.** The proper case selection is crucial for the success of the technique. In fact, it is very technique sensitive and requires an advanced level in implant dentistry. Although the technique has a high overall success rate, but long-term studies and high evidence level researches are needed to support the proof of principle available. It has been reported to be a very predictable therapy so far.

**Keywords:** Socket shield, root membrane.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 9

### Histological and histomorphometric comparisons of bone regeneration using three types of absorbable collagen membranes in rabbit skulls

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#### Abstract

**Background.** The use of barrier membranes is a standard method for the rehabilitation of bone loss due to periodontal diseases, as well as previous and implant treatments.

**Methods.** In this experimental animal experiment, 24 male New Zealand rabbits weighing 2 kg and 20 weeks old were used. The specimens were divided into four groups of 6 (Tehran, Biomend, Cenomembrane and control). In all samples, two defects with a diameter of 11 mm the skull was created and randomly treated with three types of membrane-based bromine, Tehran, and membrane-free membranes. After sacrificing rabbits at two intervals of 3 weeks and 10 weeks, bone and residual membrane formation was determined by histomorphometric method and inflammation rate with the histological method was evaluated. Data were analyzed using Kruskal-Wallis and Mann-Whitney tests with 22 SPSSs.

**Results.** The results of this study showed that there was a significant increase in the percentage of bone formation in all groups. However, this difference was significant only in the cenomembrane group ( $P_v = 0.0016$ ) in the comparison of two periods, the average percentage of residual membrane in all three groups of Tehran ( $P_v = 0.002$ ), Cenomembrane ( $P_v = 0.002$ ), Biomend ( $P_v = 0.003$ ) in the tenths of the week decreased significantly compared to the third week. Comparing the inflammation rate of the two periods in both groups of Tehran ( $P_v = 0/005$ ), Cenomembrane ( $P_v = 0.002$ ) and Biomend ( $P_v = 0.002$ ) decreased significantly.

**Conclusions.** In this study, the efficacy of membrane biomend in short-term was shown in relation to the membrane of Tehran and Cenomembrane in relation to the formation of bone. After 10 weeks, the results of regeneration of Iranian membranes were close to the foreign brand.

**Keywords:** Membrane, bone regeneration, histomorphometric.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 10

### Comparing the effect of systemic therapy with and without non-surgical periodontal therapy for eradication of gastric *Helicobacter pylori* infection: a randomized double-blind controlled trial

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#### Abstract

**Background.** *Helicobacter pylori* infection affect humans, present in approximately half of the world's population. However, the role of the oral cavity in the transmission and recurrence of *H. pylori* infection has been the subject of debate. The aim of this study was to evaluate the efficiency of combined periodontal and systemic therapy versus systemic therapy alone, to gastric *H. pylori* eradication in persons who have *H. pylori* in the sub gingival biofilm.

**Methods.** Material and Methods. The study was performed in 102 patients with peptic ulcer or dyspepsia, positive for gastric *H. pylori* infection who refer to gastrointestinal clinic of Alzahra hospital in Iran. Individuals who negative for oral infection (n=38) were treated only with triple therapy (G + O - t) and who were positive for oral infection were randomly assigned to two sets of treatment: a 14-days course of triple therapy (antibiotics, antimicrobials, and proton pump inhibitors) with periodontal therapy (n=32) (G + O + tp) or triple therapy alone groups including treated with combination of periodontal and triple therapy and with triple therapy alone (n=32) (G + O - t). In all participants the efficacy of *H. pylori* eradication from the stomach was evaluated 4 weeks after cessation of the triple therapy by *H. pylori* stool antigen test. Both patients and investigator were blinded to the study protocol. Data were analyzed by SPSS v. 22 software.

**Results.** Results. Out of 102 patients, 27 patients were excluded from analysis owing to dropout follow up. Finally, 75 patients were considered for study. The success rate of triple therapy in G + O - and G + O + were 84% and 52%, respectively. The combination of periodontal and triple therapy in G + O + had 80% success rate. There was a significant difference between the G + O + tp and the G + O + t (P =0.037), and between the G + O - t and the G + O + t (P =0.015). However, there was no significant difference between the G + O - t and the G + O + tp (P >0.05).

**Conclusions.** Periodontal treatment can significantly improve successes rate of *H. pylori* eradication from stomach.

**Keywords:** Periodontal therapy, helicobacter pylori, infection eradication, triple therapy.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 11

### Soft tissue conditions around implants with platform-switching

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#### Abstract

**Background.** Peri-implant soft tissue health and esthetic is one of the main factors influencing the long-term survival and success of implants. While platform-switched (PS) implants have been widely studied in terms of marginal bone preservation, the purpose of this study is to review the soft tissue conditions around these implants.

**Methods.** Using pertinent keywords, PubMed and Embase databases were searched for relevant clinical studies which compared the peri-implant soft tissue outcomes of PS implants to the implants with matching diameter abutments. The quality of articles was evaluated using Cochrane Collaboration's tool for randomized controlled trials and Methodological Index for Non-Randomized Studies.

**Results.** Eight clinical studies were selected to be reviewed. The articles varied in numerous features such as the implants' brands, the duration of follow-up and the study quality. The evaluated peri-implant soft tissue parameters included the height or recession in buccal mucosa, height of the mesial and distal papilla, the mucosal thickness, and pink esthetic score. In all studies, PS implants showed better or at least similar results relative to the implants with flat-to-flat or conical connections. The difference between the test and control groups reached statistical significance in three of the reviewed articles.

**Conclusions.** PS implants can provide peri-implant soft tissue health and stability and consequently acceptable clinical results.

**Keywords:** Dental implants, dental implant-abutment design, platform-switching, peri-implant mucosa, soft tissue.



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## ABSTRACT 12

### Evaluating the effect of diode laser 940 nm adjunctive to conventional scaling and root planning, a randomized clinical trial study

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#### Abstract

**Background.** In recent years, the positive effects of complementary therapies have been shown to be consistent with the common periodontal treatment. One of these treatments is the use of lasers. The aim of this study is to compare the effect of a 940 nm diode laser supplemented by conventional scaling and root planning (SRP) treatment in order to gingival sulcus disinfection in patients with chronic periodontitis.

**Methods.** In this split-Mouth randomized clinical trial, 32 patients (including 7 males and 25 females with the average age of  $38.24 \pm 10.67$ ), with chronic periodontitis who had at least 2 teeth with a pocket depth of more than 4mm, participated in the study. Scaling and Root planning treatment and oral hygiene instruction were commonly offered for all patients. In the intervention group, a 940 nm diode laser (1 watts, E3 tip, with an optical fiber of 300 $\mu$ , for 15 seconds) was used to disinfectant the gingival sulcus in the pocket. Probing pocket depth (PPD), loss of clinical attachment (CAL), gingival index (GI), Bleeding on probing (BOP) and plaque index (PI) were measured at baseline, 4 and 8 weeks after SRP. Data were analyzed by SPSS software version 21 and statistical descriptive methods, and statistical tests such as ANOVA with repeated measurements were analyzed.

**Results.** Diode laser (940 nm) was more effective in the improvement of all periodontal clinical parameters than usual periodontal treatment, but this improvement was significant in relation to GI and BOP indexes (The level of significance for all statistical analyzes was considered ( $P > 0.05$ )).

**Conclusions.** diode laser 940 nm adjunctive to conventional scaling and root planning, are more effective in improving clinical parameters than routine treatment.

**Keywords:** Adjunctive therapy, chronic periodontitis, lasers, dental scaling.

Oral Presentations

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 13

### Anti-inflammatory properties of enamel matrix derivative on non-surgical management of peri- implant mucosal inflammation

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#### Abstract

**Background.** One of the ever-increasing complications related to dental implants, with controversy over how to control it, is peri-implant disease. The aim of this study was to evaluate the adjunctive use of enamel matrix derivative (EMD) to mechanical debridement (MD) in patients with these conditions in terms of clinical parameters and cytokine levels of peri-implant crevicular fluid (PICF).

**Methods.** In the present double-blind clinical trial, 46 patients with peri-implant diseases (pocket depth (PD)  $\geq 4$ mm and bone loss  $\leq 2$ mm) were randomly divided into control and test groups. Two different therapeutic protocols, consisting of non-surgical MD with and without the application of EMD were considered for the two groups. Clinical parameters and sampling from PICF were carried out before treatment and 3-month postoperative interval. ELISA was used for the analysis of PICF samples in relation to IL-6 and IL-17 cytokines levels.

**Results.** After 3 months, no specific changes were observed in the control group in terms of bleeding on probing (BOP) and PD; however, in the test group, use of EMD resulted in a significant decrease in BOP (from 75% to 25%) and PD (from 4.5 to 3mm) (P

**Conclusions.** The results showed that non-surgical MD alone cannot be effective in the treatment of severe peri-implant mucositis and initial peri-implantitis, and use of EMD can be considered an adjunct to MD in the non-surgical treatment of these lesions, although no complete recovery was achieved after 3 months.

**Keywords:** Cytokines; Debridement; dental implants; enzyme-linked immunosorbent assay; interleukin-17; peri-implantitis.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 14

### Restoration of fully edentulous patients with osseointegrated implants

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#### Abstract

**Background.** Some patients have difficulty to accept conventional dentures for a variety of reasons. This difficulty was a critical factor in the development of overlay dentures with implant.

**Methods.** The main purpose of this Article is to give clinicians a straightforward clinical guide to help them treat restoration of edentulous patients, patient selection and treatment planning. There are several options available for the edentulous patients to restore these patients, such as: implant assisted overlay denture and or implant supported overlay dentures. Always the best treatment option is not a difficult and more expensive option for all patients. In present Article it will discuss, and will show the lowest and most reliable surgeries for of fully edentulous patients.

**Results.** In general, studies comparing patient satisfaction with implant over dentures and fixed dentures showed favorable outcomes for both treatments. There was a tendency for the removable denture to be chosen by older subjects (50 + years of age), who preferred its ease of cleaning. Implant survival and success have been widely examined in implant research on fixed and removable prostheses. A recent systematic review by Bryant et al. examined data from randomized clinical trials and 5-year follow-up studies to determine the effect of type of removable or fixed prosthesis on implant survival and success. Descriptive analysis of at least 60-month follow-up data indicated no type-specific differences in relation to implant survival rate.

**Conclusions.** When indicated, and depending on the patients' needs, both removable implant assisted and implant-supported prostheses can be highly safe, reliable and satisfactory treatment modalities.

**Keywords:** Implant assisted, implant supported, fixed hybrid prosthesis, complete denture.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 15

### Novel technique for lingual flap advancement

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#### Abstract

**Background.** Vertical ridge augmentation in the posterior mandible is a technique-sensitive procedure. One of the most important aspects of the surgical technique is proper flap management to allow for passive and tension free flap closure.

**Methods.** This article presents a detailed description of a novel lingual flap advancement technique. In this method the mandibular lingual region divided to three anatomical zones (zone I, II, III) and each zone elevated in the special manner and separately.

**Results.** This novel technique is more effective and more predictable for lingual flap movement and result to proper tension free flap closure. This technique prevents disruption of the diaphragm of the floor of the mouth and may sub-subsequently create a communication between the surgical area and the sublingual and/or sub mandibular space.

**Conclusions.** Advantages of this novel technique are: increased chance of achieving passive primary stability and avoiding premature wound dehiscences and decreased risk of a medical complication involving deeper anatomical spaces (ie, sublingual or subman-dibular) due to the intentional preservation of the mylohyoid muscle attachment to the mandibular bone.

**Keywords:** Lingual flap advancement, mandibular lingual region, passive mandibular closure, novel lingual flap technique, mandibular anatomical zone.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 16

### Tooth movement in the periodontally-compromised patient

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#### Abstract

**Background.** Orthodontic tooth movement are those generated by external forces applied in a controlled manner with the purpose of attaining a predetermined tooth movement. orthodontic tooth movements must be carried out in the absence of inflammation, the accumulation of dental biofilm during orthodontic treatment must be prevented and closely monitored.

**Methods.** Review articles were searched via PubMed, Elsevier, Science direct, International journal of periodontics, journal of clinical periodontology, international journal of orthodontics and dentofacial orthopedics, journal of orthodontics and craniofacial research.

**Results.** Some clinical studies have reported a mean increase in probing depth of about 0.5 mm During orthodontic treatment, which is usually a result of inflammatory changes rather than periodontal attachment loss. If the periodontal inflammation is not fully controlled during the orthodontic treatment, however, these inflammatory processes Can accelerate the progression of periodontal destruction, leading to further loss of attachment.

**Conclusions.** In the presence of a thick gingival tissue, gingival recessions will not occur, even when labial or expansive tooth movements are carried out. Treatment of pathologic migration requires a multidisciplinary approach with complete periodontal therapy to eliminate the infection and the inflammation of the periodontal tissues, followed by orthodontic therapy and restoration of the Lost dentition With Dental Implants and/or prosthetic restorations.

**Keywords:** Tooth movement, periodontally compromised, periodontal patient, orthodontics.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 17

### Frequency and associated risk factors of entamoeba gingivalis and trichomonas tenax among patients with periodontitis in Western Iran

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#### Abstract

**Background.** The present investigation aims to estimate the frequency of Entamoeba gingivalis and Trichomonas tenax in periodontitis patients referring to Khorramabad Faculty of Dentistry, Lorestan Province, Iran.

**Methods.** The present cross-sectional survey was carried out on 76 periodontitis patients (based on the Periodontology Association protocols) referring to Khorramabad Faculty of Dentistry during August 2017 to May 2018. The samples (saliva and dental plaque) after collection were smeared on a glass slide, and in next step using Giemsa stain were stained; finally by means of a light microscope were tested. A prepared questionnaire considering a number of data such as age, gender, use of toothbrush, etc. were provided by each patient.

**Results.** Among the 76 patients with periodontitis, these parasites were found in 24 (31.6%) patients including 13 (17.1%) patients for *E. gingivalis*, 11 (14.5%) patients for *T. tenax*. The obtained results indicates that although there was no significant relationship between age, gender, education, residence, smoking and the prevalence of *E. gingivalis* and *T. tenax* among the periodontitis patients; but a significant correlation was observed with mouthwash and teeth brushing ( $P < 0.05$ ).

**Conclusions.** The findings of current survey revealed that the remarkable prevalence of *E. gingivalis* and *T. tenax* in patients with periodontitis in Lorestan Province, Iran; indicating that *E. gingivalis* and *T. tenax* may possibly related to the progress of periodontitis. Nevertheless, consideration to oral health ideals, mainly brushing and use of mouthwashes may protect people from exposure with these parasites.

**Keywords:** Oral cavity parasites, periodontal diseases, mouthwash, teeth brushing.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran



## ABSTRACT 18

### The versatility of 980 nm diode laser in dentistry: A case series

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#### Abstract

**Background.** Laser surgery has been considered a popular alternative over conventional modalities in dentistry during the last few years. Among different types of lasers, diode lasers have gained special attention in oral soft tissue surgery.

**Methods.** Five patients were referred to a private office. After careful evaluation of medical history and oral examination, oral diagnosis and treatment plan of each patient was established as follows: (1) A 21-year-old female with ankyloglossia (tongue-tie); (2) A 65-year-old female with a poor denture fit needing vestibuloplasty and frenectomy; (3) A 10-year-old male patient with pigmented gingiva in mandible and maxilla; (4) A 14-year-old female needing exposure of maxillary right canine for bracket bonding; and (5) A 25-year-old female patient who has a gingival maxillary frenum with a nodule. The treatment plan for all the patients was laser surgery with diode laser at 980 nm, in continuous mode.

**Results.** All the patients experienced normal healing process with no postoperative complications. Favorable outcomes of laser surgery were observed on follow-up sessions.

**Conclusions.** Considering the versatility of the 980 nm diode laser in oral soft tissue surgeries and the advantages of laser surgery, this study suggests the use of 980 nm diode laser in this regard.

**Keywords:** Diode laser, oral soft tissue, surgery, frenectomy, depigmentation, vestibuloplasties, ankyloglossia.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 19

### Nonsurgical treatments in periodontitis

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#### Abstract

Periodontal treatment modalities vary in a wide range, from nonsurgical scaling and root planning to invasive surgical ones such as bone graft and guided tissue regeneration. In all these procedures drug medications or mouth washes are as supportive additive therapies which seems to enhance outcomes or maintain the treatment achievements; additionally, nowadays laser treatment and photodynamic therapy also have gained much attention in periodontal treatments also yet as a supportive modality to conventional therapies. In present study we review and categorize all nonsurgical therapies introduced for periodontal or gingival diseases in evidence-based media and discuss the effectiveness of each upon the results of previous surveys.

In present study we review and categorize all nonsurgical therapies introduced for periodontal or gingival diseases in evidence-based media and discuss the effectiveness of each upon the results of previous surveys.

**Keywords:** Periodontitis, medication, laser, photodynamic therapy, surgery



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 20

### Comparative study of periodontal clinical indexes after oral administration with Propolis and placebo in patients with gingivitis

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#### Abstract

**Background.** Periodontal diseases have multifactorial etiology, and pathogenic bacteria are the primary etiologic agent of the disease. The use of antibacterial mouthwashes as complementary to mechanical methods of plaque control is a good way to improve day-care home care. The aim of this study is to evaluate the efficacy of oral propolis in the treatment of gastrointestinal inflammation.

**Methods.** In a clinical trial study, 32 patients with inflammatory gum disease were selected and divided into two groups of 16 patients. The oral mucosal group was administered propolis to the mouthpiece control group with the same ingredients as Propolis without extract. The parameters of papillary hemorrhage, plaque and dental plaque index for each patient were measured before intervention, 15 days after the start of treatment and 30 days after the onset of treatment, and the values of the indexes were recorded and, finally, the findings of the two groups were compared.

**Results.** The percentage of changes in plaque index in the mouthwashed group was  $85.19 \pm 51.6\%$  and in the placebo group was  $83.93 \pm 36.1\%$  and no significant difference was observed between the two groups ( $P = 0.91$ ). Blood level changes were different in both groups, but the rate of bleeding in the oral mucosal group was significantly higher than the placebo group ( $P$ )

**Conclusions.** According to the findings of this study, it seems that the use of mouthwash containing Propolis, in addition to the effects of antiseptic, will also be effective in reducing inflammation and bleeding of the gum, even though it can cause discoloration and staining on the teeth. At the same time, due to the limitations of this study, including a small sample size, more studies are suggested.

**Keywords:** Mouthwash, propolis, plaque index.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 21

### Knowledge, attitude and performance of patients presenting to dental clinics in Isfahan regarding dental scaling

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#### Abstract

**Background.** Considering the wrongful perception and attitude of most patients towards dental scaling and their hesitation in receiving it, this study aimed to assess the knowledge, attitude and performance of patients presenting to dental clinics in Isfahan with regard to dental scaling.

**Methods.** This descriptive, cross-sectional study was conducted on 200 patients presenting to dental clinics in Isfahan city during 2016. Sampling was sequential and randomized. A researcher-designed questionnaire was used for data collection, which covered demographic information, knowledge, attitude and performance of patients regarding scaling.

**Results.** Of 200 participants, 8.5% had poor, 37.7% had moderate, 39.7% had good and 14.1% had very good knowledge about scaling. Of all, 11.5% had a negative, 69.5% had a neutral and 19% had a positive attitude towards scaling. With regard to performance, 2.1% had poor, 57.7% had moderate and 40.2% had good performance in this respect.

**Conclusions.** The results showed that most patients had moderate or good knowledge about scaling while the majority of them had a negative attitude towards it and more than half had moderate performance in this respect. Thus, knowledge promotion should be performed in such a way to have a significant impact on the attitude and performance. This calls for strategy planning by the Ministry of Health and cooperation of the Media and enforcement organizations affiliated to the Ministry of Health.

**Keywords:** Dental scaling, knowledge, attitude.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 22

### Gummy smile

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#### Abstract

**Background.** Orthodontists today have to meet their patients' increasing demand for esthetic satisfaction. This quest for youth and beauty is a new development in orthodontics, leading practitioners to try to discern the elements that determine facial esthetics and to set out rules and principles. The essential factor in this demand doubtless concerns a youthful and harmonious smile. Excessive gingival display in smiling may make the smile displeasing or even repulsive. Correcting "gummy smile" thus becomes a prime treatment objective in response to patient demand. Assessment should therefore seek the etiology of gummy smile, as this will determine optimal treatment, which is usually orthodontic or orthodontic and surgical. Which cases call for one approach or the other? This is the question the present articles seeks to answer.

**Methods.** To analyze the effects of different treatments, measurements were made on pre- and post-treatment lateral telerradiographs in 20 patients

**Results.** Although moderate gummy smile (

**Conclusions.** Case studies have shown that, according to the type of treatment, esthetic, dento-alveolar and skeletal consequences differ.

**Keywords:** Gum, smile, esthetic, orthodontic, periodontal.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 23

### Comparison of the histomorphometric effect of two types of Nano and Micro FDDBA bone powder in the treatment of the rabbit calvarium defects

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#### Abstract

**Background.** After the onset of periodontal disease, bone defects are very common, which leads to functional and aesthetic problems in the patient. FDDBA nanoparticles can be used as an ideal scaffold for bone regeneration. The aim of this study was to compare the histomorphometric effect of two types of Nano FDDBA and non-Nano bone powder in the treatment of lesions in the rabbit calvarium bone.

**Methods.** This research was conducted as a control randomized clinical trial. We used 12 rabbits during the two months period, which were sacrificed in 2, 4, 6, 8 weeks. Rabbits were randomly assigned into 4 groups of triad: 1-FDDBA non nano 2- FDDBA nano 3-autogenic (positive control) 4-empty (negative control). For nano-forming particles, mechanical method was used with controlled temperature and time. From the beginning of the experiment, four more rabbits were included in the experiment, in order to prevent the loss of specimens, a total of 64 cavities were created. Four rats were evaluated histomorphometrically at each turn, including a survey on the filling of the defect, bone recovery, absorbance of the substance Filler, there was inflammation and foreign body reaction in the area. SPSS Ver: 22 software was used for statistical analysis and Friedman nonparametric tests were used.

**Results.** In this study, inflammation was observed throughout the week, and the rate of inflammation decreased over the course of two months, which in the FDDBA group was less than microbial FDDBA and slightly more than autogenous but in general, the body reaction was not found. In the study of the amount of filling of the defect site, the amount of immature bone increased, that the FDDBA group was more nano than micro, but only in the fourth week, the FDDBA group showed a significant difference (P

**Conclusions.** Both FDDBA and nano nanoscale materials are similar in terms of inflammation, percentility, external body reaction and osteoporosis, but in terms of filling the nano FDDBA, it seems to be better than non-nano powder Is preferred

**Keywords:** Histomorphometry, allograft bone powder, FDDBA, Nano particle

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 24

### Correlation of keratinized tissue width and periodontal indices around implant-supported fixed partial dentures

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#### Abstract

**Background.** The effect of keratinized tissue width on the peri-implant health has not been well elucidated. The results of previous studies on this topic are controversial and the role of keratinized tissue width in long-term success of dental implants has not been confirmed. Objective: This cross-sectional study aimed to assess the correlation of keratinized tissue width and periodontal indices around implant-supported fixed partial dentures (FPDs)

**Methods.** This cross-sectional study evaluated 73 implants. Patients underwent periodontal examination including measurement of plaque index (PI), gingival index (GI), clinical probing depth (PD), bleeding on probing (BOP), marginal gingival recession, keratinized mucosa width and radiographic marginal bone level. Data were analyzed using SPSS.

**Results.** The mean GI, PI and marginal gingival recession around implants with less than 2 mm width of keratinized gingiva were greater than the corresponding values around implants with keratinized tissue width  $\geq 2$  mm. However, this difference was not statistically significant ( $P > 0.05$ ). No significant difference was noted in PD and radiographic marginal bone level between the two implant groups with keratinized tissue width

**Conclusions.** Although this study did not show a significant correlation between the keratinized tissue width and peri-implant tissue health and consequently the implant success rate, long-term interventional studies are required to cast a final judgment in this respect.

**Keywords:** Dental implants; keratinized tissue; peri-implant mucosa.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 25

### *In vitro* effects of three types of lasers on dentinal tubule obstruction

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#### Abstract

**Background.** This study aimed to assess and compare the effects of 980 nm diode laser, Nd: YAG laser and Er: YAG laser on dentinal tubule obstruction.

