

# 'Lasers are not a magic wand but offer great potential in periodontal and peri-implant therapy'

The use of lasers is becoming increasingly common in periodontal therapy, to treat both periodontitis and peri-implant diseases. But there are risks as well as rewards. Ayala Stabholz, professor of periodontology at the Hebrew University–Hadassah Faculty of Dental Medicine in Jerusalem reviews the evidence.



The use of lasers in dentistry, particularly in periodontics and peri-implant diseases, has grown since their introduction in the late 20th century.

Lasers can be used either as an adjunct to conventional therapies or as a monotherapy replacing existing techniques – but they are not a magic wand that can change acceptable treatment concepts or cause miracles.

Lasers are medical devices that work by delivering energy to a target human tissue. When this energy is absorbed, it selectively affects the tissue's biological components based on the laser's specific wavelength characteristics, its power, and the exposure time.

Various laser devices have been developed, each with its own capabilities and distinctive applications, and they are classified according

to their most important determinant: the wavelength. Each wavelength has its specific characteristics and absorption capabilities and cannot be changed. Another fixed parameter is the specific target tissue. In the periodontal field, tissues are soft (periodontal ligament and gingiva) and hard (teeth and bone), and there are also the metal surfaces of implants. As these features are also fixed, the choice of which laser to use should be made according to the specific therapeutic demands.

Five main laser wavelengths have been studied for periodontal and peri-implantitis treatments and have been classified as "hard-tissue", "soft-tissue," and "all-tissue" lasers:

#### Hard-tissue/all-tissue lasers:

- ▶ Erbium family: Er:YAG (2,940nm) and Er,Cr:YSGG

#### ▲ An example of laser equipment used in periodontal therapy (Light Instruments' LiteTouch Er:Yag device)

(2,780nm) – absorbs in water and hydroxyapatite;

- ▶ CO<sub>2</sub> (9,300nm and 9,600nm) – absorbs in water and hydroxyapatite.

#### Soft-tissue lasers:

- ▶ Nd:YAG (1,064nm) – absorbs in melanin and haemoglobin;
- ▶ Diode (810nm - 1,064nm) – absorbs in melanin and haemoglobin;
- ▶ CO<sub>2</sub> (10,600nm) – absorbs in water (very efficiently) and in hydroxyapatite (but less efficiently than CO<sub>2</sub> 9,300nm and 9,600nm).

The penetrability of the different laser beams into human tissues is a key factor. While the penetration depth of CO<sub>2</sub> and erbium lasers is minimal (0.05 - 0.1mm in soft

tissues and 0.005 – 0.015mm in hard tissues), that of the Nd:YAG and diode lasers is much greater (1 – 3mm for Nd:YAG and up to 1mm for diode). Clinicians must take these differences into account when deciding which laser to use and also consider other variables including wavelength-absorption spectrum, target tissue, delivery system, and hazards to neighbouring tissues and to the essential biological structures of the patient and operator if carelessly used.

#### Why were lasers introduced to periodontology?

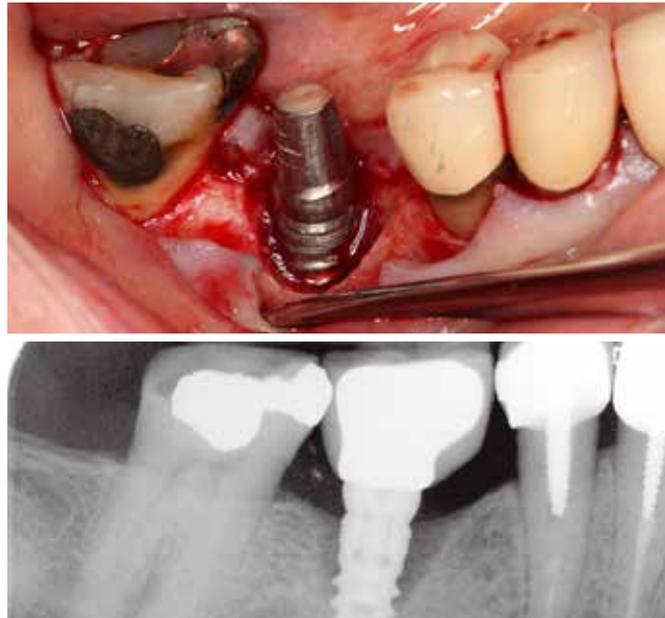
Lasers were introduced to periodontics as a scalpel substitute for minor surgical procedures and later as an alternative or an adjunct to

non-surgical periodontal treatment. Their advantage over the scalpel stems from their haemostatic abilities, which also improve visualisation of the surgical field, and improved healing has also been reported. Their inclusion in non-surgical periodontal treatments as decontaminants arose because of incomplete bacterial and calculus removal following traditional mechanical therapy, to try to achieve better results and thereby avoid surgical intervention.