**Methods.** This *in vitro* experimental study evaluated 20 sound single-rooted human teeth. Forty dentinal discs were prepared of the roots and etched with 6% citric acid. One layer of fluoride varnish was applied on their surface. The sections were randomly divided into 4 groups. The control group received no laser irradiation. Group 2 underwent 980 nm diode laser irradiation with 0.5 W power. Group 3 underwent 1064 nm Nd: YAG laser irradiation with 0.5 W power and group 4 underwent 2940 nm Er: YAG laser irradiation with 0.5 W power. All samples were then inspected under an electron microscope, and number of obstructed dentinal tubules and diameter of open dentinal tubules in the field were determined. Data were analyzed using one-way ANOVA and Tukey's test.

**Results.** All three laser types significantly decreased the number of open dentinal tubules compared to the control group ( $P < 0.05$ ). The diameter of open tubules in the three laser groups had no significant difference with that in the control group.

**Conclusions.** All three types of lasers evaluated in this study can effectively obstruct the dentinal tubules.

**Keywords:** Lasers, solid-state; lasers, semiconductor; dentinal tubules.



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## ABSTRACT 26

### Effect of chlorhexidine gel on torque and detorque values of implant abutment screw

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#### Abstract

**Background.** Microgap and the subsequent microleakage through it are the common problems of implant systems. Microleakage through the implant-abutment interface may result in the development of inflammatory reactions in the periimplant soft tissue and cause periimplantitis of the osseointegrated implant, leading to subsequent marginal bone loss. Bacterial infection may also impair the process of osseointegration in the postsurgical healing phase.

**Methods.** Several studies have focused on this issue. They showed that application of an antimicrobial agent such as chlorhexidine (CHX) into the implant cavity before the placement of cover screw or healing abutment can decrease bacterial accumulation and subsequent leakage of bacteria and toxins into the implant cavity. However, the effects of these antimicrobial agents used for malodor on torque and detorque values of the abutment screw have not yet been evaluated.

**Results.** Too low torque value results in screw loosening while excessive torque increases the risk of screw fracture. Thus, accurate torque application is critically important. The amount of preload is affected by factors such as the intensity and method of load application, design and composition of implant abutment, environmental factors affecting the interactions (lubrication of the screw threads), position and stability of the screw, and presence of surface irregularities that prevent maximum fit of the screw and abutment.

**Conclusions.** This presentation will assess the effect of CHX gel on the preload, torque, and detorque values of implant abutment screw.

**Keywords:** Chlorhexidine, dental implants, torque.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 27

### Comparison of antimicrobial effects of healing abutments ultrasonic method, metronidazole and combination of them on relief of malodor in different steps of implant treatment

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#### Abstract

**Background.** Microleakage between implant and abutment causes an inflammation in periodontal tissue and leads to malodor. This phenomenon occurs in almost all implant systems and it is inevitable. The aim of this study was to compare antimicrobial effects of healing abutments ultrasonic method, metronidazole and combination of them on relief of malodor in different steps of implant treatment.

**Methods.** Present study was performed on 90 prosthetic implant candidate patients and organoleptic procedures were done on patients. Patients were divided into three malodor treatment groups and malodor measurement was performed in all five steps of treatment. Malodor in first group were treated by metronidazole therapy, second group were treated by ultrasound and third group of patients were treated by combination of both methods. Final statistical analysis and comparison of malodor level changes were conducted using repeated measurement and for comparison of level by level malodor treatment ANOVA test was performed.

**Results.** Mean age of patients was  $43.98 \pm 11.02$  years malodor score in impression abutment select, abutment select-frame, porcelain test and prosthesis delivery visit had significant difference in ultrasonic group ( $P < 0.001$ )

**Conclusions.** Current study revealed that usage of antibiotic, ultrasonic and both methods in combination have significant effect in reduction of malodor due to presence of microbial agents. Furthermore, halitosis can negatively effect on social behavior and mental health in implant candidate patients, selection of best treatment is to be considered.

**Keywords:** Dental implants, halitosis, metronidazole.



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## ABSTRACT 28

### Gold nanoparticles and osteogenesis

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#### Abstract

**Background.** Recently, gold nanoparticles have attracted much attention in biological imaging, drug delivery, diagnosis of diseases and their treatment. This is due to their unique optical properties, good biocompatibility, easy synthesis, and application. The aim of this study was to review the literature on the potential osteogenic properties of gold nanoparticles.

**Methods.** Using the search strategy ('Nanoparticles' [Mesh] AND 'Gold' [Mesh]) AND 'Osteogenesis' [Mesh], an electronic literature search was performed in MedLine.

**Results.** A total of 29 articles were retrieved and ten of them were selected by title for the abstract review. Finally, seven articles were included in the study.

**Conclusions.** Gold nanoparticles with particular size and shape are capable of enhancing osteogenic differentiation and bone mineralization. Adding these nanoparticles to the surface of dental implants significantly improves the osteoblastic differentiation and bone formation around the implant. The ability of gold nanoparticles to stimulate the osteoblastic differentiation of human PDL cells has been proven. The use of gold nanoparticles in implant dentistry and regenerative procedures can improve the results in terms of hard tissue formation.

**Keywords:** Nanoparticles, Gold, Osteogenesis, Cell Differentiation, Osseointegration.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 29

### Review of the capability of CBCT and intraoral digital radiography to diagnose periodontal lesions (animal model)

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#### Abstract

**Background.** Detection of periodontal defects is one of the diagnostic concerns in periodontal treatments. Since successful treatment depends on correct and early diagnosis of them, using several diagnostic methods such as digital intraoral radiography and advanced diagnostic techniques such as Cone Beam CT are important. Only a few studies have discussed the application of CBCT in periodontology and the studies have weaknesses. Therefore, this study aimed to evaluate the value of CBCT and intraoral digital radiography for detection of periodontal defects in an animal model of sheep

**Methods.** In this in vitro diagnostic study, eighty periodontal defects including grade I, II and III furcation involvements, one-, two-, three-wall and trough –like infrabony defects, fenestration and dehiscence were artificially created in sheep mandible by burr. Intraoral digital radiographs (using PSP) and CBCT scans were obtained. Three periodontists evaluated the radiographic images for presence and type of defects. Positive and negative predictive values were calculated for each imaging modality and statistically analyzed using test of proportions.

**Results.** The correct diagnosis (True Positive + True negative) for presence of periodontal defects was 95% by using CBCT and 78.8% with the use of PSP and the difference between two modalities was statistically significant (p0.05).

**Conclusions.** It seems, CBCT is preferred over digital radiography for detection of periodontal lesions generally and type of grade I furcation involvements, three-wall defects, dehiscences and fenestrations.

**Keywords:** Dental digital radiography, cone-beam computed tomography, periodontal bone loss, diagnosis.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 30

### Compression of different alveolar bone augmentation techniques: A review of literature

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#### Abstract

**Background.** The advent of osseointegration and advances in biomaterials and techniques have contributed to increased application of dental implants in the restoration of partial and completely edentulous patients. Often, in these patients, soft and hard tissue defects result from a variety of causes, such as infection, trauma, and tooth loss. These create an anatomically less favorable foundation for ideal implant placement. For prosthetic-driven dental implant therapy, reconstruction of the alveolar bone through a variety of regenerative surgical procedures has become predictable; it may be necessary prior to implant placement or simultaneously at the time of implant surgery to provide a restoration with a good long-term prognosis. Regenerative procedures are used for GBR, ridge split, tents crew, fence Tanique, DO, in horizontal and vertical ridge augmentation.

**Methods.** A broad overview of the published findings in the English literature related to various bone augmentation techniques is outlined. A comprehensive computer-based search was performed using various databases that include Medline and PubMed. A total of 267 papers were considered, with non-peer-reviewed articles eliminated as much as possible.

**Results.** The techniques for reconstruction of bony defects that are reviewed in this paper include the use of particulate bone grafts and bone graft substitutes, barrier membranes for guided bone regeneration, autogenous and allogenic block grafts, and the application of distraction osteogenesis.

**Conclusions.** Many different techniques exist for effective bone augmentation. The approach is largely dependent on the extent of the defect and specific procedures to be performed for the implant reconstruction. It is most appropriate to use an evidenced-based approach when a treatment plan is being developed for bone augmentation cases.

**Keywords:** Alveolar bone augmentation, ridge split, GBR, bone substitute material, tent screw.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 31

### The relevance of scientific evidence in the decision-making process; treatment outcomes in single implant therapy

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#### Abstract

Over the past 30 years, the insertion of dental implants to restore function and esthetics in patients who are completely or partially edentulous has become a well-documented surgical and prosthetic procedure. The term evidence based means the deliberate use of current evidence as a guide in treatment, recognizing that no study is perfectly designed in every aspect or applicable to every patient. Albertson criteria were developed at a time when determining the biologic outcomes of titanium implants was important to prove their higher reliability over alternatives made of other materials. Initially, restorative and patient-based parameters received less attention. Two main approaches have been used for the replacement of a failing tooth, based on the timing of implant placement in relation to tooth extraction. In general, if the implant is placed during the same surgical procedure as the extraction, the approach is referred to as immediate implant placement. If the implant is placed during a separate surgical procedure after the extraction has been performed, the approach is referred to as delayed implant placement. Studies have evaluated the outcomes of both of these approaches. Single tooth replacement by means of a dental implant appears to be a predictable therapy based on current scientific evidence. A low incidence of complications, high degree of patient satisfaction and a comparable financial impact to other treatment alternatives may render implant therapy as the treatment of choice for the replacement of the single failing tooth. Nevertheless, a certain degree of gingival architecture loss can be expected in single implant restorations.

**Keywords:** Scientific evidence, decision-making, treatment, outcomes, single implant, therapy.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 32

### Implant placement, bone reconstruction and lateral approach sinus grafting using 3D-printed bone-supported guide: A dental technique

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#### Abstract

Dental implants nowadays have dramatically increased its demand in replacing missing tooth or teeth. Researches and clinical experiences have been reported that one of the most causes of dental implant complications is placement of malposition implant. Using of the patient's cone-beam computerized topography is one of the parameters that are being utilized for locating the favorable site for placing implants. However, clinician's dexterity plays a big role in implant surgery in order to place it in the most favorable bony house resulting to an esthetically, functional prosthetic outcomes and healthy surrounding soft tissues. Computer guided-surgery has been introduced to resolve the shortcomings of placing malposition implants. Computer-assisted surgery could be done with dynamic and static guide support. The 3D printing technology is continuing to innovate and dentistry is one of the many industries that benefit its usage. Together with the CBCT, 3D software designing and 3D printing, a precise bone-supported surgical guide, e.g. static guide support, can be made to use for optimum implant placement. Cutting guides for bone augmentation is also can be done using this combined technology to avoid any iatrogenic damage to the surrounding structure and perforations of membrane in sinus lifting.

The objective of this report is to demonstrate an approach in implant surgery, bone reconstruction and lateral sinus augmentation planning using the CBCT reports, 3D software designing and 3D-printing of the guides to utilized that will put up with the most effective surgical procedure.

**Keywords:** Guided surgery, 3D printer, bone reconstruction.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 33

### Comparison of serum zinc level in patients with a history of recurrent herpes labialis and healthy people

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#### Abstract

**Background.** Recurrent herpes labialis is the most common infective vesiculoulcerative ulcer. Based on some studies, topical and systemic administration of Zinc compounds has preventive and therapeutic effects. The purpose of this article is to evaluate and compare the serum level of zinc in people with RHL and healthy people.

**Methods.** This cross-sectional study was performed on 85 subjects including 43 patients with recurrent herpes labialis and 42 healthy individuals. The patients were selected from among the patients referring to the Shiraz school of dentistry in the year 1397 and were from people with history of herpes labialis and who were approved their herpes labialis virus by the oral and maxillofacial specialist. Healthy individuals were selected from patients who visited school of dentistry for dental examinations in the year 1397 and did not have any systemic and immunological disease and the recurrent oral lesion and no supplementary medication. Blood samples were taken from people and serum zinc level was measured in people. The results were statistically analyzed using SPSS software. Chi-Square test was used to compare the qualitative relationships and to compare the quantitative relationships independent T-test was used, to observe the relationship of quantitative factors including serum zinc level, the number of relapses and recovery rates correlation was taken.

**Results.** Serum zinc level had non-significant statistical difference in both healthy and patient groups ( $P > 0.05$ ). Also, zinc level was not different from age and sex factors and frequency of relapse ( $P > 0.05$ ). But in the patients group, there was a significant relationship between zinc level and recovery period. As the serum zinc level was lower, the duration of recovery was significantly higher ( $P < 0.05$ ).

**Conclusions.** The results of this study indicate that zinc deficiency is a risk factor for increasing the duration of the recovery period of herpes labialis. Therefore, the evaluation of serum zinc level in people with recurrent herpes labialis and subsequent administration of zinc is recommended if necessary.

**Keywords:** Zinc, Serum, herpes labialis.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 34

### Photodynamic therapy in peri-implantitis treatments, yes or no? A systematic review

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#### Abstract

**Background.** Peri-implantitis is bacterial infections of peri-implant supporting tissues, involving the peri implant bone. Several treatment protocols have been tested in clinical practice with variable efficacy and photodynamic therapy is one of the less invasive therapies that is being studied in recent years; therefore, the use of lasers is considered effective and suitable for treating a variety of inflammatory and infectious oral conditions. The present study systematically reviewed the literature to investigate the effect of photodynamic therapy (PDT) in the management of peri-implantitis.

**Methods.** The electronic databases were searched including MEDLINE via PubMed, Cochrane Central Register of Controlled Trials and Cochrane Oral Health Group Trials, EMBASE January 2013 until June 2019.

**Results.** A total of twenty studies included in the qualitative analysis that 16 studies had positive results in using of photodynamic therapy, which indicated the efficiency of this treatment, 10 of which had a low risk of bias and All studies used PDT, three studies demonstrated a significant reduction for PDT group as compared to systemic antibiotics, while one study indicated comparable outcomes when tested with probiotics at follow-up.

**Conclusions.** This systematic review demonstrated that the use of photodynamic therapy can be effective in improving peri-implantitis although the results of this review should be considered preliminary and further, more robust, well-designed studies with long-term follow up and standardized comparators with laser parameters are warranted.

**Keywords:** Photodynamic therapy, peri-implantitis, systematic review, nonsurgical treatment.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 35

### Periodontal disease and risk of head and neck cancer

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#### Abstract

**Background.** Many studies have found a positive association of periodontal disease (PD) with risk of head and neck cancer (HNC). But the findings are varied or even contradictory. The aim of this review was to assess the effect of chronic periodontitis on head and neck squamous cell carcinoma.

**Methods.** We searched the PubMed, Embase, and Cochrane Library databases for relevant observational studies on the association between PD and HNC risk published up to June 2019.

**Conclusions.** This review indicated a significant association between PD and HNC risk and suggests that chronic periodontitis is a significant and independent risk factor for the development of head and neck cancer.

**Keywords:** Periodontal disease, chronic periodontitis, carcinoma, head and neck.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 36

### Effect of addition of bioactive glass to glass ionomer cement on accumulation of *Streptococcus mutans* and lactobacilli around orthodontic bands Mozhgan Izadi<sup>1\*</sup>

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#### Abstract

**Background.** Bioactive glass (BAG) is used as an antibacterial agent. This study aimed to assess the effect of addition of BAG to glass ionomer cement (GIC) on accumulation of *Streptococcus mutans* and lactobacilli around orthodontic bands.

**Methods.** This clinical trial was conducted on 10 patients requiring orthodontic treatment with lingual arch and molar bands. In five patients, Fuji II SC GIC was used for cementation of the right and Fuji II SC containing 30wt% BAG was used for cementation of the left molar band. In the remaining five patients, Fuji II LC was used for cementation of the left and Fuji II SC containing 30wt% BAG was used for cementation of the right molar band. Formation of *S. mutans* and *Lactobacillus* colonies in the culture medium was assessed and number of colonies was counted using a colony counter. The data were analyzed by using paired t-test.

**Results.** The mean number of total bacteria, aerobic lactobacilli, anaerobic lactobacilli and *S. mutans* was significantly different between the two cements with and without BAG such that the mean count of total bacteria, aerobic lactobacilli, anaerobic lactobacilli and *S. mutans* in Fuji II LC plus BAG was less than that in plain Fuji II SC cement.

**Conclusions.** Addition of BAG to GIC decreases the accumulation of *S. mutans* and anaerobic and aerobic lactobacilli around orthodontic bands.

**Keywords:** Bioactive glass, Orthodontic cement, Orthodontic brackets, *Streptococcus mutans*, *Lactobacillus*.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 37

### Restoration of unfavorably positioned implants for a partially edentulous patients

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#### Abstract

**Background.** Optimal positioning of endosseous implants is an important predictor of success of implant-supported prostheses. Often, patients have deficient alveolar ridge contour further complicating treatment options. Several authors have reported multiple techniques for management of misaligned implants. Other than managing the malposed implant, restoration of the surrounding tissue also proves challenging especially in esthetic zone.

**Methods.** In this review study, articles were searched with keywords (Angled abutment, Malaligned implant, UCLA abutment, malpositioned implant, and Custom cast implant abutment) in the MEDLINE/ PubMed, EMBASE, and Google Scholar databases for relevant articles published in English between 1999 and 2019.

**Results.** If unfavorable inclination is the only problem, the use of angulated abutments or custom abutments can often improve the prosthetic results. If implants are positioned in the interproximal areas, an esthetically acceptable may not be possible, and patient access to the interproximal embrasures for oral hygiene may be impeded. A screwretained, metal-acrylic resin, implant-supported denture has been advocated by several authors. If prosthetic corrections are not sufficient, the malpositioned implant can be left "sleeping" under the soft tissue or resubmerged completely into the bone, thus forgoing its support in prosthetic rehabilitation, or it can be surgically removed and replaced with a new implant inserted in the proper position. Implant relocation is a surgical technique for correcting the alignment of malpositioned implants by mobilizing them with the surrounding bone until the desired position is achieved.

**Conclusions.** In the midst of the various options available to prosthetically restore, the malpositioned implants with use of different abutments, there is no single ideal solution.

**Keywords:** Malaligned implant, Implants angulation, Custom abutment, Malpositioned implant.



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## ABSTRACT 38

### Comparison of the histomorphometric effect of nano and micro DFDBA on rat calvaria

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#### Abstract

**Background.** The bone defects created in the traumas and pathologic analyzes attract the attention of researchers. DFDBA nano can be recognized as an alternative to bone regeneration. The aim of this study was to compare the histomorphometric effects of two types of nano and nonnano DFDBA bone powder in the treatment of lesions in the rabbit calvaria bone.

**Methods.** This study was conducted as a control randomized clinical trial. which we used 12 rabbits during the two-month period, which were sacrificed in the 2, 4, 6 and 8weeks. The rabbits were divided into four groups of three, and the intervention variables were identical. A total of 48 cavities were created on rabbit calvaria which included: 1- DFDBA non-nano 2-DFDBA nano 3-autogenic (positive control) 4-empty cavity (negative control). For particle nanotubes, mechanical pulp control method was used with controlled temperature and time. At each turn, three rabbits were evaluated, which included assessment of the filling of the defect, bone recovery, absorbance of the filler material, presence of inflammation and foreign body reaction in Was the area. SPSS Ver: 22 software was used for statistical analysis and Friedman nonparametric tests were used.

**Results.** In this study, bone defects with the same size were created in the calvaria of 15 rabbits. Three rabbits were eliminated during surgery, and finally 12 rabbits were improved at 2, 4, 6 and 8 weeks. The inflammation process was completely described in Table 1 and 2 for 8 weeks. The amount of bone immersion in all specimens was increased in all cases in the 8-week period. But statistically significant, bone recovery in all the specimens was increased in the first 8 weeks of the week than in the first week, but only in the 4th week of data was significant and the cavities containing DFDBA nanotubes were better than DFDBA micro. Absorption rate of the filler substance was another case that had no significant difference in absorption evaluation in all weeks. At weeks 2 and 4, the absorption rate was between 50 and 70%, but in the weeks 6 and 8, the filler substance Absolutely absorbed.

**Conclusions.** Both nanoparticles and microfluidic DFDBA are similar in terms of inflammation, absorption, external body reaction and osteoporosis, but in terms of recovery of Nano DFDBA, it seems to be preferable to non-nano powder.

**Keywords:** Hostomorphometry, allograft bone powder, nano particle.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 39

### Screw versus cemented implant restorations

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#### Abstract

**Background.** A fixed dental prosthesis can be secured to an endosseous implant via cementation on an implant abutment that is screw retained to the implant or directly in the implant via screw retention. The clinical decision as to which retention system best suits the individual patient depends on several factors. The aim of this review of the literature was to provide an overview of the advantages and disadvantages of the cement- and screwretained restorations, and also to suggest some clinical situations that advocate for one method of retention over the other.

**Methods.** A comprehensive search of studies published in English from 1995 to 2019 and listed in the PubMed/MEDLINE, Embase, Scopus and the Cochrane electronic databases was performed.

**Results.** The choice between cement-retained and screw-retained restorations seems to be based primarily on the clinician's preference. The advantages and disadvantages of each method of retention from different aspects. These aspects include: esthetic outcome, ease of fabrication and cost, impression procedures, retention, biologic risk, passive fit, fracture strength, occlusal area, complications, clinical performance, and retrievability.

**Conclusions.** The review demonstrated that each method of retention has certain advantages and disadvantages. Also concludes that the choice of retention type (screw retained or cement retained) might not influence the overall survival of the implant-supported fixed dental prosthesis, but may be responsible for the development of certain complications. The decision may depend on technical feasibility and on weighing the pros and cons.

**Keywords:** Cement-retained implant prosthesis, screw-retained implant prosthesis, dental implant.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 40

### Effect of vitamin D level on periodontal treatment outcomes: a systematic review

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#### Abstract

**Background.** The authors conducted a systematic search to collect and evaluate scientific evidence identifying a correlation between vitamin D administration and healing after periodontal surgery.

**Methods.** A comprehensive search of 8 electronic databases--Ovid (MEDLINE), EMBASE, PubMed, Web of Science, Scopus, Science Direct, Cochrane Central, and Wiley--was conducted. The reference lists of all of the selected articles were also reviewed for potentially relevant studies. The initial search of the literature, containing both surgical and nonsurgical treatment approaches, yielded 660 citations, 392 of which were duplicates. All of the identified study abstracts were reviewed. Outcomes of the studies were assessed based on clinical attachment loss and periodontal probing depth. Following the abstract-reviewing process, 4 articles stood out from the rest.

**Results.** Full texts of the 4 articles were reviewed, and 3 articles fulfilled all of the considered criteria. The Cochrane risk-of-bias tool was used for study appraisal and rating of evidence. The reviews differed by study design or population characteristics; therefore, the results of the included studies were assessed in a qualitative manner.

**Conclusions.** The results of this review suggest that vitamin D deficiency at the time of periodontal treatment negatively affects treatment outcomes. However, large-scale, longitudinal clinical trials are required to confirm these initial results.

**Keywords:** Periodontitis, surgery, vitamin D.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 41

### Non-plaque-induced gingivitis as a manifestation of systemic disease

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#### Abstract

**Background.** Clinical characteristics of gingivitis (like redness, loss of stippling, ...) is not always due to bacterial plaque accumulation on teeth. This kind of gingival lesions is called non-plaque-induced gingivitis. They are rare and often manifest the underlying systemic diseases; consequently early and proper diagnosis is so important. The aim of this review is to explain the common feature, clinical course and treatment of these diseases with case presentation for each type of them.

**Methods.** An electronic search was done in PubMed central using key words "gingivitis" AND (Gastrointestinal disorders OR Vesiculobullous disorder OR Langerhans cell histiocytosis OR granulomatosis with polyangiitis) without any limitation. All cases with non-plaque induced gingivitis were assessed and diseases which cause gingivitis as a red lesion without nodule formation included in the study.

**Results.** Vesiculobullous disorders (eg, bullous lichen planus, pemphigus, pemphigoid), gastrointestinal disorders, Langerhans cell histiocytosis, granulomatosis with polyangiitis were the systemic diseases which can cause non-plaque-induced gingivitis.