#### ✓ **Anti-bacterial properties:**

All dental laser wavelengths have bactericidal and detoxification properties, crucial for treating infectious diseases, as periodontitis and peri-implantitis are believed to be. Most published studies of the use of lasers in the treatment of these diseases focus on either the bacterial biofilm in the periodontal pocket or the soft-tissue lining of the pocket, and on removing embedded bacteria and inflammatory tissue. While some clinicians advocate using the laser first to enable better access and a less contaminated environment before deploying conventional instrumentation, others argue for the use of the laser beam following mechanical disinfection to complement bacterial elimination. There is growing evidence that laser periodontal therapy reduces inflammatory mediators such as IL-1 $\beta$ , IL-6, TNF- $\alpha$ , and MMP-8.

✓ **Additional effects:** As well as the anti-bacterial properties common to all dental lasers, additional effects of the CO<sub>2</sub>, diode and Nd:YAG lasers include incision and excision of soft tissues, haemostasis and coagulation, and pocket-wall (epithelial and connective tissue) debridement; while those of the Er:YAG and Er,Cr:YSGG lasers include soft-tissue ablation, calculus



and bone ablation, bacterial endotoxin and smear-layer elimination from root surfaces, and root conditioning with no thermal side-effects.

#### ✓ **Soft-tissue procedures:**

Numerous soft-tissue periodontal procedures using lasers are described in the literature, including: gingivectomy, gingivoplasty, frenectomy, sulcular soft-tissue debridement, palatal graft donor-site coagulation, operculum and fibroma excision, soft-tissue cutting in patients with bleeding disorders, clinical crown lengthening, implant exposure, melanin depigmentation, aphthous treatment, connective-tissue remodelling, and enhanced bone metabolism (by bio-stimulation produced by low-level laser devices). It is claimed that laser's bio-stimulatory features result in better healing compared to traditional approaches and in periodontal-tissue regeneration.

Using lasers for subgingival incisions to raise periodontal flaps is questionable because of the danger that the beam will harm surrounding periodontal tissues (roots or bone). Moreover, subgingival scalpel incisions are more precise, neater, and better controlled than laser subgingival

incisions – although some clinicians find laser tips work well for such procedures.

#### **Why laser rather than scalpel?**

But why should one use expensive laser technology for periodontal soft-tissue procedures if a simple surgical scalpel can do the job? There are several reasons. First, the haemostatic and coagulation properties of some soft-tissue lasers offer better visualisation of the surgical field (particularly in patients with coagulation disorders or other bleeding risks). Second, the sterilisation of the target area reduces bacteraemia risk. Third, reports have shown minimal tissue trauma and a better repair course following laser application, as well as less post-operative pain and swelling through blood and lymphatic vessel occlusion. Claims that laser soft-tissue wounds heal faster, are painless, and produce less scar tissue than scalpel surgery have not been verified in histological or clinical trials.

#### **Non-surgical use of lasers**

While their ability to ablate soft tissues is well established, the effectiveness of laser wavelengths in a non-surgical mode in cases of periodontitis



A 60-year-old woman with peri-implantitis around implant #46. Treatment included mechanical cleaning, Er:YAG laser application (100mJ and 10PPS) along the entire perimeter of the exposed implant, plus bone augmentation with Bio-Oss and Ossix membrane):

#### **Above:**

Pre-operation (2015)

#### **Below:**

Pre-operation x-ray (2015)

and to decontaminate implant surfaces exposed to peri-implantitis is still subject to debate. There are various limitations. Only laser machines with a tip can be used subgingivally, but most laser companies have not yet developed a designated tip for periodontal purposes. Only a few laser machines have side-firing tips that can target directly either the root surface and/or the diseased pocket lining. Most tips fire their energy from the apex or end of the tip – aiming at the junctional epithelium or bone-implant contact. But directing the laser energy towards these structures does not suit our treatment and may even cause irreversible damage to existing tissues. In addition, some laser tips are very thin and fragile and can break in the periodontal pocket and invisible laser firing can cause negative side effects, so is not recommended when targeting the subgingival area.