**Conclusions.** In cases of non-plaque-induced gingivitis as a manifestation of systemic disease, only remission of systemic disease resolve the gingival lesion. Attention to the medical history of patients may help in proper diagnosis. In some cases, oral manifestation is the first sign of the disease and dentist can guide the patient for the diagnosis of underlying systemic disease as soon as possible which was important in life threatening disorders.

**Keywords:** Gingivitis, non-plaque-induced gingivitis, vesiculobullous disorders, gastrointestinal disorders.



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## ABSTRACT 42

### The effect of adjective use of melatonin as a supplement on serum ferritin level in periodontal patients: a randomized, controlled trial

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#### Abstract

**Background.** Ferritin is an acute phase protein which is increased in all inflammatory related diseases. Melatonin has already been studied due to its antioxidant effects and the elimination of free radicals. The aim of this study was to evaluate the effect of melatonin supplement as an adjunct to routine periodontal treatment on serum ferritin level in patients with periodontal infection.

**Methods.** A total of 40 patients with chronic periodontitis were included in this study. Twenty patients (control group) received non-surgical periodontal treatment and twenty patients (test group) received non-surgical periodontal treatment with adjunctive use of melatonin. Serum ferritin concentrations and periodontal parameters probing depth (PD), clinical attachment level (CAL), gingival index (GI) were recorded at baseline and 3 months after periodontal therapy.

**Results.** Serum ferritin level decreased in both control and test group in 3 months follow up compared to baseline. Reduction in ferritin level in the test group was more than control group, but this difference wasn't statistically significant (P -value=0.414). Improvement in periodontal parameters weren't significant between two groups (P -value=0.489) but improvement rates in the test group were more than control.

**Conclusions.** Melatonin as an adjunct to periodontal therapy showed additional benefits in reduction of serum ferritin level and improvement of periodontal parameters.

**Keywords:** Chronic periodontitis; melatonin; ferritin; inflammation; dental scaling.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 43

### Antibacterial effect of chemical agent and laser irradiation on human oral biofilms contaminated titanium discs

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#### Abstract

**Background.** A main challenge in treatment of peri-implant disease is the effective decontamination of the implant surface. This challenge has always been a problem, associated with the treatment of these diseases with regard to the difficulty in removing and eliminating bacterial biofilm from the surface of dental implants, especially rough surfaces. The aim of this in-vivo study was to evaluate the effect of five different antimicrobial methods in reducing bacteria adhering to titanium surfaces.

**Methods.** In the present in-vivo study, the contaminated discs, except for the negative control group, randomly underwent one of five treatments: Erbium: Yttrium Aluminum Garnet (Er-YAG) laser, plastic curette, 0.12% chlorhexidine, aPDT, and 810 nm diode laser. A spectrophotometer was used to measure Optical Density (OD) in case of aerobic microorganisms. Colony-Forming Units (CFUs) were used for anaerobic bacteria. Then, all the analyses were carried out at a significance level of  $\alpha=0.05$  through SPSS software.

**Results.** One-way analysis of variance (ANOVA) of aerobic bacteria showed a significant difference among 6 groups in terms of OD variations during a 0–24 h time interval ( $P < 0.001$ ). The results of Kruskal-Wallis test were used to investigate the effect of study methods on anaerobic bacteria after 48 h, and the results showed a significant difference among 6 groups in terms of CFUs ( $P < 0.001$ ).

**Conclusions.** The results of the present study showed that all five mechanicals (plastic curette), chemical (CHX), laser (810 nm diode and Er: YAG), and aPDT methods could reduce oral biofilms from roughed surfaces of titanium discs. Er: YAG laser and plastic curette had the highest and the lowest effects respectively.

#### Keywords:

Dental implants Osseointegration Diode laser Laser therapy Antimicrobial photodynamic therapy

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 44

### Is there a relation between peri-implantitis and systemic diseases?

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#### Abstract

**Background.** The prevalence of peri-implant diseases is progressive due to the growing demand for dental implant treatment and this is the result of improvement in life expectancy in the population. The people of the world are living longer and as a result, the prevalence of systemic diseases is growing. One of the most important factors for a successful implant treatment is proper patient selection, but the present information about the relation between systemic problems and peri-implant diseases is controversial.

**Methods.** An electronic literature search was conducted in the English language in three data bases of MEDLINE, Google scholar and SCOPUS from 2010 up to July 2019. Only meta-analysis and systematic reviews containing 'Peri-implantitis', 'Vitamin Deficiency', 'Hyperglycemia', 'Bisphosphonates', 'Cardiovascular disease' keywords were included.

**Results.** There was inconsistent and controversial evidence regarding association with cardiovascular disease, vitamin deficiencies, osteoporosis, hyperglycemia, history of periodontitis and smoking.

**Conclusions.** Recent studies with low strength of evidence and controversy show that systemic diseases may have potential effect on the success of implantation but further detailed studies are needed to provide these findings.

**Keywords:** Bisphosphonates, cardiovascular disease, hyperglycemia, peri-implantitis, vitamin deficiency.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 45

### Why guided implant placement when freehand seems easier, quicker and less expensive?

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#### Abstract

**Background.** Poor angulation and position of the implant is associated with increased risk of complications. The prosthesis can also be compromised due to unfavorable occlusal forces or poor aesthetics. Improving implant accuracy has been the subject of substantial interest. Accumulating evidence suggests the use of a surgical guide is the primary determinant associated with implant accuracy. However, guided surgery is not always the chosen option due to lack of resources or the urgency of the case. Given appropriate pre-surgical planning, including 3-dimensional radiographic imaging and proper case selection, freehand surgery may be an acceptable alternative. Therefore, it is critical to identify the factors that affect the accurate positioning of the implant fixture.

**Methods.** An electronic literature search was conducted in the English language with 'computer guided surgery', 'free hand surgery', 'dental implants', '3d navigation', '3d planning' and 'flapless surgery' in three data bases of MEDLINE, Google scholar and SCOPUS from 2010 up to July 2019.

**Results.** Restoratively driven diagnosis, precise planning and placement is possible with computer guided techniques and result in high primary stability even in areas with less dense bone. The ability to match and implant design and drill sequence with predetermined bone density gives the practitioner enhanced pretreatment information, which can lead to improved outcomes, justifying the added time and expense of the computer guided surgery.

**Conclusions.** These results suggest tooth-borne, single-implant cases performed later in the practitioner's experience are most appropriate for freehand placement, whereas guided surgery should be considered to improve accuracy for multiple-implant cases in edentulous or partially edentulous sites.

**Keywords:** 3d navigation, 3d planning, computer guided surgery, dental implants, flapless surgery, free hand surgery.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 46

### Immediate implant placement into fresh extraction sockets versus delayed implants into healed sockets

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#### Abstract

**Background.** Aim: The aim of this study was to compare the implant survival rates and peri-implant tissue changes between implants inserted immediately after tooth extraction (fresh extraction sockets) and those inserted after a conventional healing period (healed sockets). Background. At present, dental implant placement has become a popular treatment option for teeth missing. Traditionally, a healing period of 3-6 months is required to allow the implant to osseointegrate, develop a connective tissue interface between implant surface and bone, and minimize the risk of implant failures. However, longer treatment time and additional surgical procedure may increase the burden of patients. New designs and surface treatments have made it possible to insert dental implants immediately after tooth extraction. The novel method minimizes bone resorption by maintaining the periodontal architecture, and it leads to better aesthetic results, particularly when the front teeth are lost. The reported advantages of immediate implant placement include a reduction in the number of surgical interventions, a shortened rehabilitation time, and higher patient satisfaction compared with late implant placement. Another advantage of implant placement in the extraction socket is the counteracting of the hard tissue resorption that occurs following tooth extraction.

**Conclusions.** As we all known, the implant-connective tissue interface is important to support the epithelium and block apical migration, and associated with the implant failure. The immediate insertion may interrupt the formation of implant-connective tissue interface due to the stress of temporary crown, which may be the main reason resulting the significantly different implant failure rate between immediate and conventional insertion. Immediate implants may be preferred in certain clinical situations: specifically, when bone conditions are optimal, with sufficient height and thickness to guarantee good primary stability at the time of implant insertion. This must be associated with careful planning and execution of the surgical and prosthetic procedures; in this way, surgeons can reduce the number of risk factors present during insertion of the implants into fresh extraction sockets.

**Keywords:** Dental implants; fresh extraction socket; immediate insertion; healed socket.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 47

### Lip repositioning

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#### Abstract

**Background.** The prevalence of excessive gingival display is reported to be 7% in males and 14% in females, which results in an unaesthetic smile. In general, the underlying etiology dictates the primary treatment approach. Such techniques include crown lengthening procedures, orthognathic surgery, the use of botulinum toxin A, and lip repositioning.

**Methods.** Rubenstein and Kostianovsky in 1973 proposed lip repositioning as a conservative surgical technique that offers a less invasive approach to correct excessive gingival display. Since the introduction of the technique, several modifications have been introduced, most prominently include muscle detachment, frenulum sparing, and the use of lasers.

**Results.** Complications reported in the literature include scar formation, a feeling of discomfort, numbness, and difficulty in upper lip movement. Severe vertical maxillary excess (> 8 mm) and the presence of a minimal zone of the attached gingiva, which can create difficulties in flap design, stabilization, and suturing, may jeopardize its application.

**Conclusions.** As it has been gaining popularity, there is a need for a decision-making protocol due to limited well-designed literature elucidating the detailed approach and long-term outcomes.

**Keywords:** Esthetics, lip, gingiva, smiling.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 48

### The art of using computer-guided, robotics and implant navigation surgery

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#### Abstract

**Background.** Recent computer-guided dynamic navigation systems promise an approach for minimally invasive implant surgery. Recently, in 2017 robot-assisted surgery has been used for dental surgery system. Therefore, we compared the navigation and computer-guided and we evaluate them in implants treatments, outcomes, clinical success, esthetics and accuracy.

**Methods.** An electronic search of literature was mainly through PubMed and Google scholar. We found 142 articles and we choose 31 of them.

**Results.** High level of inaccuracies are reported where these techniques were applied. However they are indicated for patient with a limited mouth opening, placement of the implant on the same day of the CBCT scan, in difficult-to-access location such as second molar, in tight interdental spaces when static guides cannot be used owing to tube size and when static guide tubes will interfere with ideal implant placement.

**Conclusions.** Computer-aided dynamic implant navigation systems can improve implant surgical outcomes as satisfaction of patient and clinician however it depends on clinicians experience and it is a time and cost effective method.

**Keywords:** Implants, navigation, computer-guided, robotics.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 49

### A decision tree for splinting or nonsplinting the restorations of adjacent dental implants

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#### Abstract

**Background.** A controversial issue in implant dentistry is decision making about splinting of adjacent implants in segmental tooth replacement which is usually occurred during the planning stage. The aim of this presentation is to review the latest literature on splinting versus nonsplinting the restorations of adjacent dental implants, and discussing the advantages and disadvantages of either option. It will be tried to provide the practitioner a decision tree when they encountered such situation.

**Methods.** A comprehensive literature review is conducted for articles evaluating the success of splinted and nonsplinted dental implants.

**Results.** Both options have their outcomes, and no evidence is found to suggest one of them to reach the best result. However, less technical complications have been found with splinted restorations.

**Conclusions.** Both splinting and nonsplinting are valid options for restoring adjacent implants. Nonetheless, considering the several factors related to the patient are crucial to achieve the best possible outcomes and lowest risks for complications.

**Keywords:** Dental implants, splinted, nonsplinted, dental prosthesis implant-supported.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 50

### Bibliometric Study of Dental Lasers Publications of Iranian Researchers during 1994-2014; a Medline Approach

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#### Abstract

**Background.** One of the methods to measure scientific achievements in a particular field is bibliometric analysis of scientific publications. The main goal of this study was bibliometric analysis of Iranian dental laser literature published from 1994 to 2014 in PubMed

**Methods.** PubMed search strategy was developed to identify all the international papers published in the field of dental laser by the Iranian scientists. We performed the search protocol by typing "dent\*" in the title/abstract, and also the word "Iran" and "laser" in the affiliation. We reviewed the abstracts and removed the unrelated articles from the study. Retrieved data were analyzed using SPSS

**Results.** 200 papers from 51 peer-reviewed journals were found from the PubMed database and were reviewed. 79 articles (39.5%) were published in Iranian PubMed indexed journals, and 121 (60.5%) papers were published in the journals of other countries. According to the publication type of the articles, 175 (87.5%) of them were original research papers, 18 (9%) were review papers, and 7 (3.5%) were case reports. The results indicated that maximum number of articles was published in 2014. The most frequent article types were In vitro studies (62.5%) followed by clinical trials (16.5%) and review articles (9%).

**Conclusions.** Recent years, the dental laser research production has made significant progress in Iran. It seems that the Iranian scientists should emphasize more on the design and quality of works in addition to the quantity of articles.

**Keywords:** Bibliometry, Medline, Dentistry, Laser, Iranian.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 51

### Gingival inflammatory indices and dental stain index after using aloe vera-green tea mouthwash, matrica mouthwash, or 0.2% chlorhexidine mouthwash compared with placebo in patients with gingival inflammation

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#### Abstract

**Background.** The purpose of this study was to evaluate and compare the effects of composition of aloe vera-green tea, matrica, and chlorhexidine on gingival inflammatory indices and dental stain index.

**Methods.** In this double-blinded placebo-controlled clinical trial, anti-inflammatory, anti-plaque formation, and dental staining effects of two herbal mouthwashes, including aloe vera-green tea and matrica in comparison with chlorhexidine in 60 patients with plaque induced gingivitis referring to Isfahan University of Medical Sciences, School of Dentistry were evaluated. The indices evaluated in this study were plaque index (Silness and Loe), gingival index (Loe and Silness), bleeding on probing index (Ainamo and Bay) and dental stain index (Lobene stain index). They were evaluated on the first day of using mouthwashes and two weeks later. The obtained data were analyzed using SPSS software version 22. One-way ANOVA, Tukey post hoc, and paired t and Chi-square tests ( $\alpha=0.05$ ) were used as appropriate.

**Results.** There was no significant difference between the four groups in terms of the mean values of plaque index, gingival index, BOP index, and stain index before the application of mouthwash. However, after mouthwash application, the mean values of indices were significantly different between the four groups. Aloe vera-green tea and chlorhexidine mouthwashes reduced plaque index, gingival index, and bleeding on probing index significantly and there was no significant difference between these two mouthwashes ( $P > 0.05$ ). The effect of matrica mouthwash on plaque index and gingival index was significantly lower than aloe vera-green tea and chlorhexidine ( $P < 0.05$ ).

**Conclusions.** The results of the present study show that aloe vera-green tea mouthwash may be an effective mouthwash owing to its antiplaque and anti-inflammatory properties and may be an ideal substitute for chlorhexidine.

**Keywords:** Mouthwash, chlorhexidine, aloe vera, green tea, matricaria chamomile, gingival inflammation.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 52

### Is periodontal disease related to preeclampsia?

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#### Abstract

**Background.** Several studies have hypothesized that periodontal diseases may increase the risk of preeclampsia. The purpose of this study was to compare periodontal parameters in preeclamptic and normotensive pregnant women 48 hours after delivery.

**Methods.** A casecontrol study was carried out on 26 pure preeclamptic women and 25 women with normal pregnancy. The participants did not have any systemic disease that may affect both preeclampsia and periodontal conditions. Clinical parameters measured in case and control groups include attachment loss, gingival bleeding index, and plaque index. These indices were measured in all teeth except the third molars. The data from each subject were reported in mean and finally the average amount of each group was compared to others and analyzed using SPSS software, ttest, and MannWhitney test.

**Results.** Mean of gestational age at delivery in preeclamptic and normotensive groups was respectively  $33.2 \pm 3.89$  weeks and  $36.5 \pm 3.08$  weeks. A significant difference was observed in preeclamptic women compared to controls ( $P = 0.01$ ). There were no statistical differences between groups with regard to mean clinical attachment loss ( $P = 0.16$ ), mean gingival bleeding ( $P = 0.89$ ), and mean plaque ( $P = 0.95$ ) indices.

**Conclusions.** The present study showed that maternal periodontal diseases during pregnancy are not associated with preeclampsia.

**Keywords:** Periodontal index, preeclampsia, pregnancy outcome.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 53

### Periodontal considerations and interactions in orthodontic treatment

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#### Abstract

**Background.** The goal of orthodontic treatment is not only to improve facial and smile esthetics, but also to address the health of supporting structures and how teeth are placed in them. Since orthodontic treatment takes a long duration there are chances of side effects like gingival inflammation, root resorption, etc. However, number and frequency of these changes related to duration of treatment, talent of orthodontist and patient's oral hygiene care.

**Methods.** The search strategy was online survey at PubMed and Google Scholar motor searches.

**Results.** A harmonious cooperation of the periodontist and the orthodontist offers great possibilities for the treatment of various orthodontic-periodontal problems.

**Conclusions.** The present review focused on the effects of a periodontal view and cooperation before, during and after orthodontic treatment and orthodontic effects on patient's periodontal status and the mode that each field can contribute to optimize treatment of combined orthodontic-periodontal clinical problems.

**Keywords:** Periodontics, orthodontics, interaction, cooperation, periodontal structure.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 54

### Comparing the sealing of the connections between the Implant and two kinds of abutments (laboratory made and fabricated)

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#### Abstract

**Background.** Micro gaps at the implant/abutment connection interfaces can serve as reservoirs for bacterial communities that can lead to failure of implant systems in patients. Implant failure can cause great clinical stress to patients. Infection and inflammation at the implant sites can also lead to serious complications. Bacterial micro-leakage at the implant/abutment interfaces is already a major concern and is directly related to aspects such as inadequate tightening of the connections and micro-movement at the connection interfaces. An extensive review of the literature highlighted that a lot of research is currently being undertaken across the globe with the objective of conceptualizing better connection designs that can prevent bacterial micro-leakage at the implant sites.

**Methods.** This particular study involves a comparative evaluation of ten NATURACTIS customized abutments from Euroteknika (CAE) and ten abutments developed by an independent dental laboratory (DL). All the abutment/implant systems were incubated in toluidine blue solution for eight hours at 37 degree centigrade. Then, the abutment was dismantled, and the blotter papers placed in the connection interfaces between the implants and the abutments were examined for traces of toluidine blue contamination.

**Results.** It was interesting to note that seven out of ten laboratory made abutments showed partial contamination and 2 of them showed complete contamination. On the other hand, none of the blotters from the NATURACTIS customized abutments manufactured by the studied implant manufacturer showed any form of contamination whatsoever.

**Conclusions.** The results of this study highlighted that each of the interface of the abutment/implant systems made by the NATURACTIS studied implant manufacturer had a much better precise fitting than the laboratory made connections and that they will be far more efficient in preventing bacterial micro-leakage at the implant sites

**Keywords:** Implant, abutment, fixture, laboratory, naturactis.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 55

### Aesthetic crown lengthening

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#### Abstract

**Background.** Periodontal surgery has a major role in aesthetic dentistry. Main indications for aesthetic crown lengthening of anterior teeth are excessive gingival exposure or “gummy smile” appearance, to expose the anatomic crown of teeth, reduce asymmetry between contralateral teeth, and reduce gingival exposure. The preservation of biologic width space following aesthetic procedures demands the existence of clearly defined therapeutic objectives

**Methods.** Indications for surgery and different surgical techniques will be explained as well identifying the problem

**Results.** Different indications are illustrated with cases to show the surgical treatment approach to improve the esthetic appearance for each condition.

**Conclusions.** Aesthetic Crown Lengthening is a predictable surgery.

**Keywords:** Aesthetics, crown lengthening, gummy smile.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 56

### A systematic review of the effect of smoking and the history of periodontitis in the development of peri-implantitis

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#### Abstract

**Background.** The purpose of this systematic review was to assess the risk factors of peri-implantitis in the current literature.

**Methods.** An electronic search was conducted to evaluate the history of periodontal disease and smoking in patients with dental functional implants. The criteria for selecting the studies included prospective studies and comparisons between two groups of patients with and without factor of the study with a minimum follow-up period of three years and a report on the occurrence of peri-Implantitis and implants loss.

**Results.** One study evaluating history of periodontitis and no study on smoking effect were included. According to the evidence, the history of periodontitis is known to be a risk factor for peri-implantitis.

**Conclusions.** The results of this systematic review indicate history of periodontitis as a possible risk factor for peri-implantitis, while insufficient data are present in literature to evaluate the role of smoking. However, available evidence is still weak and immature, and more epidemiological studies are needed to analyze the specific contribution of these potential risk factors.

**Keywords:** Peri-implantitis, periodontitis, bone loss, dental implant, smoking.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 57

### Salivary level of leptin in chronic periodontitis patients

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#### Abstract

**Background.** Background and Objectives: Periodontal disease is an inflammatory condition of the tooth-supporting structures. Leptin is a hormone produced by the human body under different circumstances such as infection. It affects the production of cytokines, phagocytosis and the inflammation process. This study aimed to compare the salivary level of leptin in chronic periodontitis (CP) patients and healthy controls.

**Methods.** Materials and Methods. In this case-control study, saliva samples were collected from 43 subjects including 22 CP patients and 21 healthy controls. The salivary level of leptin was determined using the ELISA. Data were analyzed by the independent t-test.

**Results.** Results. Despite the presence of leptin in the saliva of CP patients and healthy controls, no significant difference was noted in its salivary concentration between the two groups ( $P > 0.05$ ). Conclusion: The salivary level of leptin in CP patients was not significantly different from that in healthy controls. Further studies with larger sample size are required to confirm the results of this study.

**Conclusions.** Conclusion According to the obtained results, leptin was present in the saliva of both CP patients and healthy controls and no significant difference was noted in its concentration between the two groups. Further studies with larger sample size are required to confirm the results of this study.

**Keywords:** Leptin; saliva; chronic periodontitis.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 58

### Increased bone quantity around an ailing implant in esthetic zone using progressive bone loading: A case report

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#### Abstract

**Background.** Progressive loading protocol is a high-demanding procedure suggested to increase the quality of bone when the implant is inserted in D3 or D4-typed bone. The purpose of this study is to present a case report regarding simultaneously progressive and immediately loading implants in the anterior position of the maxilla.

**Methods.** An electronic search for articles in the English language literature was performed using a systematic search through PubMed/MEDLINE and Google scholar databases with no publication year limit. Besides one patient whose implants in the anterior maxilla (in site of teeth #7, #9, #11) had questionable to poor prognosis who was treated immediate and delayed progressive loading protocol and was followed up for 2 years.

**Conclusions.** Although the number of studies in this field is limited, it can be concluded that the progressive loading protocol can predictably enhance the treatment success in immediate-loaded implants with poor prognosis and when inserted in low quality bone such as the present case.

**Keywords:** Dental implant, immediate loading, implant-supported, progressive loading.

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## ABSTRACT 59

### Evaluation of color and width of attached gingiva gain in two surgical techniques: free gingival graft and connective tissue graft covered by thin mucosal flap, a clinical trial

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#### Abstract

**Background.** This study aimed to compare the color and width of tissue grafted by two surgical techniques of keratinized gingival augmentation, namely free gingival graft (FGG) and connective tissue graft (CTG) covered by thin mucosal flap.

**Methods.** This clinical trial was performed on 15 adult individuals. The patients showed less than 2mm keratinized gingiva on two different recipient sides. One side was to be treated with CTG as the test group and the other side to be treated with FGG as the control group. The amount of keratinized gingiva before the surgery, size of grafted tissue during the surgery and 6 months after the surgery was documented. Six months after healing, the test and control sides were compared in terms of the width of generated gingiva on both sides, and the color match of the grafted areas with the surrounding gingiva or mucosa. The color of the grafted areas was determined and compared by using both professional evaluation and digital evaluation.

**Results.** In digital evaluation,  $\Delta E$  (which shows color mismatch) was higher in FGG. In professional evaluation, visual analogue scale (VAS) was used by two blinded periodontists. The mean VAS in FGG was less than CTG. The mean increase of gingival width was higher in CTG. The increased width in CTG technique was more than that in FGG technique. This difference was statistically, but not clinically, significant.

**Conclusions.** Higher  $\Delta E$  in control side and higher mean VAS CTG both showed better color adaptation of CTG side. FGG can be used in case of increasing keratinized gingiva, vestibular depth, and in patients with low smile line without esthetic concerns. However, using connective tissue in the underlying thin mucosal layer is preferred for gingival augmentation if there are adequate vestibule depth and esthetic concerns, like in maxillary canine.

**Keywords:** Color, connective tissue, reconstructive surgical procedures, periodontal disease, esthetics, plastic.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 60

### Marginal bone changes of implants blasted with calcium-phosphate particles

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#### Abstract

**Background.** Introduction Since peri-implantitis is one of the main concerns in implant Dentistry, it is important to assess the marginal bone changes around dental implants after insertion and following the functional loading. The aim of this study was to evaluate the marginal bone level changes around dental implants blasted with Calcium Phosphate particles three years following implant surgery.

**Methods.** Materials and Methods. In this study 39 dental implants evaluated three years after implant surgery. All the implant surfaces were blasted using calcium phosphate particles. Crestal bone level changes on mesial and distal aspects of implants were measured as the distance between the implant's first thread and alveolar bone crest in proximal areas using standardized intra-oral periapical radiographs. Data were analyzed using Mann-Whitney statistical tests.

**Results.** Results The 39-calcium phosphate dental implants showed mean marginal bone resorption of  $2.94 \pm 0.76$  after three years following loading. No mobility, infection or pain was observed. 4 patients (3/1%) reported prosthetic fracture.

**Conclusions.** Conclusions Based on the findings of this research, marginal bone resorption of implants blasted with calcium phosphate particles was noteworthy after three years following implant surgery.

**Keywords:** Dental Implant, marginal bone, surface, bone loss.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 61

### Immediate implant placement in molar fresh socket without graft material

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#### Abstract

**Background.** Immediate dental implant placement is a reliable and time-consuming procedure for replacing hopeless teeth. However, an appropriate case selection and a meticulous surgical procedure are prerequisites for achieving long-term successful results in the molar area. Selecting the implant position and achieving adequate primary stability are challenging aspects of immediate implant placement in molar area.

**Methods.** A total of 30 maxillary and mandibular molars with extensive caries or fracture were selected for this study. A muco-periosteal full-thickness flap reflected. Non-Traumatic extractions for preserving the socket wall applied using rotating devices for root separation and removal, and then the implants (Roxolid, Straumann) were placed based on the prosthetic driven position. The flap sutured without using any graft material. If during the extraction labial or lingual plates of bone were broken or resorbed, the sites would be excluded from the study. Clinical parameters and standard radiographs at baseline and at the time of functional loading were used to assess the outcomes of immediate implant placement in molar fresh sockets without using graft materials. Data were analyzed using Mann-Whitney statistical tests.

**Results.** All implants presented normal clinical parameters including gingival index, bleeding on probing and pocket depth. Based on the radiographs the level of bone was stable measuring from the first thread to the alveolar crest and bone loss was not found between base-line and the second evaluation ( $P > 0.05$ ).

**Conclusions.** Based on the findings of this research immediate dental implant placement in the molar area is a reliable procedure with high success rate after implantation.

**Keywords:** Dental Implant, Immediate, molar.



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## ABSTRACT 62

### Application of implantoplasty in the treatment of peri-implantitis

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#### Abstract

**Background.** Most modern implants have a moderately rough surface. Implantoplasty (the mechanical modification of the implant, including thread removal and surface smoothing) has been proposed during surgical peri-implantitis treatment, not only with the goal of removing surface contamination, but also to reduce future bacterial colonization. This technique, therefore, is indicated when the threads of the implant are supra- or subgingivally exposed. The aim of this literature review was to assess mechanical, biological effects and safety of this approach.

**Methods.** Literature search was performed in 2 databases (PubMed and google scholar) until 6/06/2019. Studies involving implantoplasty were included and any complication potentially related to implantoplasty was recorded and summarized.

**Results.** Out of 424 titles, 20 publications were included in the present review. Studies have shown that under proper cooling conditions, implantoplasty does not generate excess temperature increases that can damage soft tissue or bone surrounding the treated implant. No clinical study has reported any remarkable complication due to implantoplasty. No implant fracture was also reported.

**Conclusions.** Based on all currently available, yet limited, implantoplasty seems not associated with any remarkable mechanical or biological complications and success rates of periimplantitis therapy with surgical implantoplasty are high.

**Keywords:** Periimplantitis, implantoplasty, dental implant.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 63

### Narrow dental implants: How? When? Where?

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#### Abstract

**Background.** In recent years, implantologists have sought for more conservative treatment modalities that leads to more comfort for the patient. Hence, short or narrow implants have been broadly utilized.

**Methods.** In this article, indications and contra-indications of both narrow dental implant (NDI) and mini-dental implant (MDI) are explained, advantages and dis-advantages of them are discussed and recent evidence about this category of implants are reviewed. Finally, some cases that were treated by NDI / MDI will be reported and points of each case will be stated.

**Results.** Use of these implants in which include two range of diameter (3mm<math>\leq \varnothing</math>

**Conclusions.** Recent studies are promising about efficiency and success of narrow diameter implants. Therefore, use of this category of implants can be considered as a treatment modality in properly selected cases.

**Keywords:** Narrow dental implant, mini-dental implant.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 64

### The effect of photobiomodulation on oral wound healing

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#### Abstract

**Background.** Wound healing entails a sequence of complex biological processes with minimal scar formation. Healing includes four stages Hemostasis, Inflammatory, Proliferative, and Maturation.

**Methods.** Photobiomodulation therapy is based on the application of laser or LED to trigger photochemical changes within cellular structures. The principle behind the application of low level lasers is the direct application of light energy with biomodulatory capacity on body cells.

**Results.** Wound healing can be achieved by photobiomodulation effect on cell proliferation, migration, and differentiation. Higher collagen synthesis and vascular proliferation an increase in cell division in epithelial cells are also considered.

**Conclusions.** Photobiomodulation can show different effects depending on such factors as wavelength, output power, time of irradiation, energy density, and number of treatment sessions. On the other hand, the type of wounds and many interventional variables affect the results. Also, knowledge and experience of practitioner are very important.

**Keywords:** Photobiomodulation, wound, healing.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 65

### To save or to extract? Natural tooth or dental implant, criteria for decision making

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#### Abstract

**Background.** When trying to approach an ideal treatment plan, it is of high importance to decide when to extract or keep compromised teeth. Given the popularity and success of dental implants, there is a tendency to believe that they are as pertinent as natural teeth. The following study is aimed to portray criteria to be considered before making vital decisions whether to remove teeth that are compromised

**Methods.** An electric literature search was conducted up to June 2019 for articles with relevant search key words and terms in PubMed. The included articles are case reports, case series, clinical trials and reviews for articles published between 2008 to 2019. Clinical English language reports were included

**Results.** According to a decision-making chart proposed by an article after performing a search through three different databases (PubMed, Ovid and Scopus) using MeSH and non-MeSH terms related to each category of the chart, incorporation of a color-coded system could be suggested to categorize teeth in time of treatment decision making. The teeth are color-coded as green (favorable long term outcome), yellow (to proceed with caution) and red (unfavorable long term outcome). There are also other variables to be considered suggested by the article which could affect the final decision making. Which are categorized as follows 1) initial reassessment 2) periodontal disease severity 3) Furcation involvement 4) etiologic factors 6) other determinants.

**Conclusions.** There are other imperative factors suggested by different reviews and articles to operatives before developing an optimal treatment plan, such as, prevalence and incidence of periodontal disease progression, size of periodontal effects, preservation of bone, biologic width and restorative considerations, remaining tooth structure, caries, success of endodontic therapies, pulp mortality, resistance to disease. In general, besides status, time and cost of therapy patient preference needs to be taken into consideration when establishing a treatment plan, however the long-term consequences of each treatment option should be explained to the patient and noted in the patient's record.

**Keywords:** Compromised teeth, criteria, extraction.



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## ABSTRACT 66

### Computer-assisted dental implant surgery

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#### Abstract

**Background.** Nowadays there are many ideas to achieve High success and reliable treatment surgeries for both partially and totally edentulous patient. The aim of this review to compare accuracy and advantages of computer guided navigation system vs conventional free hand method.

**Methods.** This review has been done by searching in electronic data bases including PubMed and scopus with these key words "computer assisted surgery", "navigation implant surgery", "dynamic navigation implant", "static navigation implant".

**Results.** In navigation surgery for dental implants the two approaches; dynamic and static were introduced. The static navigation refers to use of surgical templates for the bone implant drilling. Dynamic navigation is used to monitoring through a three dimensional softwar of the bone drilling and implant placment following the preoperative plane, while the freehand implant placement requires no guided stents. Through computer guided surgery it possible to reduce deviation and differences between the preoprative CBCT images and measurements from final treatment outcome. Also, the CAS method is usefull in cases with complications like proximity of inferior alveolar nerve.

**Conclusions.** A number of statistically significant were found in comprison. In computer assisted group indicate no implant fails, reduce of post surgical pain and swelling. And the mean marginal bone loss decreased.

**Keywords:** Computer assisted surgery, navigation implant surgery, dynamic navigation implant, static navigation implant.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 67

### Indications and contraindications in fresh socket implant

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#### Abstract

**Background.** Implants are one of the treatment choices in edentulous regions in mouth. Immediate implant placement into fresh extraction socket reduces the treatment time, cost, preserved the gingival aesthetic and increases the comfort of the patient. Fresh socket implants indications and contraindication is one of the most challenging procedure in dentistry.

**Methods.** an electronic search was conducted in PubMed data base and google scholar from 2010 to 2019. we excluded 10 related articles which are enclosed to our study.

**Results.** Immediate implant placement is most commonly indicated when tooth extraction is due to trauma, endodontic lesion, root fracture, root resorption, root perforation, unfavourable crown to root ratio (not due to periodontal loss) and bony walls of alveolus are still intact. replacing teeth with pathologies not amenable to treatment, such as caries or fractures. Immediate implants are also indicated simultaneous to the removal of impacted canines and temporal teeth. Contraindications includes presence of active infection, insufficient bone (

**Conclusions.** According to the results in patients with indication for fresh socket implants are more effective choice.

**Keywords:** Indication, contraindication, success, fresh socket implantation.



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## ABSTRACT 68

### Key implant positions and number in full mouth reconstructions

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#### Abstract

When implants are inserted into abundant bone volume and allowed to integrate for 4 or more months before loading, the surgical success rate is over 98%. This success rate is not related to implant number, size, or design. However, when the implant is occlusally loaded with the prosthesis, the failure rate may be greater than three to six times the surgical failure rate. The primary cause of this complication in implant dentistry is related to biomechanical factors, with too much biomechanical stress applied to the implant support system or bone too weak to support the load. Mechanical complications of the implant components or prosthesis outnumber surgical failures, and many reports are more frequent than early loading failures. Biomechanical stress may also cause marginal crestal bone loss. Because the implant does not have a periodontal membrane as a tooth does, the stress to the implant-bone interface is mostly to the crestal marginal bone. When the stress is beyond the bone physiologic limit, resorption may occur. The bone loss may increase the risk of anaerobic bacteria and periimplantitis, the surrounding soft tissues may shrink and result in poor cervical esthetics. As a consequence, a primary objective to develop a treatment plan in implant dentistry should be to reduce biomechanical stress in the system with choosing the appropriate positions and number of implants according to the decided treatment plan. This review explains the details of implant key positions and implant numbers in different cases seeking full mouth rehabilitations.

**Keywords:** Implant, full mouth, reconstruction, implant position, key positions.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 69

### Laser application in non-surgical periodontal treatment

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#### Abstract

**Background.** In recent years, the use of laser radiation has been expected to serve as an alternative or an adjunctive treatment to conventional, mechanical periodontal therapy. The aim of this study was to evaluate the clinical effect of laser application compared with mechanical debridement in non-surgical periodontal therapy in patients with chronic periodontitis. .

**Methods.** Electronic databases of the PubMed and the Cochrane Library were searched from 1992 to 2018. 19 clinical studies were evaluated after the inclusion, exclusion criteria.

**Results.** The results indicate that Er: YAG laser as a monotherapy resulted in similar clinical outcomes, compared with mechanical debridement if proper parameters are followed i. e. the energy in the range of 140-160 mJ and frequency of 10 Hz. . There is insufficient evidence to support the clinical application of either CO<sub>2</sub>, Nd: YAG, Nd: YAP, or different diode laser wavelengths.

**Conclusions.** The Er: YAG laser seems to have characteristics most suitable for the non-surgical treatment of chronic periodontitis. In combination with mechanical debridement, the results are similar or better with significant gains in clinical attachment level as compared to other various lasers.

**Keywords:** ErYAG laser, lasers, chronic periodontitis, non-surgical periodontal therapy.



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## ABSTRACT 70

### Prosthesis-related periimplantitis

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#### Abstract

**Background.** One of the most popular complication of dental implants is periimplantitis which if not treated may lead to dental implant failure, there are different major causes of periimplantitis such as poor oral hygiene, lack of attached gingiva, poor prosthesis, ..... Here we are going to discuss the prosthesis related periimplantitis, how to diagnose and how to manage and the preventive solutions

**Methods.** The methods by which we can prevent the prosthesis related periimplantitis and the signs and symptoms of disease is very important in long term survival of dental implants

**Results.** The rate of prosthesis related periimplantitis is high, and the supposed role of it in implant failures is obvious.

**Conclusions.** As the most important factor in long term failure of implants, prosthesis is of great importance, so the process and the guidelines should be carefully followed

**Keywords:** Periimplantitis, prosthesis, implant failure

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## ABSTRACT 71

### Comparison of different types of cements used in implant dentistry

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#### Abstract

**Background.** Cement-retained implant-supported prostheses (CRISP) have been commonly used because of simplicity and cost effectiveness. Peri-implant health parameters were reported to be similar around screw-retained and cement-retained prosthesis, provided that excess cement is removed. A wide variety of dental cements are commercially available to retain an implant-supported prosthesis. Each cement material has certain characteristics and properties. This article will discuss the characteristics of dental cements used in implant dentistry. It also provides selection criteria according to the material of the abutment and prosthesis.

**Methods.** A search of literature in the English language between 2008 and 2018 was conducted using the following databases: Medline via PubMed, Science Direct, Wiley online library, Taylor& Francis, and Cochrane library. In total, 10 studies that met the inclusion criteria were found.

**Results.** Based on the information obtained from peer-reviewed articles, cements show different retention qualities for CRISP. These qualities might not be the same as those for cement-retained prostheses on teeth. However, the previously defined clinical guidelines for appropriate cement selection should be considered when planning the prosthesis. The use of provisional cement, such as ZOE, is widely accepted in implant dentistry. However, a more durable permanent cement such as RMGI is preferred. When selecting the cement, esthetics and retention should be considered when planning a case.

**Conclusions.** Retention and esthetics are the main factors in cement selection of dental cements for implant-supported prosthesis varies from tooth guideline. Peri-implant mucositis and peri-implantitis are major concerns when considering cement-retained implant prosthesis. It is customary to use different cementation techniques to minimize excess cement.

**Keywords:** Cement-retained Provisional cements, Permanent cements.



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## ABSTRACT 72

### The complications of cement- and screw-retained implant assisted crowns in a long-term performance

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#### Abstract

**Background.** Implant fixed prostheses are very frequently used to rehabilitate partially and completely edentulous patients. One of the most important decisions when using dental implants in prosthodontics is the choice of the final crown and implant connection type via abutment. The implant-crown abutment can be either cement- or screw-retained. The aim of this study was to identify the most common biological and mechanical complications in implant prosthodontics, to evaluate the influence of biomechanical properties that cause fractures and cracks of veneered porcelain, to compare the effects of crowns of different connections on soft tissues.

**Methods.** The relevant articles were retrieved from MEDLINE (PubMed), Cochrane Library, and EBSCO electronic databases for articles published from January 1995 to January 2016 and were restricted to randomized controlled trials and retrospective and prospective studies in English. Reviewed studies which reported retention failures in fixed implant-supported prostheses using screw and cement retention mechanism. Information on the type and nature of restoration, as well as different luting cement, were also collected.

**Results.** Thirty-three articles were finalized. The results of the meta-analysis for short-term studies showed statistically significant difference between cement-retained and screw-retained prosthesis, with the forest plot favoring cement-retained prostheses. In long-term studies, the forest plot revealed statistically significant difference between both retention systems favoring cement-retained prostheses. Four investigations showed that technical complications more often occurred in screw-retained prostheses, although two studies concluded that cement-retained crowns were also susceptible to technical complications. Four studies concluded that cement-retained prostheses were more susceptible to biological complications, but two investigations also showed that biological complications were observed in tissues adjacent to screw-retained crowns.

**Conclusions.** The research of literature data for the last five years showed that screw-retained crowns demonstrated more failures such as porcelain cracks and fractures or screw loosening, while cement-retained crowns caused more severe biological complications such as peri-implant soft tissue inflammation or pathological bone resorption.

**Keywords:** Cement-retained restorations, screw-retained restorations.

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## ABSTRACT 73

### Biomarkers as a novel approach in periodontal disease diagnosis; laboratory and clinical challenge

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#### Abstract

**Background.** Oral health is a substantial subject in human health which poor hygiene can cause a disturbance in the body. Periodontitis is an inflammatory oral disease that etiology factors have a critical role in it; like microorganisms and host immune response. Fluctuation expression of Immune biomarkers in developmental of this disease is beneficial in periodontitis diagnostic.

**Methods.** Published articles were accomplished from PubMed, Google Scholar, Wiley, Springer, Science Direct and Elsevier from 2012 to June 2019. Entirely, 45 articles were found and related ones reviewed.

**Results.** Not only microorganisms have a key role in the initiation of this disease but also immune response affects like double edge knife in progression and recurrence. Biomarkers are an imperative mediator in the immune system that accomplishes many functions in the body can initiate or promote periodontitis disease. Varied Cytokines such as IL-1 $\beta$ , IL-6, IL-17, IL-18, IL-21, and TNF- $\beta$  are a critical diagnostic marker in diagnostic of periodontal disease. It is proved that with the severity of periodontitis the IL-1 $\beta$  and IL-6 levels increased, whereas the TNF- $\beta$  levels decreased. Also, post stimulation IL-1  $\beta$  and IL-6 levels were higher in patients with improved treatment outcome.

**Conclusions.** Periodontitis is a convoluted inflammatory disease that affects the quality of life which immune biomarkers have a critical role in the procedure and stage of this disease. Study and assessment of these immunomodulators in laboratory can help to rapid diagnosis and specificity treatment of periodontitis in clinic.

**Keywords:** Periodontitis, biomarker, diagnosis, cytokine.



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## ABSTRACT 74

### Evaluation of factors influencing survival rate of implants used in rehabilitation of completely edentulous jaws

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#### Abstract

**Background.** Complete edentulism still is a common health problem. The diversity of problems caused by complete dentures is not a modern issue. On the contrary, clinical studies investigating the potential impact of implant-supported prostheses on the oral health-related quality of life were able to show clear improvement after implants had been inserted. Thus, the aim of this systematic review was to address the following focused question: Is there an impact of implant location (maxilla vs. mandible), implant number, type of prosthesis (fixed vs. removable) and/or different anchorage systems on the implant loss rate concerning the implant-prosthodontic rehabilitation of edentulous patients?

**Methods.** A systematic literature search for randomized-controlled trials (RCTs) or prospective studies was conducted within PubMed, Cochrane Library, and Embase. Quality assessment of the included studies was carried out 54 studies were included for qualitative analyses. Implant loss and corresponding 3- and 5-year survival rates were estimated by means of a Poisson regression model with total exposure time as offset.

**Results.** Estimated 5-year survival rates of implants were 97.9% in the maxilla and 98.9% in the mandible. Corresponding implant loss rates per 100 implant years were significantly higher in the maxilla. Implant loss rates for fixed restorations were significantly lower compared to removable restorations. The analysis of one implant and a mandibular overdenture also revealed higher implant loss rates than an overdenture on two implants. The same (lower implant number = higher implant loss rate) applied when comparing 2 vs. 4 implants and a mandibular overdenture. Implant loss rates for maxillary overdentures on

**Conclusions.** Implants with fixed prostheses show slightly but significantly better results than removable prostheses regarding both jaws. Rough-surfaced implants demonstrated favorable results compared to machined implants. The current evaluations show a successful outcome for screw-retained fixed restorations and bar- or ball-retained overdentures in the completely edentulous jaw.

**Keywords:** Edentulous mandible, edentulous maxilla, implant-supported prosthesis.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 75

### The relationship between gingival biotype with the width of keratinized tissue and papillary fill of maxillary central incisors

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#### Abstract

**Background.** Anatomical characteristics of periodontium such as gingival thickness, width of keratinized gingiva and alveolar bone morphology determine the behavior of periodontium when subjected to physical and chemical stimuli, bacterial insult or during therapeutic procedures. Gingival biotype is one of the most important issues of concern in periodontal treatments especially root coverage and implant placement surgeries. Different tissue biotypes respond differently to inflammation and to surgical and restorative treatments; thus, it is crucial to identify tissue biotype before treatment. Thus, the aim of this study was to investigate the association between gingival thickness with the width of keratinized tissue and papillary fill in maxillary central incisor teeth of individuals with healthy periodontium.

**Methods.** 62 patients referring to Borujerd dental clinic that matched the predefined inclusion criteria participated in this cross-sectional study. Clinical parameters including gingival thickness (measured by two methods of using an endodontic spreader and transparency of the periodontal probe through the gingival margin), width of keratinized tissue and papillary fill were measured and statistically analyzed.

**Results.** Mean gingival thickness was 0.85 mm for thin and 1.20 mm for thick gingival biotype. Mean width of keratinized gingiva were 4.86 mm and 5.35 mm for thin and thick gingival biotype respectively. A positive correlation existed between the width of keratinized gingiva and the gingival thickness, also between age and the width of keratinized gingiva, as well between the amount of gingival thickness of left and right central incisors. According to the present study, one third of the population had a thin gingiva, of which 73% were female. The two methods of defining the gingival thickness yielded similar results in 84.67% of cases.

**Conclusions.** According to the results, gingival thickness was significantly correlated with the width of keratinized gingiva. There was no significant relationship between gingival thickness and papillary fill. Measuring the amount of spreader penetration was more accurate than the transparency of periodontal probe. However, defining the gingival biotype by visualizing transparency of the periodontal probe through the gingival margin has a high repeatability; it is simple, less costly and less time consuming. Therefore, it could be routinely used for determining the gingival thickness.

**Keywords:** Gingival biotype, papillary fill, central incisor.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 76

### Application of stem cells for periodontal tissue regeneration; next-generation treatment

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#### Abstract

**Background.** Periodontal ligament tissue is demonstrated as a specialized connective tissue. The focus of periodontal therapy has been concentrated on controlling periodontal infection and preservation of healthy dentition long-life. Due to major tooth loss, although, dentists have failed to restore the whole damaged tissues, conventional periodontal treatment is failed to restore true periodontal structures. In last years, tissue engineering has been considered for regenerative therapy. for future applications in the clinic.

**Methods.** Published articles were accomplished by PubMed, Google Scholar, Wiley, Springer, ScienceDirect, and Elsevier from 2010 to July 2018. Entirely, 32 articles were found and reviewed.

**Results.** Tissue engineering and regenerative medicine is the concept of involving the regeneration of tissues using a combination of cells, scaffolds, and signaling molecules. Mesenchymal stem cells (MSCs) are well known to secrete a variety of growth factors and cytokines. Recent studies have indicated that the paracrine effects of the growth factors and cytokines secreted from implanted MSCs may promote tissue regeneration in vivo. This novel regenerative technique based on a that utilizes stem cells may represent an alternative solution for periodontal regeneration. Cytokines such as insulin-like growth factor, vascular endothelial growth factor, transforming growth factor-b1, and hepatocyte growth factor was detected in MSC.

**Conclusions.** Clinical researchers' collaboration with specialists open the knowledge boundaries to optimistic studies on Endogenous stem cell therapy as a unique concept without cell transplantation for periodontal regeneration and periodontium reconstruction. Cell therapy is expected to become the next-generation method.