The tactile sensitivity that guides our non-surgical periodontal procedures is lacking during subgingival laser operation and the tip movements proceed blindly. Therefore, non-surgical subgingival laser application in periodontal treatment should be considered very carefully.

However, using laser after flap elevation, with direct visibility, provides the therapist with all the advantages of laser treatment.

### Safety and protocols

When working with surgical lasers, safety is a top priority. All dental lasers can cause injuries to living tissues if working protocols are ignored, and both patients and operators can suffer irreversible injuries. Before attempting to incorporate laser technology into the dental or periodontal office, one should learn the basics of laser function, read the relevant professional literature, decide which laser is appropriate for specific procedures, study the hazards and side-effects of the device, consult other users about their experience, and follow suggested protocols. When starting to operate the device, the minimal amount of energy to achieve therapy and observe tissue reaction should be used at first to establish if settings are adequate or need adjustment.

### Should we use lasers in modern periodontology?

The aim of periodontal and peri-implant disease treatments is to stop disease progression and, if possible, restore lost periodontal and peri-implant tissues. This can be primarily achieved by eliminating or decreasing infectious insult in the affected sites. The paramount trait of all lasers is bacterial killing and detoxification, which play a key role in applying laser technology in the treatment of periodontitis and peri-implantitis.

Er:YAG lasers are the most studied lasers in non-surgical periodontal therapy and, while the outcomes of clinical reports are conflicting, they are promising. The use of lasers during periodontal surgery has received less attention. But data show that erbium lasers are effective in surgical-flap protocols and can be safely used on root surfaces and implants if the right parameters are set.

The erbium laser beam can also precisely separate the granulation tissue surrounding ailing implants or periodontally affected teeth from the surrounding bone and remove it following flap elevation. In addition, erbium lasers can ablate calculus and detoxify titanium without causing its melting, provided low energy is applied.

A major advantage of some laser wavelengths is that the beam can interact with human tissues in a non-contact mode. This makes lasers superior to conventional techniques, as the beam can remove bacteria and tissue remnants from niches and hidden spaces that are inaccessible to conventional instrumentation. This is particularly relevant to flap elevation around ailing implants in cases where there are narrow and inaccessible intra-bony spaces.

Both the consensus report of the EFP's 6th European Workshop on Periodontology in 2008 and the 2011 position paper from the American Academy of Periodontology on the efficacy of lasers in non-surgical periodontal treatment acknowledged that



erbium lasers are the only ones with significant potential for effective root debridement and which possess characteristics most suitable for non-surgical treatment of periodontitis.

### No consensus

It remains impossible to draw final conclusions or recommendations from the many published studies because of the variety of laser devices utilised, the different parameters assigned, and the lack of long-term clinical studies. At present, there is no consensus on the optimal parameters for specific laser devices for specific applications. Thus, parameters are applied empirically and learned through observations.

Although more than a hundred human clinical studies have been published, the evidence remains



**Above:**  
Nine months post-operation

**Below:**  
Three years post-operation x-ray

conflicted and insufficient to conclude that lasers are superior to conventional periodontal therapeutic methods. Nonetheless, most studies claim that laser technology shows potential in periodontal and peri-implant treatments.

More evidence-based studies are needed to recommend the integration of this technology into our treatments. Future directions should aim mainly at the added value of lasers in minimally invasive periodontal procedures to reduce the necessity for surgical and other painful interventions.

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**Ayala Stabholz**

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Her research interests include the use of lasers in periodontics and peri-implantitis, the periodontal-orthodontic inter-relationship, and periodontal medicine. She has a private clinic dedicated to periodontology and implantology.

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# Clinicians welcome new classification but raise concerns about implementation

The new classification of periodontal and peri-implant diseases and conditions, agreed by the World Workshop in November 2017 and presented at EuroPerio9 in June, implies big changes for clinicians. *Perio Insight* has spoken to clinicians across Europe to gauge their response.