**Keywords:** Stem cell, regenerative, tissue engineering, periodontium.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 77

### Smoking and periodontal diseases

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#### Abstract

Smoking is a recognized risk factor for human health. It is related to many conditions such as respiratory problems, cardiovascular diseases and cancer. Cigarette smoking represents a major preventable cause of human disease. Cigarette smoking is a well-known risk factor for several oral diseases, including a widely studied and established association with periodontal diseases. Although the direct cause for periodontitis is oral bacterial infection, its progression and severity depend on a number of genetic and environmental factors. Cigarette smoking is arguably the strongest behavioral risk factor for the incidence and progression of periodontitis. Tobacco and some of its components such as nicotine have been found to have adverse effects on cells of the periodontium, including gingival fibroblasts and cells of the immune system. An in vitro study done by Tanur et al. showed that the nature of cell attachment to root surfaces is altered by nicotine. Cigarette smoking is likely to affect the composition of the oral microflora due to a decrease in oxygen tension in periodontal pockets and may lead to a selection of anaerobic bacteria. Tobacco smoking affects the humoral mediated and the cell mediated immunity of the host and this may increase susceptibility to periodontal disease. Smoking has profound consequences on the immune and inflammatory systems. Smoking has adverse effects on fibroblast function, chemotaxis, and phagocytosis by neutrophils and immunoglobulin production. There is evidence for an impact of smoking on bone metabolism such as an increased secretion of the bone resorbing factors PGE2 and IL-1 $\beta$  or a decreased intestinal uptake of calcium. Smoking has a strong negative impact on regenerative therapy, including osseous grafting, guided tissue regeneration, or a combination of these treatments the oral cancer risk is higher in smokers. The risk is related to the amount and duration of smoking. Smoking can cause DNA instability. This is consistent with increasing counts of mucosal micronucleus. Decrease in capillary diameter and density of blood vessels in the gingival tissues of smokers explains the reduction of redness and bleeding.

**Keywords:** Smoking, periodontal, diseases.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 78

### How to manage large sinus membrane perforations: Review of articles and case report

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#### Abstract

**Background.** Sinus augmentation is one of the most predictable methods in achieving bone vertical dimension in the posterior of maxilla. Although it has a high rate of success, facing complications due to its relationship with the other spaces in head would be challenging and even life threatening. Treating large sinus membrane perforation is one of the most challenging in this field.

**Methods.** A 57 years women with an oro-anthral fistula and the history of sinus augmentation was referred to periodontology and implantology department. After removing the whole bone materials it seemed that no membrane left. The sinus augmentation was done using fixation method.

**Results.** The healing period was uneventful and the implants were inserted successfully after nine months. Histological and clinical examination showed desirable results.

**Conclusions.** The results showed fixation method could be promising in large sinus membrane perforations.

**Keywords:** Sinus augmentation, sinus complication, membrane perforation, fixation method, large sinus perforation.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 79

### Implants in the esthetic zone

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#### Abstract

**Background.** In the early years of modern implantology, the chief concern was tissue health and implant survival. Over the last decade, there has been an increasing appreciation that esthetics is just as important to the success of the final restoration as health. The World Health Organization has defined health as a state of "complete physical, mental, and social well-being, and not merely the absence of disease." Patients increasingly demand restorations that are as esthetic as they are functional. Consequently, many recent studies have concentrated on treatment outcomes of implant Therapy performed in the esthetic zone. In a review of the recent literature "Belser and colleagues" reported that, dental implants in the anterior maxilla have an overall survival and success rate similar to those reported for other segments of the jaw. In an 11-year retrospective study, "Eckert" and "Wollen" evaluated 1170 implants placed in partially edentulous patients and found no differences in survival rates of the implants with regard to their anatomical location. However, they also reported an esthetic failure rate of about 9% for implant placement in this area. SO, Placement of a dental implant in the esthetic zone is a technique sensitive. A subtle mistake in the positioning of the implant or the mishandling of soft or hard tissue can lead to esthetic failure and patient dissatisfaction.

**Methods.** The Search was limited to English language articles published between 2005-2019 with key words, implant placemet in Anterior of Maxilla, Implant in the Esthetic Zone

**Results.** Implant placement in the Esthetic zone should be planned meticulous, there is Tischler's guidelines for implant placement in this area that is included: -Employ a conservation flap design -Evaluate the existing bone and soft tissue -Time the placement correctly -Visualize the 3-dimensional position of the implant -Consider the determinants of emergence profile -Consider healing time -Select a proper abutment and final restoration

**Conclusions.** Implant placement in the Esthetic zone has successful result thorough proper preoperative treatment planning and choosing correct technique combined with appropriate surgical skills and knowing Esthetic parameters. Correct positioning of the implant in this zone is an important topic that periodontists face it and can make a significant contribution to applicant patients.

**Keywords:** Implant placement in anterior of maxilla, implant in the esthetic zone.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 80

### Effect of surgical preiodondatal treatment on levels of immunologic factors in periodontitis patients

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#### Abstract

**Background.** Periodontitis is a multifactorial inflammatory disease, which activated innate and adaptive immune system and causes to teeth supporting tissues destruction. Progress of periodontal disease is associated with the interaction between periopathogenic bacteria and immune system cells such as IL-1 $\beta$  and IL-18. IL-1 $\beta$  production is regulated by NLRP3 which is the member of NOD-like receptors (NOD) proteins. IL-18 is inflammatory cytokine. There is significant relationship between periodontal disease severity and IL-18

**Methods.** In this experimental study, 18 patients (9 males and 9 females) with the mean age of 46.2 years old were selected among patients with chronic periodontitis. GCF was collected before treatment, 4 weeks after phase I treatment and 4-week after phase II treatment by perio-paper. The concentration of NLRP3 and IL-18 were determined by ELISA method. Paired t-test was used for comparison of NLRP3 and IL-18 concentration before and after treatment with CAL and PD.

**Results.** The results have shown a significant relationship between pre-treatment mean PD and mean CAL and NLRP3 concentration ( $P = 0.000$ ). After each treatment phase, a significant decrease in NLRP3 concentration was revealed. However, there is no significant relationship between IL-18 and NLRP3 concentration (pre and post treatment and surgical intervention) with clinical parameters (mean PD, mean CAL in pre and post treatment and surgical intervention).

**Conclusions.** Probably due to the correlation between NLRP3 concentration and clinical parameters, it can be considered as an index of inflammation in chronic periodontitis. Due to the significant reduction in NLRP3 concentration after each treatment phase, it can be used as an index for treatment evaluation in patients with periodontitis.

**Keywords:** Chronic periodontitis, periodontal phase I treatment, surgical intervention, IL-18, NLRP3.

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## ABSTRACT 81

### Different techniques of lip repositioning: Pros & cons

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#### Abstract

**Background.** By growing desire of people to have “perfect smile”, the demands for esthetic surgeries have increased. The position of lips, the condition of oral tissues and gingival outlines are factors affecting smile. Excess gingival display (EGD) is a smile showing more than 1/5-2 mm of gingiva. One of the usual approaches for treatment of EGD is lip repositioning. Several Modifications have been introduced for lip repositioning including: 1) Lip repositioning with myotomy 2) Lip repositioning without myotomy, and 3) frenum sparing. The aim of this poster is to review the stability and benefits of different techniques.

**Methods.** A search with key words of “excessive gingival display”, “gummy smile”, “lip repositioning”, “laser surgery”, “gingiva”, and “myotomy” was performed on Medline, Scopus, Cochrane, and Springer. Relevant articles up to March 2019 were evaluated.

**Results.** Lip repositioning with myotomy and muscle severance offered a more stable and an improved reduction in EGD compared to the methods without myotomy. Swelling and pain were comparable either. The results about lip repositioning with frenum sparing and laser were considerable either.

**Conclusions.** Lip repositioning with several modifications is an acceptable approach to treat EGD. Lip repositioning shows a stable result after 6 to 12 months according to researches. It also contains less invasive way compared to orthognothic surgery.

**Keywords:** Excessive gingival display, gummy smile, lip repositioning, laser surgery, gingiva, myotomy.



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## ABSTRACT 82

### Could stem cell be a new horizon for periodontal regeneration?

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#### Abstract

**Background.** Tissue engineering and cell- based therapies have emerged as novel therapeutic approaches to expand therapeutic boundaries of regenerative therapy for defects originated from the progression of periodontitis. Traditional treatment methods just being effective in infection control and resolution of inflammation. Among all the mesenchymal stem cells, PDLSCs are the main candidate in periodontal regeneration. Periodontal regeneration was achieved in human studies using PDLSCs, BMMSCs and cells derived from gingiva or periosteum. The potential mechanism has also been clarified and is largely dependent on the immunomodulatory properties of PDLSCs and more studies need to show their effectiveness and safety.

**Methods.** Materials for this review were obtained by searching PubMed and Science Direct with key search words: Periodontitis, Periodontal regeneration, Stem cell-therapy, PDLsc, Tissue engineering

**Results.** Several studies have shown that local injection of DPSCs or PDLSCs could be an effective therapy. Cell sheet engineering method can maintain extracellular matrix and cell-cell junctions and has shown positive outcomes in treating many diseases. Studies mainly combined the stem cells with a scaffold for periodontal regeneration. However, major concerns are the complicated transplantation process and the potential for host rejection. So non- scaffold tissue engineering (cell injection and cell sheets) has been of increasing interest to researchers. Trials for periodontal regeneration using PDLSCs found no clinical safety problems during these clinical trials

**Conclusions.** Current data indicate that MSC may provide beneficial impacts. With improved efficacy of periodontal regeneration, it may become widely used for clinical applications in the future instead of traditional methods.

**Keywords:** Periodontitis, periodontal regeneration, stem cell-therapy, PDLsc, tissue engineering.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 83

### Is the result of BRONJ treatment with ErCr: YSGG similar in upper and lower jaws? A case report

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#### Abstract

**Background.** BRONJ is defined as the presence of exposed necrotic bone or bone can be probed through an intra-oral or extra-oral fistula in the maxillofacial region, which has persisted for longer than 8 weeks. BRONJ is characterized by pain, pus discharge, malodor and swelling. To date, there is not any consensus regarding the non-surgical or surgical treatment of BRONJ.

**Methods.** A 62 years old female using complete dentures was referred to my office with chief complaint of pain during mastication. In clinical examination, there were several areas of exposed necrotic bone in upper and lower jaws. BRONJ was diagnosed for this patient based on clinical findings, history of Zometa injection for treatment of osteoporosis, and lack of radiotherapy. ErCr: YSGG laser with power of 2-3 w, frequency of 30 Hz, H mode, and 80% water and 40% air spray was used for treatment. Necrotic bone was removed without elevating soft tissue and suturing. This procedure was performed 3 times with 1-month intervals.

**Results.** Soft tissue coverage was obtained in the most areas of jaws. Forming of soft tissue on the lesions was faster in upper jaw. Healed soft tissue on the lesions of lower jaw was inflamed, but in upper jaw, the signs of inflammation were less and even in some areas there was not any sign of inflammation.

**Conclusions.** Treatment of this BRONJ patient with ErCr: YSGG was successful. The treatment result of this patient in terms of speed and quality of healed soft tissue was better in upper jaw.

**Keywords:** BRONJ, ErCr: YSGG.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 84

### Surgical crown lengthening versus orthodontic root extrusion

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#### Abstract

**Background.** Crown lengthening is a procedure that is done to increase the supra gingival tooth structure which permits esthetic restoration of the tooth without violating the biological width. Several techniques are available for this purpose including post core with crown, surgical crown lengthening, and orthodontic extrusion. Each technique has its indications, advantages, and disadvantages. This article will review each method precisely.

**Methods.** Surgical crown lengthening is a traditional method which is mostly done by apically repositioned flap after bone recontouring to establish new biological width. However, this bone reduction may damage the bony support of the adjacent teeth resulting in compromised function, loss of interdental papilla, as well as open embrasures. Orthodontic root extrusion is a technique based on principles of osteophysiology and continuous orthodontic forces. The objectives of forced eruption are preservation of biological width, exposure of sound tooth structure, and provision of high esthetics particularly in anterior region. Therefore, it is the preferred mode of crown lengthening avoiding the negative consequences of surgical CL.

**Results.** Orthodontic forced eruption is a minimally invasive treatment option for reestablishing biological width and it does not affect esthetic, nor does it interfere with the periodontal support of the adjacent teeth. This approach also would balance the crown root ratio which leads to a more stable hard and soft tissue results. More than this, in the anterior section orthodontic root extrusion provides gingival alignment with no interference with the periodontium of the neighboring teeth.

**Conclusions.** Forced eruption is mostly indicated in the anterior region of the dentition where esthetics is of major concern. Posteriorly in the dental arch, surgery crown lengthening may be more appropriate because flared molar roots may present proximity problems if extruded, and esthetic is of less important.

**Keywords:** Biological width, crown root ratio, surgical, orthodontic extrusion, esthetic zone.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 85

### Evaluating the effect of systemic administration of Propranolol on osseointegration around titanium implants: a histomorphometric study in dogs

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#### Abstract

**Background.** Dental implants are known as a widely accepted and predictable method for replacing missing teeth. Many factors, including the use of a class of drugs, such as  $\beta$ -blockers, can improve the osseointegration of dental implants. The aim of this study was to investigate the relationship between the use of propranolol and osseointegration in dental implants.

**Methods.** This experimental animal study was performed on 4 native male dogs of 11-13 kg of weight and 16 to 20 months of age. The specimens underwent teeth extraction and then the dogs were randomly divided into 4 groups: each group consisted of one dog (saline administrated and propranolol administrated with two periods of 4 and 9 weeks). After a period of healing, 6 titanium implants were inserted in each of the specimens' mandible and treatment was resumed with the administration of propranolol and saline. After 4 and 9 weeks, the dogs were anesthetized and dental implants were removed alongside the peripheral bone marrow. The samples were assessed histomorphometrically to determine osseointegration. Data was analyzed by two-way ANOVA with 95% confidence interval.

**Results.** Based on histomorphometric assessment, the mean score of bone implant contact (BIC) in week 4 were significantly higher in the study group compared to the control one (68.33 versus 20.22%). In week 9, mean BIC score was higher in the study group compared to the control group (68.60 versus 50.17%) meanwhile it was not statistically significant. In both study and control groups, the formation of woven and lamellar bone was more significant in week 4 and 9, respectively.

**Conclusions.** Administration of systemic  $\beta$ -blockers can improve dental implants osseointegration process.

**Keywords:** Implant, osseo-integration,  $\beta$ -blockers.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 86

### Photoactivated disinfection-induced bystander effects on microbial cell survival of *Porphyromonas gingivalis*

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#### Abstract

**Background.** The bystander effects, whereby naive (bystander) microbial cells near microbial cells directly exposed to certain treatment show responses that would not have happened in the absence of the directly targeted microbial cells. In this article, we evaluated the effects of photoactivated disinfection (PAD)-induced bystander on microbial cell survival and metabolic activity of *Porphyromonas gingivalis*.

**Methods.** Bystander effects induced by whole bacterial cell suspension (WBCST), cell-free supernatants fluid (CFSFT), and bacterial cell pellet (BCPT) obtained from *P. gingivalis* culture treated with Curcumin (Cur)-PAD on cell survival of *P. gingivalis* were determined using microbial viability assay.

**Results.** *P. gingivalis* cell survival reduced by 71.5% (P =0.001) and 64.6% (P =0.01) after exposure to WBCST and CFSFT, respectively. The *P. gingivalis* population increased by 3.7% (P =0.7) after exposure to BCPT.

**Conclusions.** The results of the current study revealed that Cur-PAD could significantly reduce microbial cell survival through the bystander effects and can enhance the efficiency of PAD as an adjunct therapeutic strategy for treatment of local infections.

**Keywords:** Bystander effects, *Porphyromonas gingivalis*, photoactivated disinfection.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 87

### The effect of oral Propolis ointment on wound healing and pain relief at palatal donor site following free gingival graft harvesting

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#### Abstract

**Background.** The main discomfort suffered by patients after the Free gingival graft surgery is related to the open palatal wound. The purpose of this study is to evaluate the effect of oral propolis ointment on pain control and wound healing at palatal donor site following harvesting free gingival graft.

**Methods.** After the surgical procedures, on test group oral propolis ointment, and on the control group oral propolis-free ointment was used to treat wounds. Color match between the wound and the adjacent tissue was assessed by photoshop on days 7, 14, 21, 30, 42. Bleeding was assessed on days 7 and 14. The thickness of the palatal donor site tissue was assessed on days 0, 30 and 42. Patients were questioned about feeling of pain or burning sensation around donor area. level of pain was scored by VAS.

**Results.** Pain reported in test group's patients was lower than control group's patients on day 1 and 3. Burning sensation on days 1, 3, 7, 14, 21 after the procedure, number of analgesics consumption and the number of days in which analgesics were taken showed no significant differences between two groups. The color match between the wound and the adjacent tissue was statistically significantly better on test group on days 14, 21, 30, 42.

**Conclusions.** The results of this study are not sufficient for approving the beneficial effect of oral propolis ointment on wound healing of the palatal donor site, but may be an effective material for pain control on the palatal donor site, on the first days following free gingival graft. However, more studies are required.

**Keywords:** Free gingival graft, pain, wound healing, propolis.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 88

### Interdisciplinary orthodontic treatment for a patient with generalized aggressive periodontitis: A case report

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#### Abstract

**Background.** Treatment in patients with aggressive periodontitis demands special consideration because of the potential for advanced progression of periodontal disease. In this case report, we describe the result of comprehensive orthodontic treatment in a patient with generalized aggressive periodontitis that improved oral function, esthetics and periodontal condition.

**Methods.** A 32 years old woman suffering from uncontrolled generalized aggressive periodontitis was under orthodontic treatment including tooth extraction. during the treatment, pathologic tooth extrusion and migration induced by sever attachment loss. After removing the braces, maxillofacial surgeon recommended full mouth extraction and reconstruction with ridge augmentation and implant insertion. During this period the patient was severely depressed due to esthetic concerns.

**Results.** we referred the patient to a periodontist and after several months of treatment and follow up, the orthodontic treatment was initiated. The treatment plan included intrusion, space closure and correction of anterior protrusion. Canine and anterior retraction with continuous arch wire used for space closure, and continuous intrusion arch and light wire torquing spring used for intrusion with preservation torque of the teeth

**Conclusions.** At the end of our treatment, spacing, extrusion and protrusion was resolved and periodontal status was satisfactory. these treatment results remained stable for 36 months.

**Keywords:** Interdisciplinary, orthodontic treatment, periodontitis.

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## ABSTRACT 89

# Surgical management of deeply positioned implants

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### Abstract

**Background.** When it comes to implant/periimplant maintenance, deeply placed fixtures appear to be challenging ones to manage. The surgical mishap often occurs in cases of immediate placement when the surgeon struggles to achieve a favorable primary stability. The deeply-inserted fixture, once osseointegrated, may impose periimplantitis and patient discomfort. Moreover, unfavorable position of the fixture will hinder fabricating a proper restoration for the implant.

**Methods.** The technique shares the basic concept of creating a biologic width as it is performed in routine crown lengthening procedures. Technically speaking, using rotary or hand instruments, the crestal alveolar bone a circumferentially uniform and smooth ramping surfaces around the platform. The technique is recommended to be performed by periodontists.

**Results.** The newly created periimplant topography will allow maintaining a healthy inflammation-free connective tissue attachment, making it possible to restore the formerly-nonrestorable implant.

**Conclusions.** The periimplant ramping technique offers a non-invasive approach to amend the periimplant bony topography and create a biologic width in a way that facilitates fabrication of a favorable prosthesis imposing no inflammation/irritation to tissue. Patient-sided advantages of the technique include an easy-to-maintain oral health and, as a result, patient comfort and satisfaction.

**Keywords:** Dental implants, Implant complications, Biologic width, malpositioned implants, Periimplantitis, Periimplant gingiva



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 90

### Step by step provisional implant-supported crown fabrication and soft tissue management

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#### Abstract

Fixed provisional prostheses are fabricated to maintain, improve, and/or change oral function and esthetics for different periods. In order to provide the patient with an immediately loaded, functioning implant, the surgeon should consider incorporating the fabrication of the provisional restoration as an additional service for their implant patients. Provisional restoration in anterior esthetic zone is an important issue to patient's daily social activity. It is important to know when to provide a provisional prosthesis and how to make one so that it will meet the needs of the patient. Provisional restorations can be assessed to ensure the contour is acceptable and the trimmed gingival substitute can be used to fabricate a similar profile in the definitive prosthesis.

All methods of fabricating implant supported temporary crown will be discussed.

The provisional restorations may be used instead of standard prefabricated healing abutments to guide the healing contours of the peri-implant gingival tissue.

Provisional restorations are an important stage in anterior maxillary implants, allowing guided soft tissue management and creating an esthetic emergence profile.

**Keywords:** Implant, aesthetic, Soft tissue, crown.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 91

### Prosthodontic Considerations for Predictable Implant Esthetics in the Anterior Maxilla

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#### Abstract

**Background.** This article summarizes key aspects of the interdisciplinary approach to implant-based treatment in the esthetic zone. Measures of success generally include implant integration and health of the surrounding periodontal tissues; esthetics must also be measured. A successful team approach to treatment mandates that the periodontics and surgeon have a clear understanding of what is expected in terms of the restorative result, including the restorative materials that will be used, as implant position can significantly impact this.

**Methods.** all article from since 2000 were searched and analyzed for this review.

**Results.** -----

**Conclusions.** Equally important, the prosthodontics must understand the surgical treatment options and the procedural limitations in terms of tissue regeneration and implant placement.

**Keywords:** Implant, prosthodontics, Maxilla, Esthetics



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 92

### Trauma to dental implant and iatrogenic injuries to jaws due to implant

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#### Abstract

**Background.** Implant dentistry treatment target to avoid any kind of edentulous state including tooth loss due to trauma, caries and pathologic events.

**Methods.** In the literature, there are numerous case reports and few clinical studies documenting treatment options of traumatic injuries to dental implants. Dental implant fracture is a rare biomechanical complication, however, one of the most serious and frustrating ones as it is generally associated with implant and prosthesis failure. Possible causes of implant fracture include inadequate fit of the superstructure, defects in the production or design of the material, long-term metal fatigue, magnitude or direction of occlusal forces, parafunctional habits, implant location, implant length, implant diameter, and bone resorption around the implant. In many cases, however, fractures due to bone resorption and bone resorption due to factures are hard to distinguish in retrospect

**Results.** Except these complications one of the most frightening difficulties in dental important especially in lower jaw is jaw fracture. Mandibular fracture associated with dental implants treatment is related with dental implant installation procedures, after inferior alveolar nerve transposition technique or mandibular distraction before implant procedure and in very rare cases due to periimplantitis

**Conclusions.** The authors want to review literatures about implant fractures or jaw fracture due to implant insertion and emphasis on causes, prevention and managements of these issues and finally introduce some cases for these types of complications.

**Keywords:** Implant fracture, mandibular fracture, dental implant, complication.

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## ABSTRACT 93

### Can “genetic factors” influence the dental implant survival rate? A review

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#### Abstract

**Background.** Considering the increased need and demand of dental implant treatments, and the wide range of genetic distractions on Dentistry, it is wise to evaluate if there are possible genetic risk factors for implant treatments.

**Methods.** PubMed, Scopus, Google Scholar and Web of Science (WOS) were searched with the key words of “dental implant” and “genetic”. The inclusion criteria for PubMed, Scopus and WOS articles were: presence of the key word in the title and abstract, publication date in 10 recent years, review and meta analyses with available full text. The inclusion criteria for Google Scholar articles were: the key words appear in the title, date of publication from 2009 till present, and the articles written in English with the full texts are available.

**Results.** Of the total of 17 articles in these data bases, 7 of them were selected based on their relevance to the subject with was the effect of genetic factors on dental implant treatments. As a result, it must be mentioned that there are no obvious biological complications between the specific genetic polymorphisms and dental implant failures.

**Conclusions.** Although some articles named some specific genotypes like: IL1/IL4/ MMP1&8 in co-relation with implant loss, which the others ignored the relationship, it is obvious that for obtaining the best conclusion, the bigger RCTs and Cohort studies should be published.

**Keywords:** dental implant, genetic.



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## ABSTRACT 94

### The effect of 940 nm diode laser and Er, Cr: YSGG 2780 nm laser adjunct to SRP on clinical and immunological parameters in chronic periodontitis

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#### Abstract

**Background.** to evaluate the effect of adjunctive therapy for diode and erbium laser to SRP on clinical and immunological parameters in chronic periodontitis.

**Methods.** This randomized, split-mouth, clinical trial was performed on 12 patients with chronic periodontitis. The participant received full-mouth SRP. After 2 weeks clinical parameters (CAL, PPD, BOP, FMPI) and GCF samples were performed and recorded as baseline data. Then 2 quadrants selected in each patient randomly to decontaminate with diode laser 940nm and Er, Cr: YSGG 2780nm. The third quadrant evaluated as control with SRP only. Clinical parameters were measured at 2 and 6 months after therapy. The GCF levels of MMP-13 collected from each quadrant and analyzed by ELISA.

**Results.** CAL and BOP significantly reduced in diode laser group compare with control group. ( $P \leq 0.001$ ) In erbium laser group this reduction remains till 2 months follow up but there was no significant difference between erbium and control groups in 6 months. ( $P \geq 0.05$ ) BOP reduced significantly in all 3 groups. This was significant diode laser group in comparison with erbium laser group. ( $P \leq 0.001$ ) MMP-13 reduction in 2 and 6 months in laser groups was significantly better than the control group. ( $P \leq 0.001$ ) FMPI reduced significantly rather than baseline. ( $P \leq 0.001$ )

**Conclusions.** The present study suggests that MMP-13 reduction due to use of diode laser and erbium laser as an adjunct therapy with SRP showed promising result in patient with chronic periodontitis. With limitation of this study, diode laser showed long-term favorable clinical results in comparison with Er, Cr: YSGG laser.

**Keywords:** Chronic periodontitis, diode laser, erbium laser, laser therapy, matrix metalloproteinases, non-surgical periodontal debridement.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 95

### Clinical investigation of success and failure rates of immediate versus delayed implant placement

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#### Abstract

**Background.** To assess the success and failure of immediate implant placement (type1) and comparing the result with conventional implant placement (type3) clinically and radiologically.

**Methods.** This study was carried out on 33 patients whom we could place two implants in their lower jaw according to type1 and type3 procedure protocol. All of the fixtures were laser lock and bone level manufactured by Biohorizone company. After placing the fixtures, the distance from the crest of alveolar bone measured by Hu-Freidy probe in buccal, lingual, mesial and distal. Also, all this measurements had been done after 8 weeks of healing period. The primary stability had been evaluated by periotest measuring the resonance frequency after fixtures placement in both the control and test groups. This measurement had been carried out also 8 weeks after healing.

**Results.** A total of 66 implants, 33 immediate and 33 delayed, were placed in 33 patients. All implant, except in one patient, were clinically healthy and well-integrated into bone. In the test group, the gap between alveolar bone and fixtures were completely filled by regenerated bone without using any materials. We only tried to fill the gaps by blood clot. Regarding the resonance frequency analysis, statistically significant difference between the groups in favour of the test group, which we placed implants immediately after extraction, was found. There were no implants failures, except in one patient which both type1 and type3 fixtures were failed after 3-month function. This was due to the quality of mandibular bone on that lady.

**Conclusions.** Placement of dental implants immediately after extraction may offer advantages in terms of hard tissue preservation and patient satisfaction, when compared with a delayed protocol. The results of this investigation demonstrated that immediate implant placement (type1) without filling the gap between alveolar bone and fixture with bone substitute is safe and predictable.

**Keywords:** Implant, success, failure, immediate, delayed.



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## ABSTRACT 96

### The role of laser in the treatment of peri-implantitis

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#### Abstract

**Background.** The primary aim of this systematic literature is to answer the following focused question: Is laser therapy, as a monotherapy or as an adjunctive therapy, an efficacious treatment modality for patients with peri-implantitis?

**Methods.** The PubMed database and Google scholar and also research gate are the sources of articles that used in this literature.

**Results.** This literature shows that the CO<sub>2</sub> laser is reported to be safe and able to enhance bone regeneration. The diode laser (980 nm) seems to be effective in its bactericidal effect without changing the implant surface pattern. The Er, Cr: YSGG laser was reported to obtain bone regeneration around a failing implant in one case, while the Er: YAG laser exhibits a strong bactericidal effect against periodontopathic bacteria at a low energy level. Non-surgical laser treatment with a single application of either an erbium: yttrium-aluminum-garnet (Er: YAG) (2, 940-nm) laser or a diode (660-nm) laser in combination with a phenothiazine chloride dye is efficient in controlling inflammation around treated implants for at least 6 months following intervention, whereas it has only a mild effect on reduction in probing depth (PD) and gain in clinical attachment level (CAL).

**Conclusions.** Based on the limited information currently available, any superiority of laser treatment in comparison to conventional treatment of peri-implantitis could not be identified. Considering the high heterogeneity and the low number of included studies, the authors cautiously conclude that non-surgical laser therapy may be investigated as phase I therapy for the treatment of peri-implantitis.

**Keywords:** Laser, laser therapy, peri-implantitis.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 97

### Ozone therapy in periodontics

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#### Abstract

**Background.** The use of Ozone because of its antimicrobial effects, healing properties, and also its biocompatibility is suggested nowadays. The aim of this presentation is to review of Ozone therapy in periodontics.

**Methods.** In this presentation, the primary aim is to introduce the chemical features, apparatus, history and the effect of Ozone in periodontal treatment, and secondary objective is to provide a review of articles using Ozone in periodontics.

**Results.** There are several studies using Ozonated water as an irrigator, in periodontal pockets and as an antiseptic agent which show its beneficial effects.

**Conclusions.** According to studies Ozone therapy can be suggested as an adjunctive treatment in periodontology.

**Keywords:** Ozone therapy, gingivitis, periodontics, periodontitis



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## ABSTRACT 98

### Evaluating the effect of type 1 diabetics on the prevalence of periodontal diseases in children

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#### Abstract

**Background.** The most common oral finding in diabetic patients are periodontal diseases and inflammatory changes in the gum. The present study is conducted with aim of evaluating the oral hygiene, determining the prevalence of periodontal diseases in children with type 1 diabetes and comparing them with healthy homogeneous children.

**Methods.** This study was conducted as an observational and cross-sectional study. The subjects were selected through simple sampling and into two groups of case and control. The case group consisted of 100 children with type 1 diabetes in the age range of 7 to 20 years old, who were all covered by the Tehran Diabetes Research Center. The control group consisted of 65 healthy children referring to one of the dental centers of Tehran province that were in the same age range. It was also attempted so gender and social class be as similar as possible. Data collection was done using questionnaires, medical records and clinical examinations. OHI-S and GI indexes were determined in each patient, and finally, the data was analyzed by statistical tests of one-way ANOVA, t and Pearson correlation.

**Results.** The mean OHI-S index in the healthy group was  $1.86 \pm 0.62$  and in the diabetic group was  $1.56 \pm 0.59$ . The mean PI index in the healthy group was  $1.02 \pm 0.52$  and in the diabetic group was  $1.57 \pm 0.84$ . The mean GI index in the healthy group was  $0.64 \pm 0.57$  and in the diabetic group was  $1.95 \pm 0.53$ .

**Conclusions.** Although the level of oral hygiene in children with type 1 diabetes was similar to that of healthy children, however, the prevalence of gingivitis and periodontal disease in children with type 1 diabetes is higher than that of healthy peers. Therefore, programs for the prevention of periodontal diseases should be considered in diabetic young patients.

**Keywords:** Oral hygiene, periodontal diseases, type 1 diabetes.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 99

### Epidemiology and risk factors of peri-implantitis: A literature review

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#### Abstract

**Background.** The purpose of this review study was to assess the prevalence, incidence and risk factors of peri-implantitis in the current literature.

**Methods.** A literature search of MEDLINE (PubMed) up to and including June 31, 2019, was carried out. Studies that reported on the following outcomes were included: prevalence and incidence of peri-implant infections, risk factors and, in case of cross-sectional study design, risk indicators.

**Results.** The prevalence of peri-implantitis on implant level ranged from 1.1% to 85.0% and the incidence from 0.4% within 3 years, to 43.9% within 5 years, respectively. On a medium and medium-high level of evidence, smoking, diabetes mellitus, lack of prophylaxis and history or presence of periodontitis were identified as risk factors of peri-implantitis. There is medium-high evidence that patient's age, gender and maxillary implants are not related to peri-implantitis. Currently, there is no convincing or low evidence available that identifies osteoporosis, absence of keratinized mucosa, implant surface characteristics or edentulism as risk factors for peri-implantitis.

**Conclusions.** Peri-implantitis is defined as a pathological condition occurring in tissues around dental implants, characterized by inflammation in the peri-implant connective tissue and progressive loss of supporting bone. There is strong evidence that there is an increased risk of developing peri-implantitis in patients who have a history of chronic periodontitis, poor plaque control skills and no regular maintenance care after implant therapy.

**Keywords:** dental implants, incidence, peri-implantitis, prevalence, risk factor, risk indicator



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## ABSTRACT 100

### 3-year follow-up in a patient with Papillon-Lefèvre syndrome: Relationship between dermatologist and periodontist

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#### Abstract

**Background.** Papillon-Lefèvre syndrome is a extremely rare autosomal recessive condition. It is characterized by severe destruction of the periodontium and hyperkeratotic skin lesions on palms, soles, knees, and elbows, in some cases, calcification of the Dura. The features usually appear together between the ages of 2 and 4 years. Severe periodontal destruction leads to the early shedding of primary and permanent dentition.

**Methods.** A 4-year-old male child was referred to our private clinic with a chief complaint of pain and mobility of the teeth and difficulty in mastication. He had severe mobility in molar teeth. Erythematous keratotic plaques in palms and soles were revealed. We diagnosed the patient as Papillon-Lefèvre syndrome. He received periodontal and dermatological treatments.

**Results.** A 4-year-old male child was referred to our private clinic with a chief complaint of pain and mobility of the teeth and difficulty in mastication. He had severe mobility in molar teeth. Erythematous keratotic plaques in palms and soles were revealed. We diagnosed the patient as Papillon-Lefèvre syndrome. He received periodontal and dermatological treatments.

**Conclusions.** Papillon-Lefèvre syndrome affects the quality of life at a very young age. Since the patient features are common to periodontologic and dermatology, both of them have to be well aware of how to diagnose and manage it. Early diagnosis of PLS improves prognosis and quality of life in the patient.

**Keywords:** Papillon-Lefèvre syndrome, palmoplantar keratoderma, periodontitis.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 101

### Digital implant planning and guided implant surgery

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#### Abstract

**Background.** Modern oral implantology and implant prosthetics depend on comprehensive diagnostics and precise planning to ensure the desired outcome and meet the patient's and the dentist's expectations.

**Methods.** In this context, digital implant planning and guided implant surgery based on three-dimensional radiographic data and the digitised intraoral surfaces can be of excellent service. They provide valuable information and permit stringent backward planning to optimise the implantological and prosthetic result, improving the safety and efficiency of the surgical procedure and rendering the restorative outcome more predictable in terms of function, biology and aesthetics.

**Results.** template-guided implant surgery carries its own specific risks in terms of manufacturing inaccuracies and application errors.

**Conclusions.** These possible sources of error must be recognised and carefully considered in order to avoid adverse consequences.

**Keywords:** Digital impression, digital implantation, guided surgery.



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## ABSTRACT 102

### Hereditary gingival fibromatosis and its management: a case report

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#### Abstract

**Background.** Idiopathic or hereditary gingival fibromatosis (HGF) is a relatively rare disease characterized by the enlargement of the gingiva, resulting in functional, esthetics and psychological disturbances. The degree of gingival overgrowth can be defined as: grade 0: no sign of gingival enlargement; grade I: enlargement confined to interdental papilla; grade II: enlargement involves papilla and marginal gingiva; and grade III: enlargement covers three quarters or more of the crown.

**Methods.** This case report describes the case of a 16-year-old girl suffering from HGF with chief complaint of gingival swelling. Intraoral ex-amination exhibited diffuse and grade III gingival enlargement in both jaws and also in both surfaces of buccal and lingual/palatal. Treatment included surgery (internal and external gingivectomy) in six sessions, and prescription of antibiotics and 0.2% chlorhexidine mouthwash. Moreover, gingivoplasty was performed in the esthetic zone of maxilla after performing all the surgeries in the mouth. The patient was under regular follow-up visits.

**Results.** The treatment outcomes after six months were satisfactory and no symptoms of recurrence were observed.

**Conclusions.** In conclusion, proper plaque control along with accurate and short-term follow-up visits could be effective in reducing the recurrence risk of this condition.

**Keywords:** Gingival fibromatosis, gingival enlargement, gingivectomy.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 103

### Comparison of digital vs conventional impression techniques precision: A review

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#### Abstract

**Background.** Accuracy and Fitness of a restoration is a valuable Advantage regarding to the tooth Long-term Survival. The aim of this study is to compare the Accuracy of Digital and Conventional Impression methods.

**Methods.** An electronic literature search was conducted from these 4 datasets: PubMed, Web of Science, Cochrane library and Google Scholar with the help of Boolean Operators for eligible articles. The search strategy used a combination of controlled vocabulary [Medical Subject Headings (MESH) ] and free text words and different combination of them. To ensure reliability, a calibration exercise with two reviewers was conducted prior to commencing screening

**Results.** The search yielded to 8 Articles from all of the databases after Excluding the articles which were identified in more than one of the databases.

**Conclusions.** The findings of this review indicated poor homogeneity of the study designs populations. Based on the finding of this study, additional laboratory and clinical research is s appraise the accuracy and validity of digital implant impression technique in the prosthodontics.

**Keywords:** CAD/CAM, conventional impression, intraoral digital impression.



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## ABSTRACT 104

### Comparison of the clinical and microbiological effects of antibiotic therapy in periodontal pockets following laser treatment study

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#### Abstract

**Background.** Recently, more and more bacterial strains have become resistant to antibiotics. The excessive use of antibiotics and the development of several new ones by pharmaceutical companies are 2 reasons why some researchers describe the first decade of the 21st century as the antibiotic resistance crisis. Anaerobic bacterial growth in the periodontal pocket leads to periodontal diseases. The gold standard in periodontal treatment is the proper eradication of pathological bacterial strains inside the infected pockets by means of mechanical debridement. However, root architecture and its particular anatomical variations are an obstruction in establishing effective protocols for ebridement in non-surgical periodontal therapy, which uses traditional tools, such as curettes or ultrasonic scalars. Therefore, different devices (e. g., lasers) have been used in non-surgical periodontal treatment as alternative or adjunct methods to mechanical scaling and root planing (SRP). Many clinical studies have confirmed the effectiveness of the 2940 nm erbium-doped yttrium aluminium garnet laser (Er: YAG laser – ERL) in periodontal therapy, with or without additional SRP. The combination of low-power lasers and different photosensitizers (PSs), known as antimicrobial photodynamic therapy (aPDT), enhanced the elimination of periopathogenic bacteria and the reduction of bone loss.

**Methods.** ability of lasers to decontaminate the root surface with minimal (ERL) or no damage (PDT) could be of great value in periodontal therapy, because mechanical instruments may lead to excessive removal of root material.

**Results.** Scaling and root planing + PDT and ERL may be an alternative therapy for chronic periodontitis. Key words: chronic periodontitis, photodynamic therapy, antibacterial therapy, scaling and root planning.

**Conclusions.** Scaling and root planing + PDT and ERL may be an alternative therapy for chronic periodontitis.

**Keywords:** Chronic periodontitis, photodynamic therapy, antibacterial therapy, scaling and root planning, ErYAG laser.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 105

### Antimicrobial efficacy of photodynamic therapy and light-activated disinfection against bacterial species on titanium dental implants

Farid Vafadar<sup>1\*</sup>, Elnaz Farhoudi<sup>2</sup>

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#### Abstract

**Background.** Background. Peri-implantitis is an inflammatory process affecting the soft and hard tissue around an osseointegrated implant, resulting in the loss of supporting bone. Microorganisms living on the implant surface are considered to be the initial cause of peri-implantitis. The bacteria associated with peri-implantitis are very similar to advanced periodontitis, with most of them being spirochetes and nonmotile gram-negative bacteria such as *Aggregatibacter actinomycetemcomitans*, *Porphyromonas gingivalis*, *Prevotella intermedia*, *Tannerella forsythia*, *Treponema denticola*, etc. They adhere easily to the rough micro and macrostructure of dental implants, a property that makes debridement and decontamination of the implant surface difficult.

**Methods.** The treatment of peri-implantitis is based on arresting the inflammatory process and the bone loss that occurs as a result of the disease. Since peri-implantitis is initiated and exacerbated by bacteria, The removal of these microbiota and their byproducts is thus essential for the treatment of peri-implantitis. Decontamination of the implant surfaces can be performed by mechanical methods (plastic curettes, ultrasonic scalers, air-powder abrasives, and ablative lasers) and chemical methods (citric acid, H<sub>2</sub>O<sub>2</sub>, chlorhexidine digluconate, and ethylenediaminetetraacetic acid [EDTA]), which are also associated with the use of local and systemic antibiotics. However, according to some studies, the total resolution of peri-implantitis could not be achieved using the aforementioned methods.

**Results.** The clinical efficacy of PDT as an adjunct treatment to conventional debridement techniques in the treatment of PI remains debatable

**Conclusions.** For understanding the effect of PDT further, in vitro and clinical studies should be performed to evaluate PDT. Treatment time, type of photosensitizer, and power of the light source should be further investigated so that a proper and effective treatment protocol can be established.

**Keywords:** Dental implant, laser, LAD, photodynamic.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 106

### Short implants as an alternative to sinus lift for the rehabilitation of posterior maxillary atrophies: Systematic review and meta-analysis

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#### Abstract

**Background.** The choice of treatment for implant rehabilitation for maxillary atrophy is crucial. It involves either between the use of short implants or performing sinus lift and the establishment of standard implants: what would be the best choice in term of survival rate and complications? We conducted a systematic review to try to answer this question.

**Methods.** An electronic and manual search of clinical studies (between 2007 and 2017) comparing short implants to standard implants associated with sinus lift was performed. All the articles are read and analyzed then selected according to previously defined inclusion criteria. Eighteen articles were selected from the 358 articles: 15 randomized controlled trials, 1 cohort study and 2 systematic reviews.

**Results.** The studies were divided according to their follow-up periods: short (< 1 year), medium (1 year) and long (> 1 year). The results of the study showed a survival rate for short implants ranging from 91.8% to 100%, and from 87.8% to 100% for standard implants associated with sinus lift. Biological complications predominate with the perforation of Schneider's membrane, which is by far the most common complication. The results of the meta-analysis did not show a statistically significant difference in the survival rate of the two procedures over the short, medium and long term. However, but the study of complications shows that in the short and medium term, the results are in favor of short implants.

**Conclusions.** Short implants are a reliable alternative compared to standard implants associated with sinus lift. They present an alternative with the same survival rate and fewer complications

**Keywords:** Short implants, posterior maxillary atrophy, sinus lift, survival rate, complications.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 107

### Short implants versus long implants in the posterior sites of mandible and maxilla

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#### Abstract

**Background.** Placement of implant in the maxillary and mandibular edentulous area is a challenging object because of the lack of enough bone height or width. In the posterior maxilla, sinus elevation procedures were for long considered to be the gold standard and in the posterior of mandible using guided bone regeneration or distraction osteogenesis are very common. Short dental implants (with a length of  $\leq 8$  mm) were introduced for circumventing more extensive primary bone augmentation procedures

**Methods.** This review has been done by Searching in electronic data bases including PubMed and Scopus with these key words "dental implant", "short implant", "bone augmentation" and, "sinus lifting"

**Results.** In recent years, dental implant diameters and length decreased. This shift was supported by the development of more favorable surface structure. In addition, patient demands for more minimally surgical procedures, fewer complications, less treatment time, lower treatment costs have resulted using implants with reduced dimensions, in both diameter and length. The choice between one of these two options is based on a number of parameters, such as the surgical skill and experience of the surgeons, patient's performance and, scientific evidence.

**Conclusions.** Short dental implants as well as standard-length implants in combination with vertical bone augmentation procedures appear to result in predictable outcomes in terms of implant survival rates. But short implants provide number of advantages for patient and clinician. However, more studies are still needed in the future to substantiate these findings.

**Keywords:** Dental implant, short implant, bone augmentation.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 108

### Evaluation of the efficacy of the 810 nm diode laser in improvement of periodontal parameters in patients with chronic periodontitis

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#### Abstract

**Background.** Laser therapy has been proposed as an adjunctive treatment to conventional periodontal therapy. the aim of this randomized clinical study was to evaluate the effect of the 810 nm diode laser as an adjunct to scaling and root planing (SRP) in improvement of periodontal clinical parameters in patients with chronic periodontitis.

**Methods.** This study was designed as a randomized-controlled, split-mouth clinical trial. thirty-six patients with chronic periodontitis were selected. SRP was performed using a sonic device and hand instruments. Quadrants were equally divided between the right and left sides. Teeth were treated with SRP in two control quadrants (control groups [CG]) and the diode laser was used adjunctively with SRP in contralateral quadrants (laser groups [LG]). Diode laser therapy was applied to periodontal pockets on one day after SRP. Baseline date, including plaque index (PI), bleeding on probing (BOP), and clinical attachment level (CAL), were recorded before the treatment and 6 and 18 weeks after treatment. changes in PI, BOP, PD and CAL were analyzed for initially moderate (4 to 6 mm) pockets.

**Results.** The results were similar for both groups in terms of PI, PD and CAL. The laser group showed only significant improvement in BOP after 6 weeks ( $P = 0.01$ ) and after 18 weeks ( $P = 0.02$ ), whereas no differences was found between LG and CG in the remaining clinical parameters.

**Conclusions.** The present study indicates that, compared to SRP alone, adjunctive application of a 810 nm diode laser with SRP showed only BOP improvement.

**Keywords:** Diode laser, chronic periodontitis, dental scaling.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 109

### Clinical and radiological evaluation of delayed and early loading of single-tooth implant placement: A 6-month, prospective, randomized, follow-up clinical study

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#### Abstract

**Background.** The purpose of the study was to compare delayed and early loaded single-tooth implant technique.

**Methods.** A randomized, prospective clinical trial was conducted to evaluate the clinical and radiological parameters of delayed and early loading of single-tooth implant placement. Fourteen male or female patients were selected randomly, who had single tooth missing in mandibular posterior region. A delayed implant placement technique was followed in these regions. A Hi-Tech implant (Life Care Implants) was performed. The patients were divided into two groups: delayed loading group and early loading group. In delayed loading groups, implants were loaded after 3 months, and in early loading groups, implants were loaded within 7 days to 2 months. Soft tissue and radiological bone loss were assessed at baseline, 3 months, and 6 months. The parameters assessed were plaque index, gingival index, probing pocket depth, thickness of peri-implant mucosa, and bone loss (radiographically).

**Results.** The results show that there was no statistical difference in indexes taken between delayed loading and early loading groups.

**Conclusions.** In this study, after first 6 months there was no difference in success rate between delayed loading or early loading of implants. This study also showed that more bone loss occurred around delayed loading implants. So it can be concluded that early loading technique can be successfully practiced instead of delayed loading of implants.

**Keywords:** Delayed loading, early loading, mandibular posterior teeth, radiographic bone loss, single-tooth implants, soft-tissue analysis.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 110

### Efficacy of chlorhexidine rinses after periodontal or implant surgery: A systematic review

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#### Abstract

**Background.** Biofilm management and infection control are essential after periodontal and implant surgery. In this context, chlorhexidine (CHX) mouth-rinses are frequently recommended post-surgically. Despite its common use and many studies in this field, a systematic evaluation of the benefits after periodontal or implant surgery is-surprisingly-still missing.

**Methods.** A systematic literature search was performed for clinical trials, which compared CHX rinsing after periodontal or implant surgery with rinsing using placebo, non-staining formulations, or solutions with reduced concentrations of the active compound. Four databases (Medline, PubMed, Embase, Cochrane) were searched up to June 2018. Two reviewers independently identified and screened the literature.

**Results.** From 691 titles identified, only eleven publications met the inclusion criteria and were finally included. Mainly early publications assessed the benefits of CHX over placebo rinsing, whereas more recent publications focused more on the evaluation of new formulations with regard to effectiveness and side effects. The use of CHX after surgery showed in general significant reduction in plaque (means of 29-86% after 1 week) and bleeding (up to 73%) as compared to placebo. No consensus, however, was found regarding the most beneficial CHX formulation avoiding side effects.

**Conclusions.** Chlorhexidine rinsing helps to reduce biofilm formation and gingival inflammation after surgery. However, no additional reduction of periodontal probing depth over any given placebo or control solution could be found irrespective of whether CHX was used or not. The use of additives such as antidiscoloration systems (ADS) or herbal extracts may reduce side effects while retaining efficacy.