Peter Eickholz

The new classification of periodontal and peri-implant diseases and conditions, promoted by the EFP and the American Academy of Periodontology, was presented at a packed and enthusiastic session at the EuroPerio9 congress on June 22.

Since then, periodontists and the wider dental community have had some time to digest the new classification and read the detailed reports from the World Workshop, published in the EFP's *Journal of Clinical Periodontology*.

There is a widespread welcome for an updated classification – the previous one dates from 1999 – and clinicians describe it as “a milestone for the perio world,” a “real improvement in the periodontology field,” and an approach that “should provide an overall consistent approach to diagnosis and management for our patients, who will have better lives as a result.”

However, they also raise concerns about the practicalities of implementing the new classification in everyday practice. Some find the new classification very complex and wonder whether general



Kristin Kolltveit

practitioners in busy dental offices will find it easy to use. The EFP is addressing these concerns as it draws up a plan for disseminating and explaining the new classification to practitioners.

Clinicians repeatedly mention four major advances on the previous classification: (1) the definition of periodontal health; (2) the replacement of chronic/aggressive periodontitis with a model based on stages and grades; (3) the support given to personalised medicine; and (4) the inclusion of peri-implant diseases and conditions.

## Periodontal health

The definition of periodontal health – something missing from previous classifications – is welcomed by **Peter Eickholz (Germany)**. “Finally, we have a definition of periodontal health in the intact periodontium and – which is just as important – a definition of periodontal health or gingivitis in the stable patient after treatment,” he says. “These diagnoses are important to characterise the majority of patients in our practices: the supportive-maintenance patients. Up to now, official diagnoses to describe them were painfully missing.”



Virginie Monnet Corti

**Kristin Kolltveit (Norway)** also praises the new classification's definition of periodontal health and its acknowledgement that “periodontal health can exist in a reduced periodontium with probing depths up to 4mm (the closed pocket),” while **Virginie Monnet Corti (France)** says that one of the gains of the new classification is that “we can also consider a healthy reduced periodontium.”

## Staging and grading

One of the key changes in the new classification is the replacement of the distinction between “chronic” and “aggressive” periodontitis by a system of four stages and three grades. While the stages describe the severity of the disease at presentation and the anticipated complexity of disease management, grading provides supplemental information about biological features of the disease and takes account of the rate of disease progression and the presence of risk factors that may influence both this and the patient's response to therapy.

For Kolltveit, this is the most important change because it acknowledges that



Ricardo Faria Almeida

“periodontitis is a single disease with individual variables and clinical outcomes.” On top of that, she says that it is “a simpler classification, so it will be easy to implement in daily practice and communicating with colleagues will be easier when you can refer to stage and grade.”

**Ricardo Faria Almeida (Portugal)** describes this aspect of the new classification as “more clinical-friendly, which could help the other clinicians use it in more situations,” while **Werner Lill (Austria)** welcomes the change because the old distinction between “aggressive” and “chronic” periodontitis “was in many cases impractical and inaccurate.”

**Paula Matesanz (Spain)** makes a similar point, noting that “there were many cases in which I found difficult to define a case as chronic or aggressive.” In her view, the greatest benefit of the new classification is its emphasis on risk factors: “For defining the stage of the disease, the clinician needs to dive deeply into all the factors related to the general health of the patient, his or her social behaviours, and any other aspect that needs to be taken into



Paula Matesanz

consideration so as to predict whether the problem might or might not be controlled."

### Personalised medicine

Clinicians also point out that the new classification is very much consistent with personalised medicine, which is becoming increasingly important within periodontology and dentistry.

"The new classification system is in line with the concept of personalised medicine," says Kolltveit. "The staging and grading enable the clinician to give the patient an individual diagnosis and thus tailor the optimal treatment for that patient. In addition, the multifactorial aetiology of periodontal disease is considered and evaluated in a structured way (grading), which makes it easier to assess the risk for progression."

Lill says that practitioners will need to change their diagnostics and include new facts and points of view in their therapy, which "will mean an immense advantage for the patient and will enable adequate, individually adapted therapy."