**Keywords:** Chlorhexidine, dental implant, mouthwashes, periodontitis.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 111

### Influence of soft tissue thickness on peri-implant marginal bone loss

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#### Abstract

**Background.** Multiple variables have been shown to affect early marginal bone loss (MBL). Among them, the location of the microgap with respect to the alveolar bone crest, occlusion, and use of a polished collar have traditionally been investigated as major contributory factors for this early remodeling. Recently, soft tissue thickness has also been investigated as a possible factor influencing this phenomenon. Hence, this study aims to further evaluate the influence of soft tissue thickness on early MBL around dental implants.

**Methods.** Electronic and manual literature searches were performed by two independent reviewers in several databases, including Medline, EMBASE, and Cochrane Oral Health Group Trials Register, for articles up to May 2015 reporting soft tissue thickness at time of implant placement and MBL with  $\geq 12$ -month follow-up. In addition, random effects meta-analyses of selected studies were applied to analyze the weighted mean difference (WMD) of MBL between groups of thick and thin peri-implant soft tissue. Metaregression was conducted to investigate any potential influences of confounding factors, i. e., platform switching design, cement-/screw-retained restoration, and flapped/flapless surgical techniques

**Results.** Eight articles were included in the systematic review, and five were included in the quantitative synthesis and meta-analyzed to examine the influence of tissue thickness on early MBL. Meta-analysis for the comparison of MBL among selected studies showed a WMD of  $-0.80$  mm, favoring the thick tissue group. Metaregression of the selected studies failed to demonstrate an association among MBL and confounding factors.

**Conclusions.** The current study demonstrates that implants placed with an initially thicker peri-implant soft tissue have less radiographic MBL in the short term

**Keywords:** Marginal, bone loss, peri-implant.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 112

### Effect of mucoadhesive *Nigella sativa* on treatment of chronic periodontitis

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#### Abstract

**Background.** The goal of this study was to compare the clinical effectiveness of mucoadhesive *Nigella sativa* extract with mucoadhesive thymoquinone as an adjunct topical treatment accompanied by scaling and root planning; as well as comparing them with the outcomes from scaling and root planning alone in treating chronic periodontitis

**Methods.** This study was a randomized-triple blinded clinical trial and was conducted on 20 patients suffering from chronic periodontitis, immediately after the scaling and root planning for all regions, first sextant was applied with placebo, second one was applied with mucoadhesive *nigella sativa* extract gel, third mucoadhesive thymoquinone gel and last one has no adjunct treatment. Investigated indexes including gingival index, bleeding index, plaque index, pocket depth, and clinical attachment loss were assessed before and in one week, two weeks, one month and three months after treatment.

**Results.** The findings from this study supported the effectiveness of both mucoadhesive *nigella sativa* and mucoadhesive thymoquinone, in company with scaling and root planning, in improving gingival index, bleeding index, plaque index, pocket depth, and clinical attachment loss in all of the time periods under investigation; Bleeding index and plaque index has not significant different in long term in none of the groups. In the end of the study *nigella sativa* group (NS) with 1.7 degree reduction in gingival index and it was fewest measure ( $P < 0.004$ ) but it has not significant different in compare with thymoquinone group (TQ) with 1.3 degree reduction. About pocket depth NS with 2.25mm reduction has fewest measure ( $P < 0.001$ ) but it has not significant different in compare with thymoquinone group with 1.45mm reduction. About clinical attachment loss NS with 1.38mm reduction has fewest measure ( $P < 0.001$ ) but it has not significant different in compare with thymoquinone group with 0.87mm reduction. Moreover, findings of this study indicated that time can affect the effectiveness of each of the variants of this study.

**Conclusions.** The findings from this study indicated that the use of adjunct treatment to mechanical debridement is more effective in treatment of chronic periodontitis compared to mechanical treatment alone; furthermore, mucoadhesive *nigella sativa* and mucoadhesive thymoquinone have not significant different in long-term and the main treatment effect of *nigella sativa* is because of its thymoquinone probably.

**Keywords:** Chronic periodontitis, mucoadhesive, *nigella sativa*, thymoquinone.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 113

### Laser application in implants

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#### Abstract

**Background.** The implant is nowadays a common dental treatment, so it has tried to improve the stages of this treatment by using Laser. Laser can be especially useful for providing and supporting dental implant treatment.

**Methods.** in this study, articles from 2000 to 2017 were used from PubMed and Google scholar sites.

**Results.** The advent of different laser systems has a significant range of applications in soft and hard tissues. Numerous applications of dental lasers have been suggested for clinical use including preoperative preparation, placement, second stage recovery and gingival management through the treatment of peri-implantitis. Alongside these, there are other benefits such as eradication of target tissue and the ability to reduce bacterial contamination. The different wavelengths of dental lasers discovered so far are not all used in implantology. A laser works primarily through stimulated propagation. Light reaches biological tissues and is reflected, absorbed, or scattered in surrounding tissues. Lasers primarily used in the field of implant dentistry are solid state lasers Nd: YAG, Nd: YAP, Er: YAG, Er: YSGG, semiconductor diode lasers, and gas lasers such as carbon dioxide lasers. Some of these are excellent coagulant properties for soft tissue applications and some for hard tissue applications.

**Conclusions.** Compared to traditional methods, lasers are milder, less invasive, and less painful. Therefore, a proper understanding of the properties of the lasers and how they work is important for proper use.

**Keywords:** Laser, implant.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 114

### Evaluation of radiographic findings and clinical dimensions of interdental papilla

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#### Abstract

**Background.** Attractive smile is of great importance in today's dentistry. Presence of interdental papilla and its ideal position, as a dento-gingival aesthetic evaluation factor, has been studied, in recent investigations. Several methods are used for evaluation of papilla length and measurement. Employment of radiographic finding is a non-aggressive method to measure level of bone crest. The aim of this study was to evaluate correlation coefficient of radiographic dimensions of embrasure and clinical dimensions of interdental papilla in different aesthetic zones.

**Methods.** 216 regions of maxillary healthy gingiva were selected from 56 patients, randomly included to this study. The regions were: 52 between central incisors, 71 between central and lateral incisors and 93 between premolars. We prepared Photographs, radiographic images and diagnostic casts. After importing information to Photoshop series 5, data analyzed by SPSS version 19. We checked length, width and surface of embrasure in radiographs and papilla in clinical examinations. Pearson and regression analyses were performed to demonstrate the correlation and relation between variables.

**Results.** Correlation between radiographic and clinical lengths of papilla was significant only in regions between central incisors ( $r=0.491$ ,  $P=0.00$ ). Correlation between radiographic and clinical findings about width ( $r=0.063$ ,  $P=0.360$ ) and surface ( $r=0.117$ ,  $P=0.087$ ) were not significant. Correlation between radiographs and radiographic-clinical differences were significant generally about length, base and surface of papilla in all regions ( $r=-0.180$ ,  $P=0.00$  and  $r=0.351$ ,  $P=0.00$  and  $r=0.334$ ,  $P=0.00$ ) respectively.

**Conclusions.** Dimensions of embrasure can be achieved by measuring clinical dimensions of papilla and use of regression formula, without radiographs.

**Keywords:** Interdental papilla, papilla length, aesthetic zone.





# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 115

### The effect of botulinum toxin in the treatment of excessive gingival display

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#### Abstract

**Background.** A pleasant smile is important for socialization and the beauty of smile is not only constituted by shape, position, and size of the teeth, but also based on the characteristics of the gingival tissue and conformation of the lips. Gummy smile can influence self-regard. The use of the Botulinum toxin (BTX) can be associated with additional treatments or be applied individually, According to the need of each patient. This study aims to review current articles and case reports on the effectiveness of BTX in gummy smile.

**Methods.** Electronic databases, including PubMed, Scopus, Science Direct and Cochrane library were searched with the keywords "Botulinum toxin" in the title/abstract and "gummy smile / gingival display" in the whole text for Review articles and case report on correct for gummy smile.

**Results.** BTX has been used for therapeutic purposes. It's effective in reducing excessive gingival display caused by hyper functional upper lip elevator muscles. BTX gently decrease with time except for the 12-week period compared with baseline. But the problem is the science of the type of treatment can cause bias, because patients could have inadvertently changed their way of smiling for photos after BTX treatment.

**Conclusions.** Documents supports the efficacy and safety of the treatment of gummy smile by using the BTX type A; however, in Dentistry, the use of the BTX has become relevant as it is a non-invasive and safe treatment option, replacing surgical procedures but sometimes BTX can be combined with resective gingival surgery for better results.

**Keywords:** Gummy smile, botulinum toxin, gingival display.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 116

### Use of low power laser in the treatment of aphthous lesions and oral herpes

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#### Abstract

**Background.** Dentistry has different clinical applications for laser treatment. One of these applications is the use of lasers in the treatment of aphthous lesions and oral herpes.

**Methods.** In this study, articles from 2000 to 2017 were used from PubMed and Google Scholar sites

**Results.** aphthous ulcer is the most common lesion found in the oral cavity. There is no definitive treatment for aphthous ulcers, and current treatments are aimed at minimizing symptoms. These ulcers can expose the nerve terminals and cause pain. Using low power laser is one of the most effective ways to treat these lesions. The laser does not affect the tissue thermally but increases the speed of tissue repair. When used for wound healing, it has physiological effects including neo-angiogenesis, anti-inflammatory effects, collagen synthesis and deposition, epithelial and fibroblast proliferation, revascularization, and wound contraction. Also, people who have immunosuppression due to corticosteroid or systemic disease can help repair tissue and relieve symptoms by using a low-power laser.

**Conclusions.** Due to the low laser ability to reduce edema, pain and accelerate tissue recovery, it can be considered an alternative treatment for aphthous and herpes lesions.

**Keywords:** Low power laser, aphthous.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 117

### Barrier membranes effect on regeneration of periodontal defects

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#### Abstract

**Background.** Three-dimensional regeneration of periodontal tissues arises when Junctional Epithelial cells reach to the wound but epithelial cells and fibroblasts are excluded from wound. For prevention of this procedure membranes work as a barrier that protecting bone defects against fibroblasts and also promote osteoblasts adhesion and proliferation. we use barrier membranes for healing of fenestration and dehiscence around teeth and implants, fresh socket implants and also regeneration of alveolar bone and Soft tissues.

**Methods.** This study is based on articles found in PubMed databases, published in 2015 and later. The keywords for this research were Barrier membranes, Periodontal tissue regeneration, Periimplant regeneration and Bone reconstruction.

**Results.** The main properties of barrier membranes are, biocompatibility, cell occlusion, tissue integration, space making and good handling properties. Knowledge related to different type of membranes is critical for handling of periodontal tissue regeneration. Membranes are classified into biologic source and non biologic source. Biologic source membranes are included natural membrane (like collagen and chitosan) and alloderm. Non biologic source membranes are consist of titanium and synthetic. Synthetic membranes are divided to resorbable type (polyester, PEG) and non resorbable type (D-PTFE, E- PTFE).

**Conclusions.** Actually the techniques that base on barrier membranes (GTR, GBR) are the first generation of periodontal tissues reconstructive methods, it is hypothesized that next-generation of GTR and GBR membranes will be active biologically. Application of adhesion molecules should lead to tissue selection on the membrane surface. It is promising approach for periodontal tissue engineerin. Better understanding of factors influencing regenerative procedure will improve predictability of therapy of bone defects around natural teeth and implants.

**Keywords:** Barrier membranes, Periodontal tissue regeneration, periimplant regeneration, bone reconstruction.



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## ABSTRACT 118

### Assessment of the antibacterial effect of the black seed extract on periodontal pathogens

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#### Abstract

**Background.** Different types of periodontal disease are caused by bacterial infections and gram-negative and anaerobic species play an important role in chronic periodontitis. Black seed is commonly used in traditional medicine and its anti-bacterial properties have been proven. Aim: Since no studies have been done on the effects of *Nigella sativa* on periopathogens. The aim of this study was to investigate the antimicrobial activity of *Nigella sativa* on *A. actinomycetemcomitans* and *P. gingivalis* bacteria.

**Methods.** In this experimental study, 30 patients with moderate to severe chronic periodontitis were selected and bacterial samples were taken from the periodontal pocket. From isolated pure culture anaerobic bacteria have been used for quantitative and qualitative susceptibility of bacteria to amoxicillin and metronidazole combination and *Nigella sativa*. The average results of the experiments were repeated at least three times. The minimum effective dose of each amoxicillin and metronidazole on isolated bacteria were then formed by columns and micro broth dilution synergistic effect, the combination of amoxicillin metronidazole effect on *A. actinomycetemcomitans* and *P. gingivalis* were studied and compared with the effects of *Nigella sativa* on these bacteria.

**Results.** In a dilution of 4 and 8 mg/ml of *Nigella sativa* were unaffected on both bacteria. In a dilution of 14 and 26 mg/ml *P. g* was effective and *A. a* was unaffected in the dilution of 52, 100, 105 and 210 mg/ml was effective on both bacteria. Combination of *Nigella sativa* with metronidazole was effective concentration *A. a* synergistic effect on *A. a*, Combination of *Nigella sativa* and amoxicillin is effective concentrations without interaction and Amoxicillin and metronidazole in the effective concentration of the bacteria have synergistic effect. *Nigella sativa* and metronidazole in its effective concentration on *P. g* has antagonistic effects, *Nigella sativa* and amoxicillin is effective concentrations without interaction and combination of amoxicillin, metronidazole has synergistic effect in the effective concentration of the bacterium.

**Conclusions.** local and systemic use of this herbal remedy for a variety of preparations and what a mouthwash and toothpaste, can play an effective role in the treatment of periodontal diseases.

**Keywords:** *A. actinomycetemcomitans*, periodontitis.



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## ABSTRACT 119

### Esthetic crown lengthening

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#### Abstract

**Background.** Dental esthetic has become a popular topic among all disciplines in dentistry. There is a notable relationship between a person's attractiveness and amount of gingival show. Excessive gingival display and discrepant gingival margins has a negative impact on a pleasant smile and also on one's self-confidence. Esthetic crown lengthening is used to alter the gingival labial profile. This procedure is indicated to reduce gingival exposure or asymmetry between contralateral teeth. It is important to consider parameters of ideal gingival labial positions. Esthetic analysis that is included, facial, dental and dento-gingival, should be done before beginning of treatment. The aim of this study is to review the related studies and gather information on esthetic parameters of ideal gingival labial positions and classification of crown-lengthening procedures.

**Methods.** This study is based on articles found in PubMed database, published in 2014 and later. The keywords for this research were esthetic crown lengthening, gummy smile, gingivectomy, and periodontal surgery.

**Results.** In order to perform a successful treatment, having the knowledge on classification and treatment sequence of crown-lengthening procedures with their indication and contraindications, is critical. Esthetic crown lengthening classification: I. Gingival reduction only without osseous resection II. Gingival reduction with osseous resection Both of these techniques can be performed by gingivectomy or apically positioned flap. This decision is made on the basis of amount of keratinized gingiva. Gingival reduction only is rarely used because bone reduction is usually needed to achieve ideal treatment.

**Conclusions.** Dentists should be aware patients of benefits of cosmetic dental rehabilitation. The evaluation of each case is the most important step to achieve proper treatment plan and choose correct technique for crown Lengthening. Therefore, the patient esthetic demand will be perceived in the best way.

**Keywords:** Esthetic crown lengthening, gummy smile, gingivectomy, periodontal surgery.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 120

### Local drug delivery systems in periodontal treatment: A review

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#### Abstract

**Background.** Periodontitis is an infective disease that damages the soft tissue and the bone that supports teeth. The goal of periodontitis treatment is to thoroughly eliminate the pockets around teeth and prevent damage of surrounding bone. In advanced cases of periodontitis, treatment may require periodontal surgery after mechanical therapy but when it isn't advanced, treatment may involve less invasive procedures, including scaling, root planning and using systemic or local antimicrobial agents. Local antimicrobials can be delivered into the pockets in different ways. In these ways the drug can reach the target tissue and inhibit or eliminate periodontopathogenic microorganisms at the right time and with the minimum dose required, without systemic side effects. This review aims to evaluate the effect and the efficacy of some types of local drug delivery systems.

**Methods.** Researched papers using Google Scholar related to types of local drug delivery systems in periodontal treatment, since 2017 were reviewed, aiming to present and explain the mechanism of action of adjunctive use of antimicrobials.

**Results.** Some types of local drug delivery systems are used in periodontal treatments, including irrigating systems, fibers, gels, strips or films and microparticles or nanoparticles. They aim to deliver antimicrobials to diseased sites with no side-effects on other body sites. Each system has its merits and demerits and their success depends upon their ability to deliver the antimicrobial agents nearer to the base of the pocket and sustain longer.

**Conclusions.** As non-surgical treatments are not enough to eliminate the pockets in management of periodontitis, it is advisable to use local antimicrobials as an adjunctive treatment. Local drug delivery systems can help to improve the efficacy of these drugs because maximum dose required can reach nearer to the base of periodontal pockets and remain there for an adequate time.

**Keywords:** Periodontal Pocket treatment, periodontal diseases, antimicrobial agents, local drug delivery.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 121

### Intraoral mesenchymal stem cells for periodontal tissue regeneration

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#### Abstract

**Background.** Periodontal disease is a chronic inflammatory condition of the periodontium that is characterized by irreversible destruction of the tooth attachment and its surrounding bone. The disease state, if left untreated, can lead to progressive loss of periodontal tissues, ultimately resulting in an aesthetically and functionally compromised dentition. The pathogenesis of periodontal disease involves a complex interaction between the host's immune response to microbial colonization of the periodontal attachment, and modifying host factors, including tobacco smoking and genetic susceptibility. A number of different procedures have been described. To describe the latest trends, principles of these different treatment approaches include the use of graft materials to compensate for the bone loss incurred as a result of periodontal disease.

**Methods.** this review has been done by searching in electronic data bases including PubMed and current released articles focusing on regenerative periodontology titles.

**Results.** Dental-tissue-derived mesenchymal stem cell-like populations are among many other isolated and characterized stem cells residing in specialized tissues. It is evident from these studies that implanted PDLSCs generate cementum and periodontal ligament-like structures similar to native periodontal complex. In a very early study autologous re-implantation of extracted dental roots lined with PDL cells in minipigs resulted in the formation of connective tissue, resembling PDL and mimicking the orientation of the fibre bundles, within four weeks of implantation.

**Conclusions.** While there may be an overwhelming body of evidence to support the notion that MSCs can be used for periodontal regeneration, there are several main objectives that need to be addressed before the development of effective cellular-based therapies for regenerative dentistry.

**Keywords:** Mesenchymal stem cells, periodontal regeneration, periodontology.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 122

### Efficacy of laser and photodynamic therapy as an adjunct treatment in peri-implantitis

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#### Abstract

**Background.** Peri-implantitis is a plaque-induced disease that affects osseointegrated implants leading to progressive bone and soft tissue destruction. Peri-implantitis is considered as one of the factors that leads to implant loss. Methods of treating peri-implantitis have been documented in the literature and most focus on removal of the contaminating agent from the implant surface. From nonsurgical therapy to surgeries that include flap debridement procedures with or without osseous resection and implantoplasty. Adjunctive local or systemic antibiotics have shown to reduce bleeding on probing and probing depths in combination with mechanical debridement. Photodynamic therapy (PDT) is a therapeutic method that uses photosensitizer and low-level energy source to target pathogenic bacteria.

**Methods.** This review has been done by searching in electronic data bases and current released articles using laser and photodynamic and peri-implantitis as keywords.

**Results.** As some studies have shown, bacterial resistance and systemic antibiotic side effects on body organs can be considered as the main consequences of using antibiotics. The activation of the photosensitizer with appropriate wavelength leads to lethal changes to the target bacteria. This selective mode of action is considered the main advantage of PDT.

**Conclusions.** The ideal management of peri-implant infections should focus both on infection control of the lesion, detoxification of the implant surface, and regeneration of lost support. Beneficial effects of adjunct photodynamic in comparison of other adjunct therapies on peri-implantitis have been shown, but this approach needs to be further evaluated.

**Keywords:** Photodynamic therapy, peri-implantitis, peri-implant infections.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 123

### An overview of new classification of periodontal diseases and conditions: New protocols in diagnosis and management of patients

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#### Abstract

**Background.** The new classification of periodontal and peri-implant diseases can have a profound and lasting impact on clinical practice in periodontology and implant dentistry. Clinicians have an opportunity to use this model to increase consistency in diagnosing periodontal conditions and educating patients on their periodontal treatment needs. The aim of this review is to present new protocols in the diagnosis and management of periodontal disease for clinical practice and education.

**Methods.** This review was based on most recent published articles related to the new classification of periodontal diseases and conditions in databases such as PubMed, Medline and Web of Science in 2018-2019. The complete review and consensus reports, published in both the Journal of Clinical Periodontology (EFP) and the Journal of Periodontology (AAP), were also used.

**Results.** According to the new classification system, clinical health is defined for the first time and periodontal diseases are divided into three main categories: 1) Periodontal health, gingival diseases and conditions; 2) Periodontitis; and 3) Other conditions affecting the periodontium. Periodontitis is also divided into three forms: Necrotizing periodontitis, periodontitis as a manifestation of systemic disease, and a single category of periodontitis with staging and grading criteria (removal of the Aggressive and Chronic Periodontitis terms). Some case reports have demonstrated that staging and grading system can be an effective method in management of patient with periodontitis.

**Conclusions.** An overview of new classification of periodontal and peri-implant diseases can provide new clinical information for dentists to refine their diagnoses and treatment planning procedures and ultimately improve outcomes for patients.

**Keywords:** New classification, periodontal disease, gingivitis, peri-implant disease, staging and grading.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 124

### Association between periodontitis and cardiovascular disease (CVD)

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#### Abstract

**Background.** Cardiovascular disease (CVD) is the main cause of morbidity and mortality in industrialized countries, and of death in the world. Periodontitis is an inflammatory disease of the periodontium causing irreversible destruction of supporting structures that may result in tooth loss. CVD and periodontitis are common chronic inflammatory conditions. Some studies suggest that poor dental health and periodontal bone loss may be associated with CVD events, even after adjustment for established cardiovascular risk factors. However, some studies found no such association. Thus, the issue of an association between periodontitis and CVD remains controversial. Accordingly, in this presentation, we investigated current knowledge about periodontal disease and its adverse effects on cardiovascular health.

**Methods.** PubMed, PMC, and Google Scholar were searched from 2000 to 2019 to identify all articles potentially relevant to the association between periodontitis and Cardiovascular disease.

**Results.** Some studies demonstrated that there is a connection between the two diseases through inflammatory factors. Higher levels of serum IL-6, C-reactive protein (CRP), TNF- $\alpha$  and IL-1 $\beta$  have been reported among periodontitis patients in several studies. Observational studies consistently indicate that people with destructive periodontitis may be 1.3 to 2 times more likely to have CVD.

**Conclusions.** For these reasons, preventing periodontitis may have an impact on the onset or progression of CVD. In order to achieve more accurate results and to strengthen the conclusions of this presentation, well-designed studies with specific inclusion and exclusion criteria are needed.

**Keywords:** Periodontitis, cardiovascular disease, inflammatory disease.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 125

### Comparison of immediate and delayed implant placement on soft and hard tissue response

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#### Abstract

**Background.** The purpose of this study was 2-fold: to determine whether there is a significant difference in the hard and soft tissue response comparing immediate with delayed implant placement after tooth removal, with immediate provisionalization, in maxillary anterior sites; and to determine and compare the crestal bone levels as the primary endpoint variable for implants placed and immediately temporized in extraction sites, to implants placed into extraction sites after the extraction site has been grafted and healed for 4 months, all immediately restored with an anatomic provisional restoration. This aim was to be evaluated by measuring crestal bone levels on standardized digital radiographs of the implants, using implant threads as a monitor of magnification and a pre-extraction reference. Secondary endpoint variables include soft tissue measures compared with method

**Methods.** A total of 76 patients were recruited and randomized into treatment groups. Group 1 had a maxillary tooth (premolar, canine, lateral or central incisor) removed, with immediate socket grafting, followed by implant placement and provisionalization 4 months later with a single tooth. Group 2 had immediate implant placement and provisionalization. Standardized radiograph holders were used to expose digital radiographs every 6 months from baseline to up to 2 years restored. Soft tissue measures were made from standardized reference points. Data collected were analyzed by a statistician to test the hypotheses.

**Results.** A total of 55 patients completed their follow-up. Twenty-one patients were lost to follow-up because of implant loss (n = 5), 1 treated out of protocol because of labial bone loss found at the time of tooth removal (n = 1), geographic relocation (n = 11), dropped for noncompliance (n = 3), or medical problems (n = 1). The analyses showed no significant differences between groups in implant integration or crestal interdental bone movement on either the implant or the adjacent tooth. The bone level on the implants did move from the baseline levels during the first 6 months but not thereafter. There were no differences observed when comparing the interactions between groups, tooth locations, or time. There was a significant difference in the position of the facial gingival margin with a more apical position of the facial gingival margin in the delayed group compared with the immediate group during the course of the study.

**Conclusions.** bone response to immediate or delayed placement of an implant into an extraction site in the maxillary anterior region with immediate provisional is similar regarding hard tissue changes. Support of the gingival margin with a provisional at the time of tooth extraction and implant placement preserved 1 mm more facial gingival margin position compared with the delayed group. The decision to use either method must consider the movement of the facial gingival margin, which, in a critical esthetic patient may require soft tissue support from a provisional restoration or similar type of anatomical healing abutment

**Keywords:** Immediate implant, delay implant, bone resorption, soft and hard tissue response.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 126

### Comparative evaluation of platelet-rich fibrin (PRF) with sub-epithelial connective tissue graft (SCTG) in the treatment of gingival recessions

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#### Abstract

**Background.** Gingival Recession is defined as a Pathological Apical Migration of the Gingival margin from the Cemento Enamel junction (CEJ) of the teeth; It causes exposure of the root surfaces which is leading to functional and aesthetic problems, such as: Dentin hypersensitivity, Root Cavities, or Non-Carious Cervical Lesions. Although Miscellaneous treatments have been applying till now, like: Acellular Dermal Matrix Graft (ADM), Sub-Epithelial Connective Tissue Graft (SCTG) in combination with Modified Coronally Advanced Flap (MCAF); The SCGT+CAF is accepted as the gold standard and has indicated greater predictability for obtaining complete root coverage, however this technique is time consuming also accompanied by a second site, and limited supply of donor tissue. A recent innovation treatment is the use of L-PRF, which is defined as an autologous platelet and leukocyte enriched fibrin biomaterial. The object of this study is to evaluate the clinical effectiveness of PRF along with MCAF and compare it with the use of SCTG+MCAF for Gingival Recession Treatment.

**Methods.** Our search is based on the relevant articles (up to 28-Feb 2018) that included: case reports, Randomized Clinical trials, Original research and reviews that issued in PubMed, Mesh and NCBI.

**Results.** Most of studies are provided solid evidence of PRF's impact on wound healing, soft tissue reconstruction and augmentation, as effective as SCTG, in periodontal therapy.

**Conclusions.** According to the most of relevant articles there is no statically significant differences between PRF+CAF and SCTG+CAF techniques. Consequently, PRF maybe, considered as an alternative treatment for gingival recession.

**Keywords:** Gingival recession, sub-epithelial connective tissue graft, platelet -rich fibrin.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 127

### Implant insertion in digital era: computer-guided surgery

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#### Abstract

**Background.** Nowadays for a more precise implant rehabilitation, computed tomography images, including cone-beam computed tomography (CBCT) were introduced. This technology improved the outcome of implant-based treatment and made it possible to better visualize the underlying bone structures than the standard two-dimensional (2D) radiography, so association between CBCT and CAD-CAM makes it possible to achieve several advantages. aim of this literature review is to assess clinical studies regarding accuracy of 2 digital surgeries methods (tooth supported and mucosupported guides) versus conventional systems.

**Methods.** The present study summarizes information through the articles from 2006 to 2018 available through PubMed and Scopus databases with “digital implant placement” and “Accuracy” and “ComputerAssisted Surgery” as key words.

**Results.** This study has assessed 8 articles which are closely related to our keywords among 20 articles which totally were found. They describe the use of bone and mucosupported guides, demonstrating angular deviations cervically from 0.50 mm to 4.22mm and apically ranging from 0.18mm to 3.22. For the mandible, a significantly lower 3D error was observed at implant apex and also in angular deviation when comparing to the 3D error of the implants inserted in the maxilla.

**Conclusions.** clinical significance: Computer-guided implant placement can be accurate, but significant deviations have to be taken into account. Randomized studies are needed to analyses the impact of individual parameters in order to allow optimization of this technique. Moreover, the practitioner should have a clear overview on indications and benefits to find the right candidates as patient but we can say that Computer-guided template-based implant placement showed high implant survival rates ranging from 91 to 100%. However, a considerable number of technique-related perioperative complications were observed.

**Keywords:** Accuracy, computerassisted surgery digital implant placement.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 128

### Co-culture of human endothelial cells with human-induced pluripotent stem cell-derived mesenchymal stem cells on calcium phosphate scaffold promotes periodontal regeneration in rats

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#### Abstract

**Background.** Periodontal regeneration aims to recapitulate the crucial stages of wound healing associated with periodontal development in order to restore lost tissues to their original form and function and for regeneration to occur. The aim of this study was to investigate the effects of human-induced pluripotent stem cell-derived mesenchymal stem cells (hiPSC-MSCs) co-cultured with endothelial cells for on calcium phosphate cement (CPC) scaffold on periodontal regeneration in vivo for the first time.

**Methods.** Twenty number of immunocompromised rats were generated periodontal defects caused by periodontitis by binding wire around teeth and subsequently inoculating them with Porphyromonas gingivalis and tested in a periodontal split mouth defect model. The rat's jaws divided in four part and treated with (1) CPC scaffold alone (CPC control); (2) endothelial cells with CPC; (3) hiPSC-MSC with CPC (CPC-hiPSC-MSC); and (4) endothelial co-cultured with hiPSC-MSCs on CPC scaffolds (co-culture group).

**Results.** After 12 weeks, the results showed that TNF $\alpha$ , IFN $\gamma$ , and IL1 $\beta$  decreased co-culture group in comparison to other groups. Histopathological results showed that the new bone and periodontal ligament in the periodontal defects in the co-culture group were regenerated to the highest levels compared with other groups. Soft x-ray results showed more bone formation in the co-culture group compared with that other groups.

**Conclusions.** In conclusion, endothelial co-cultured with hiPSC-MSCs substantially promoted periodontal regeneration. The novel construct of endothelial co-cultured with hiPSC-MSCs delivered via CPC scaffolds is promising to enhance bone and vascular regeneration in orthopedic applications.

**Keywords:** Human endothelial cells, human-induced pluripotent stem cell, mesenchymal stem cells, periodontal regeneration, animal model, calcium phosphate scaffold.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 129

### The relationship between periodontal disease and systemic conditions: A review of literature

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#### Abstract

**Background.** Numerous systemic disorders and certain medications can affect the periodontal attachment apparatus and cause loss of periodontal attachment and alveolar bone. Characterizing these diseases and the nature of the association between them could have important diagnostic value and therapeutic implications for patients. There are mainly rare systemic conditions (such as Papillon-Lefevre Syndrome) with major effects and more common conditions (such as diabetes mellitus, Cardiovascular disease) with variable effects, as well as oral complications independent from periodontitis (such as neoplasms). The aim of this review is to combine the newest literature studies collectively and to provide a comprehensive review of the adverse effects that the associated systemic disease has on the periodontium.

**Methods.** A review literature search was conducted in 2 databases between 2017 and 2019 in which the primary outcome was the association of systemic and periodontal diseases.

**Results.** Approximately 10 articles met the criteria. Systemic diseases and conditions were classified as: Genetic disorders, acquired immunodeficiency diseases, Inflammatory diseases, and other disorders that have a pathogenic influence.

**Conclusions.** This review identifies systemic diseases and conditions that can affect oral health. They may alternate the host immune response to periodontal infection, create defects in the gingiva or connective tissues or instigate metabolic changes. Periodontal infection should not be presented as the cause but a readily modifiable risk factor for such systemic diseases and conditions. However, the need for more studies will be required to substantiate the correlation of periodontal disease to these systemic conditions.

**Keywords:** Periodontal disease, systemic disease, genetic disorders, immunodeficiency disease, inflammatory disease.



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## ABSTRACT 130

### Advantages of I-PRF over PRF

Mehrdad Siapoor<sup>1\*</sup>

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#### Abstract

**Background.** there are several methods for the bone grafting and improve osteogenesis in dental implant. one of the acceptable treatment for increase the volume of jaw bone is PRF. Nowadays reaserchers remove anti-coagulan can help them to improve bone grafting and named that I-PRF

**Methods.** This results origin from some reaserches

**Results.** Standard PRP and i-PRF (centrifuged at 700 rpm (60× g) for 3 min) were compared by assays for fibroblast biocompatibility, migration, adhesion, proliferation, as well as expression of platelet-derived growth factor (PDGF), transforming growth factor-β (TGF-β), collagen1 (COL1) and fibronectin (FN). The results demonstrate that i-PRF induced significantly higher cell migration, as well as higher messenger RNA (mRNA) levels of PDGF, TGF-β, collagen1 and fibronectin when compared to PRP. Furthermore, collagen1 synthesis was highest. Six Merino sheep received a total of 36 Brånemark MKIII implants; three implants were placed supracrestally in each tibia with vertical exposure of four threads. Each implant received one of the three grafting options (MinerOss + PRF or MinerOss or PRF). The grafting materials were covered with a resorbable collagen membrane (Mem-Lok 30 × 40 mm, BioHorizons). Animals were sacrificed at 4 and 8 weeks, respectively, and specimens were prepared and collected for histologic analysis. Ground sections and decalcified sections were prepared in the i-PRF group.

**Conclusions.** i-PRF demonstrated the ability to release higher concentrations of various growth factors and induced higher fibroblast migration and expression of PDGF, TGF-β, and collagen1.

**Keywords:** i-PRF, PRF, regeneration, implant, growth factors.





# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 131

### The effect of nonsurgical periodontal therapy on level of salivary adipokines in diabetic patients with chronic periodontitis

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#### Abstract

**Background.** Ad ipokines are proteins derived from Adipocytes that contribute to the immune process and inflammation. In recent years, adipokines have been reported to play an important role in chronic periodontitis. On the other hand, adipokines also play a role in diabetes mellitus. Therefore, the aim of this study was to evaluate the effect of nonsurgical periodontal therapy on clinical parameters and the salivary levels of visfatin, chemerin, and progranulin in diabetic patients with chronic periodontitis.

**Methods.** In this case-control study, a total of 40 patients were enrolled. Twenty patients were in Case group (diabetic patients with chronic periodontitis) and 20 patients in the control group (diabetic patients' with-out chronic periodontitis). Gender and age uniformization was done in two groups (Respectively: P =1 and P =0.808). The clinical periodontal parameters including plaque index (PI), gingival index (GI), probing depth (PD), and clinical attachment levels (CAL) were recorded. Unstimulated saliva samples were collected, and the concentration of adipokines was evaluated using standard enzyme-linked immunosorbent assay. Finally, the data was analyzed with SPSS Version 16.0 (Inc., Chicago, IL, USA).

**Results.** The Kolmogorov-Smirnov test showed that the study variables follow the normal distribution (P <0.05). The GI index in the case group decreased from  $1.92 \pm 0.27$  to  $0.71 \pm 0.14$  after intervention, which was statistically significant (P <0.001). Also, PPD and PI indices showed significant changes in case group after intervention (P <0.001). However, no significant changes were observed in the CAL index (P <0.05). Salivary analysis of adipokines showed only a significant difference in the concentration of progranulin after the intervention between the control and case groups (P = 0.004). Progranulin after intervention in the case group was lower than the control group.

**Conclusions.** Non-surgical periodontal therapy in diabetic patients with periodontitis showed good results in the improvement of periodontitis condition, in that relative improvement was observed in clinical indices such as GI, PPD and PI. The present study did not show the comparable results on the effect of non-surgical treatment on the salivary concentrations of visfatin and chemerin in diabetic patients with periodontitis

**Keywords:** Diabetes, non-surgical periodontitis therapy, adipokine, visfatin, progranulin, chemerin.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 132

### Posterior atrophic jaws implantation: short implants versus long implants in augmented bone

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#### Abstract

**Background.** implant therapy is one of the most common treatment for rehabilitation patient with atrophic posterior jaws. Long implants in augmented bone have been used for several years to achieve rehabilitation. Using short implants is new method can achieve this aim. The aim of this review is to compare treatment options for the posterior atrophic jaws.

**Methods.** Applying following key words or combinations, the article were searched in PubMed, Medline, and Google scholar from 2010 to 2018. The most related articles were included. Key words: short implants, short dental implants, long implants in bone augmented, posterior atrophic jaws, sinus augmentation, bone augmentation.

**Results.** The literature shows No significant difference in the survival rate and implant stability quotient [ISQ]. Marginal bone loss (MBL) is higher in augmented posterior atrophic jaws with long implants. articles note the higher prosthetic complication rate for short implants. Patient satisfaction is high in both groups.

**Conclusions.** reviewing results of articles show Short dental implants as well as standard-length implants in combination with vertical bone augmentation procedures appear to result in predictable outcomes. use of short dental implants appears to have a number of advantages for the patients and the clinician: faster, cheaper and associated with less morbidity and bone loss. Long-term randomized controlled trials are required to confirm these issues

**Keywords:** Short implants, short dental implants, long implants in bone augmented, posterior atrophic jaws, sinus augmentation, bone augmentation.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 133

### Posterior atrophic jaws implantation: short implants versus long implants in augmented bone

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#### Abstract

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**Methods.** Applying following key words or combinations, the article were searched in PubMed, Medline, and Google scholar from 2010 to 2018. The most related articles were included. Key words: short implants, short dental implants, long implants in bone augmented, posterior atrophic jaws, sinus augmentation, bone augmentation.

**Results.** The literature shows No significant difference in the survival rate and implant stability quotient [ISQ]. Marginal bone loss (MBL) is higher in augmented posterior atrophic jaws with long implants. articles note the higher prosthetic complication rate for short implants. Patient satisfaction is high in both groups.

**Conclusions.** reviewing results of articles show Short dental implants as well as standard-length implants in combination with vertical bone augmentation procedures appear to result in predictable outcomes. use of short dental implants appears to have a number of advantages for the patients and the clinician: faster, cheaper and associated with less morbidity and bone loss. Long-term randomized controlled trials are required to confirm these issues

**Keywords:** Short implants, short dental implants, long implants in bone augmented, posterior atrophic jaws, sinus augmentation, bone augmentation.



# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

8-11 October 2019, Tehran, Iran

## ABSTRACT 134

### Dynamic navigation systems in dental implant surgery: A new horizon in implant dentistry

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#### Abstract

**Background.** The long-term success of dental implant surgery depends, in part, on accurate planning and placement of implants. Different types of Digital planning systems were introduced to help the clinicians to achieve this aim. Dynamic navigation system is a new technology abled to track a surgical tool relative to the patient structure, and dynamically display the position of the surgical tool within presurgical computed tomography scan, updated in real time. system allows for: localization of surgical targets and critical anatomical structures; orientation of a surgical tool within the patient's anatomy; and navigation of a surgical tool along a predefined surgical plan. This study aimed to review this special technology characteristics and mechanism.

**Methods.** Appling following key words, most related articles were chosen in PubMed and google scholar between 2010 and 2018: "guided implant surgery, Dynamic surgical guidance, dynamic navigation implant, and Surgical navigation systems.

**Results.** The literature shows highly significant improvement in drilling accuracy using surgical navigation compared to unguided manual implantation. Dynamic navigation systems show an entry error of approximating 0.4 mm and an angular deviation error of approximating 4 degrees. They reported Successful clinical applications for oral implant surgery in partially and fully edentulous patients, flapless approaches, and difficult anatomic situations.

**Conclusions.** The ability to visualize the dental implant drills within a 3D view provides a major advantage in dental implant surgical technology and can help the clinicians to achieve long-term predictable success in dental Implant surgery.

**Keywords:** Guided implant surgery, dynamic surgical guidance, dynamic navigation implant, and surgical navigation systems.

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# 19<sup>th</sup> Meeting of Iranian Academy of Periodontology

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## ABSTRACT 135

### The effect of antimicrobial photodynamic therapy in the treatment of periodontitis: a review of literature

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#### Abstract

**Background.** The main objective of periodontal treatment is the removal of supragingival and subgingival plaque biofilm from the root surface, to reduce or arrest the progression of periodontal disease. However, the effectiveness of conventional scaling and root planing (SRP) is affected by the local conditions and residual bacteria which may affect the healing process. To improve effectiveness in the removal of the dental plaque, the use of laser radiation or photodynamic techniques has been expected to serve as an adjunct or alternative method. The aim of this review was to summarize the results of research on aPDT (antimicrobial photodynamic therapy) in treatment of periodontal diseases.

**Methods.** The literature was searched for studies about aPDT and its role in treatment of periodontitis. The publications were selected using Google Scholar and PubMed for the period of 2014 to 2019 using combinations of the following keywords: antimicrobial photodynamic therapy; periodontal treatment; scaling and root-planing (SRP).

**Results.** A total of 68 articles in English were found. The articles that were not associated with the topic of research and review articles were deleted. After reviewing 23 articles' abstracts, the full texts of 12 articles were analyzed.

**Conclusions.** Although there was a wide range of heterogeneity in the included studied, they all indicated that aPDT has the potential to be an effective adjunct in the treatment of chronic and aggressive periodontitis. But he evidence to support its clinical medium/long-term efficacy is insufficient. Further high-quality RCTs are needed to investigate the influence of potential confounders on the efficacy of adjunctive aPDT.

**Keywords:** Antimicrobial photodynamic therapy, periodontal treatment, scaling and root-planing (SRP).



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## ABSTRACT 136

### Noma; an unsolved challenge in periodontology

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#### Abstract

**Background.** Periodontal disease results from a complex interplay between the subgingival biofilm and the host immune-inflammatory events that develop in the gingival and periodontal tissues in response to the challenge presented by the bacteria. Noma is a subtype of periodontal diseases which is necrotizing and life threatening conditions affecting young malnourished patients. Noma etiology is complex and multifactorial which involves polybacterial plaque and host impaired immune system interaction, environmental factors, low socio-economic condition and viral infection. It is important to diagnose the condition at early stages to avoid its disfiguring problems for the patient or possible death. Noma can be prevented by food security and measles vaccination also by prevention of disease like malaria, HIV and fast respond to necrotizing gingivitis and stomatitis.

**Methods.** We studied the articles related to noma of the last five years (2014-2019). Our search was based on reviews and newest case reports about the disease.

**Results.** Noma is an unresolved problem in parts of the world which extreme poverty and health problems still exists. Progression of the disease is so rapid that the seriousness of the condition is not realized until it's too late. Noma's mortality rate is approximately 85%. As this condition occurs in remote and underdeveloped areas, there are not enough data about clinical and microbiological events during development of the disease. Malnutrition and HIV are possible contributing factors for developing this condition.

**Conclusions.** There is a need for evidence-based guideline to prevent noma. Although poverty and lack of education plays an important role in developing of this condition but raising our knowledge about its etiology and contributing factors can lead to reducing noma incidence. If diagnosis or treatment of noma delay, it will need surgical rehabilitation which may be complex.

**Keywords:** Noma, Cancrum oris, Necrotizing stomatitis.



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## ABSTRACT 137

### 3D-printed scaffold and biomaterial in periodontal regeneration

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#### Abstract

**Background.** Due to some limitation and problems of implant and GBR, tissue engineering has become more commonly used. 3D-printed scaffolds are investigated in periodontal applications shows outcomes of success. (3D) scaffold architecture closely mimics native (ECM). It enhances cell adhesion, proliferation, differentiation and tissue regeneration.

**Methods.** 3D scaffold fabrication: CAD/CAM, CAD models are images from computed tomography (CT) With the development of SFF. Multiphasic scaffold contains channel-like “fiber-guiding architecture” of the PDL, which are functionally oriented and integrated. Compartmentalization can prevent tooth ankylosis. there are two Methods. (1) cell seeding into a “prefabricated” scaffold, and (2) cell encapsulation during scaffold fabrication, which protects cells from immune system.

**Results.** PLC is moldable for required shapes and have good mechanical properties but it has two undesirable points: slow degradation rate and release acidic byproduct for solving these two problems and prevention of scaffold exposure, PLC is combined with bioceramics, which neutralize the acidic byproducts of PLC, and increase rate of degradation.

**Conclusions.** scaffold facilitate cell penetration, vascularization. pore network prevents core necrosis. In alveolar bone regeneration, augmentation, and socket preservation, scaffolds made of bioceramics can be recommended. But because of their weak mechanical properties, bioceramics should combined with strong biomaterials as mentioned earlier and PLC should use with bioceramics. In non-load-bearing areas, collagen could be preferred biomaterial. bioceramic/collagen mix is closest replicate of the ECM composition of native bone. combination of collagen with hydroxyapatite encouraged in bone tissue regeneration Much work needs for promising results, clinically

**Keywords:** 3D-printed scaffold, biomaterials, tissue regeneration



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## ABSTRACT 138

### Effect of Er,Cr:YSGG laser root conditioning on the success of root coverage with subepithelial connective tissue graft: A randomized clinical trial with a 6-month follow-up

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#### Abstract

**Background.** Finding predictable approaches for root surface biomodification is an important challenge in the treatment of gingival recession. This study sought to assess the root coverage percentage by subepithelial connective tissue graft (SCTG) following root surface conditioning with erbium, chromium: yttrium scandium gallium garnet (Er,Cr:YSGG) laser.

**Methods.** In this split-mouth, randomized clinical trial, 30 teeth with Miller's Class I and II gingival recession were treated with SCTG (the Langer and Langer technique) with (case group) or without (control group) root surface conditioning with Er,Cr:YSGG laser (wavelength=2780 nm, power=0.75 W, H mode, repetition rate=20 Hz). Recession depth (RD), recession width (RW), clinical attachment level (CAL), and probing depth (PD) were assessed at the baseline (one week before surgery) and at 2 and 6 months postoperatively. The amount of root coverage was quantified in the two groups. Data were analyzed using Friedman test and Wilcoxon signed-rank test.

**Results.** No significant difference was noted between the case and control groups in any parameter ( $P>0.05$ ). Significant improvement occurred in all the measured parameters in the two groups after surgery ( $P<0.05$ ). The mean root coverage at the end of the study period was 87% and 80% in the case and control groups, respectively ( $P=0.244$ ), and complete root coverage was achieved in 66% and 60% of the samples in the case and control groups, respectively.

**Conclusions.** Root surface conditioning by Er,Cr:YSGG laser improved the mean root coverage and the percentage of complete root coverage. However, these changes were not statistically significant

**Keywords:** Gingival Recession; Tooth Root; Tissue Transplantation; Lasers

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## ABSTRACT 139

### Maintenance of dental implant

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#### Abstract

Over the past decades dental implant with 90-98% success rate has become an integral part of reconstructive dentistry. As the supporting tissues of the implant have different structure and circumstance with natural teeth like less vascularity and different collagen fibers arrangement and amount, dental implants are more susceptible to infection and bone resorption, thereafter an extensive and careful maintenance protocol should be followed. However, the attraction of patient to implant treatment is growing up, the maintenance protocol following treatment is ignored. This neglect or maybe lack of awareness can lead to peri-implantitis, bone resorption and finally implant failure. Although there are some risk factors for peri-implantitis like: smoking, history of periodontitis, limited oral hygiene, systemic disease and poor plaque control. The awareness and periodic recall of the patient by dentist (every three months in the first year and every six months thereafter) play a great role in prevention of implant failure. This study is aimed to review the maintenance protocol which is divided into two main category called professional (sonic and ultra-sonic scaler, plastic or Teflon coated curettes, oral irrigation and occlusal adjustment) and home care (manual tooth brush, mechanical tooth brush, dental floss, interproximal brush and antimicrobial). An electronic search for article in English language literature from the past 5 years about implant maintenance was performed using a systemic search process. Nowadays implant treatment has become a main part of dentistry which involves different specialties from periodontology to surgery and prosthesis, the point here is the behavior of the patient after treatment following the principle to keep the implant in a best situation to avoid failure and additional costs.

**Keywords:** Dental implants, peri-implantitis, maintenance, periodontitis.