For Monnet Corti, "With this new classification we are going to take into consideration the individual factors of the patient more than the former numerical factors such pocket depth (>3mm...) clinical attachment value, cartography of the lesions (vertical number of residual walls and the angulation of the defects, horizontal)."

### Peri-implantitis

Since the 1999 classification was made, implant dentistry has



Hady Haririan

expanded considerably, and with it has come the problem of peri-implant diseases and conditions. The World Workshop defined peri-implant health, peri-implant mucositis, peri-implantitis, and soft- and hard-tissue deficiencies around implants.

"The inclusion of peri-implantitis was a very good idea as periodontists are more and more confronted with inflammatory conditions around implants and definitions were previously based on heterogenous concepts," comments **Hady Haririan (Austria)**. Faria Almeida says that the classification of peri-implant diseases and conditions will "help the clinicians to be clear about the different diseases around implants and how to diagnose them in an easy but clear way."

For Lill, one positive effect of the new definition of peri-implantitis is that "in the future it will lead to an earlier therapeutic intervention, which is especially important in peri-implant treatment methods."

### 'Challenging and complex'

Despite these positive comments and the overall enthusiasm about the new classification, many clinicians have concerns about how easy it will be for periodontists and dentists in private practice to implement.

"The whole topic and the literature are very challenging and complex and would need careful and time-consuming reading – it might finally be easier than it looks, but it is



Dominik Hofer

very complex to get a short overview and get started to understand," says **Dominik Hofer (Switzerland)**. "I am not really sure if this classification will find its way in the private offices until after a year or two. Maybe in a specialist's office, but in a general practitioners office?"

Pointing to the gap between theory and practice, Hofer adds: "We also have to consider that probably too many scientists were involved in this project. What we now need are clinicians from the base to do the fine-tuning. Scientists may have lost the contact with the base: the dentists and the patients."

Similar concerns are voiced by Haririan: "To be realistic, I think that only specialists and colleagues with a focus on perio will really try to include the new system in their everyday practice and communication with colleagues." While there would be an end to "the annoying discussions about whether it is an aggressive or chronic periodontitis case," these could reappear in a different form as "the grading is based on progression, which is also not so easy to assess in patients, and the most challenging elements might be to differentiate between stage I and II and to put 'systemic diseases' in the right category."

**Barbara Tervahartiala (Finland)** says that the new classification was based on the scientific evidence and is "therefore directly applicable to scientific



Barbara Tervahartiala

clinical trials," but worries that general practitioners would need "clarifying guidelines to convert the old classification to the new one, understand the new classification, and help them apply it in their daily routine." Without such support, she warns, "there will be a big gap between what is expected from the clinician and what will be a realistic result."

This point is echoed by Eickholz, whose says that it will be "challenging" to disseminate the classification into general practice and that "the EFP and the national societies will have to put a lot of effort into this project."

### EFP plans for dissemination

This effort, in fact, has already started. The EFP is now putting the finishing touches to a detailed long-term plan to create and provide materials to explain the new classification and to train oral-healthcare teams on how to implement it in daily clinical practice. And the British Society of Periodontology (BSP) has already started a series of four webinars devoted to explaining the new classification.

*The full reports and proceedings of the World Workshop on the Classification of Periodontal and Peri-implant Diseases and Conditions have been published as an open-access supplement of the Journal of Clinical Periodontology (available at: <https://www.onlinelibrary.wiley.com/toc/1600051x/2018/45/S20>).*

# Latest research from the EFP's Journal of Clinical Periodontology

Journal of Clinical  
Periodontology

The *Journal of Clinical Periodontology (JCP)* is the official scientific publication of the European Federation of Periodontology. Edited by Maurizio Tonetti, the *JCP* aims to convey scientific progress in periodontology to those concerned with applying this knowledge for the benefit of the dental health of the community.

The journal is aimed primarily at clinicians, general practitioners, periodontists, as well as teachers and administrators involved in the organisation of prevention and treatment of periodontal disease. The *JCP* is published monthly and has an impact factor of 4.046. The six articles summarised below were published in the *JCP* in July and August 2018.

## PERIODONTAL DISEASES

### Association between periodontal disease and gestational diabetes mellitus – A prospective cohort study

This study aimed to determine the association between periodontal disease and gestational diabetes mellitus (GDM) and the effect of this association on pregnancy outcomes in a population in North India.

A total of 584 primigravidae were recruited at between 12 and 14 weeks of gestation. Periodontal examination was carried out along with a 75g oral glucose-load test at the time of recruitment. GDM

was diagnosed as per the DIPSI (the Diabetes in Pregnancy Study Group India) guidelines ( $\geq 140$ mg/dl). All patients were followed up for pregnancy outcomes.

While 184 of the pregnant women (31.5%) had gingivitis, 148 (25.3%) had periodontitis. Overall, 332 (56.8%) had periodontal disease, which was associated with GDM with an adjusted hazard ratio (aHR) of 2.85 (95% CI = 1.47–5.53).

The occurrence of pre-eclampsia was associated with periodontal disease, while in cases with both periodontal disease and GDM, the risk of pre-eclampsia showed an increased aHR of 18.79 (95% CI = 7.45–47.40). The study showed a significant association of periodontal disease with GDM and an increased risk of developing pre-eclampsia because of this association.

**Authors:** : Ashok Kumar, Deepika S. Sharma, Mahesh Verma, Arundeeep Kaur Lamba, Madhavi M. Gupta, Shashi Sharma, Vanamail Perumal

Published in *Journal of Clinical Periodontology* Volume 45, Number 8 (August 2018).

**Full article:**  
<https://www.onlinelibrary.wiley.com/doi/10.1111/jcpe.12902>

## PERIODONTAL DISEASES

### Periodontitis and quality of life: What is the role of socioeconomic status, sense of coherence, dental-service use and oral-health practices? An exploratory theory-guided analysis on a Norwegian population

This study used Andersen's behavioural model for the use of health services as the theoretical framework to examine direct and indirect relationships between population characteristics, oral-health behaviours, periodontitis, and oral-health impacts.

The model was tested in a general adult population ( $n = 1,886$ ) in Norway, using structural equation modelling. Socioeconomic status,

sense of coherence (SOC), dental anxiety, perceived treatment need, oral-health behaviours, and oral-health impact profile (OHIP-14) were collected through a questionnaire, while periodontal examinations consisted of full-mouth recordings.

Andersen's model explained a large part of the variance in the use of dental services (58%), oral-health-related impacts (55%), and – to a

lesser extent – periodontitis (19%). A stronger SOC was associated with fewer oral impacts, while there was no association between the use of dental services and oral-health impacts. The research showed complex relationships between population characteristics, oral-health-related behaviours, and oral-health outcomes. While socioeconomic factors and smoking were the main predictors of

periodontitis, regular dental visits did not reduce the likelihood of periodontitis.

**Authors:** : Gro Eirin Holde, Sarah R. Baker, Birgitta Jönsson  
Published in *Journal of Clinical Periodontology* Volume 45, Number 7 (July 2018).

**Full article:**  
<https://www.onlinelibrary.wiley.com/doi/10.1111/jcpe.12906>

## PERIODONTAL DISEASES

### Chronic periodontitis is associated with erectile dysfunction. A case-control study in a European population

This study sought to determine the association between chronic periodontitis and erectile dysfunction, adjusting for biochemical markers and other comorbidities. A case-control study was conducted on 158 male patients: 80 cases with erectile dysfunction (according to the International Index of Erectile Function) and 78 controls. Sociodemographic data were

gathered, and periodontal examinations were performed. Testosterone, lipid profile, C-reactive protein, and glycaemic parameters were assessed. All variables were compared between groups, and multivariate logistic regression analyses were performed.

A total of 74% of the cases were diagnosed with chronic periodontitis. The number of sites

with pocket probing depth 4–6mm ( $p = 0.05$ ) and the number of sites with clinical attachment loss  $> 3$ mm ( $p < 0.01$ ) were higher in these cases. Triglycerides ( $p < 0.01$ ), C-reactive protein ( $p = 0.02$ ) and glycosylated haemoglobin ( $p = 0.04$ ) were also higher. Logistic regression showed that patients with chronic periodontitis were more likely to have erectile dysfunction (OR = 2.17; 95% CI (1.06–4.43);  $p$

= 0.03) independently of other confounders.

**Authors:** Amada Martín, Manuel Bravo, Miguel Arrabal, Antonio Magán-Fernández, Francisco Mesa  
Published in *Journal of Clinical Periodontology* Volume 45, Number 7 (July 2018).

**Full article:**  
<https://www.onlinelibrary.wiley.com/doi/10.1111/jcpe.12909>

# Latest research

## Journal of Clinical Periodontology

### PERIODONTAL THERAPY

## Human intrabony defect regeneration with micrografts containing dental pulp stem cells: A randomised controlled clinical trial

This study's aim was to evaluate if dental pulp stem cells (DPSCs) delivered into intrabony defects in a collagen scaffold would enhance the clinical and radiographic parameters of periodontal regeneration.

In this randomised controlled trial, 29 chronic-periodontitis patients each presenting one deep intrabony defect and requiring extraction of one vital tooth were consecutively enrolled. Defects were randomly assigned to test or control treatments, both of which involved minimally invasive surgery. The dental pulp of the extracted tooth was mechanically dissociated to obtain micrografts rich in autologous DPSCs. Test sites (n = 15) were filled with micrografts seeded onto collagen sponge, whereas control sites (n = 14) were filled with collagen sponge alone.

The trial showed that test sites exhibited significantly greater probing depth (PD) reduction, clinical attachment level (CAL) gain, and bone-defect fill than control sites. Residual PD < 5mm and CAL gain  $\geq$ 4mm were significantly more frequent in the test group. Researchers concluded that the application of DPSCs significantly improved clinical parameters of periodontal regeneration one year after treatment.

**Authors:** *Francesco Ferrarotti, Federica Romano, Mara Noemi Gamba, Andrea Quirico, Marta Giraudi, Martina Audagna, Mario Aimetti*

Published in *Journal of Clinical Periodontology* Volume 45, Number 7 (July 2018).

**Full article:** <https://www.onlinelibrary.wiley.com/doi/10.1111/jcpe.12931>

### PERIODONTAL THERAPY

## Treatment of class III multiple gingival recessions: Prognostic factors for achieving a complete root coverage

This report presented a supplemental analysis of data from a previous report (Aroca et al., 2010) to investigate factors associated with a complete root coverage at one year.

On 138 observations from 20 patients, a regression model highlighted the relationship between the percentages of root coverage (RC) and three covariates: the distance from the tip of the papilla and the contact point (DCP) at baseline, group membership (control versus test), and tooth position in the mouth (maxillary versus mandibular).

Researchers concluded that the probability of obtaining a complete root coverage decreases when the DCP at baseline increases and that maxillary teeth are more likely to give better RC than mandibular teeth. However, both in this analysis and the previous one there was no group effect.

**Authors:** *Sofia Aroca, Antoine Barbieri, Marco Clementini, Franck Renouard, Massimo de Sanctis*

Published in *Journal of Clinical Periodontology* Volume 45, Number 7 (July 2018).

**Full article:** <https://www.onlinelibrary.wiley.com/doi/10.1111/jcpe.12923>

### IMPLANT THERAPY

## Efficacy of autogenous tooth roots for lateral alveolar ridge augmentation and staged implant placement: A prospective controlled clinical study

This study sought to assess and compare the efficacy and safety of autogenous tooth roots and autogenous bone blocks for lateral alveolar-ridge augmentation and two-stage implant placement.

A total of 30 patients in need of implant therapy and lateral ridge augmentation were allocated to parallel groups receiving either (a) healthy autogenous tooth roots (e.g. retained wisdom or impacted teeth) (n = 15) or (b) cortical autogenous bone blocks harvested from the retromolar area. After 26 weeks of submerged healing, the primary endpoint was defined as the crestal ridge width's being sufficient to place an adequately dimensioned titanium implant at the respective sites.

Crestal ridge width at 26 weeks allowed successful implant placement in all 30 patients in both groups, and the difference between the groups did not reach statistical significance (p = 0.241).

The study concluded that autogenous tooth roots may serve as an alternative graft to support lateral alveolar-ridge augmentation and two-stage implant placement.

**Authors:** *Frank Schwarz, Didem Hazar, Kathrin Becker, Robert Sader, Jürgen Becker*

Published in *Journal of Clinical Periodontology* Volume 45, Number 8 (August 2018).

**Full article:** <https://www.onlinelibrary.wiley.com/doi/10.1111/jcpe.12977>

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