Topic: alcohol intake and periodontitis
Authors: Gay IC, Tran DT, Paquette DW.
Title: Alcohol intake and periodontitis in adults aged ≥30 years: NHANES 2009-2012.
Source: J Periodontol. 2018 Jun;89(6):625-634
DOI: 10.1002/JPER.17-0276.
Type: NHANES study
Reviewer: Afarin Arghami
Rating: good
Keywords: alcohol drinking; cross-sectional studies; dental health surveys; epidemiology; periodontitis

Purpose: to assess the association between alcohol consumption and periodontitis.

Methods: NHANES study. 7062 adults 30+ yrs old, participated in 2009-2010 and 2011-2012 cycles of the national survey. self-reported average number of alcoholic drinks per week over the previous 12 months and was categorized into four groups (0, < 1, 1- < 8, and ≥8 drinks per week). Only dentate individuals with two or more teeth and with complete periodontal examinations were included. Dentate participants were categorized according to the CDC-AAP periodontitis case definitions. Accordingly,

- Mild periodontitis was defined as ≥ 2 interproximal sites with CAL ≥3 mm, ≥2 interproximal sites with PD ≥4 mm (on different teeth), or 1 site with PD ≥5 mm.
- Moderate periodontitis was defined as ≥2 interproximal sites with CAL ≥4 mm (on different teeth), or ≥2 interproximal sites with PD ≥5 mm (on different teeth).
- Severe periodontitis was defined as ≥2 interproximal sites with CAL ≥6 mm (on different teeth) and ≥1 interproximal site with PD ≥5mm (on the same site with CAL ≥6 mm or on different sites).

The association between alcohol consumption and chronic periodontitis was evaluated by multivariable regression analyses adjusting for age, gender, race/ethnicity, education level, income-to-poverty ratio, smoking, self-rated overall oral health, and HbA1c.

Results: Odds Ratio of having severe periodontitis was 1.9 (1.2-3) among participants who reported alcohol consumption of ≥8 drinks compared to participants consuming some alcohol but < 1 drink per week on average. Participants who consumed 1 to < 8, and ≥8 drinks per week, on average, also had higher mean PD, percentage of sites with PD ≥4 mm, mean CAL, and percentage of sites with CAL ≥3 mm compared to participants reporting consumption of < 1 drink per week. Meanwhile, the odds of having periodontitis, mean PD, extent PD ≥4 mm, mean CAL, and extent CAL ≥3 mm were not significantly different for nondrinkers than for participants who consumed some alcohol but < 1 drink per week on average.

Conclusion: Alcohol consumption was associated with an increase in the likelihood of having periodontitis, particularly severe periodontitis. Consumption of some alcohol, < 1 drink per week on average, was associated with similar odds of having periodontitis compared to consumption of no alcohol.

Topic: periosteal release
Authors: Inoko M, Rubin S, Ono Y, Saito A.
Title: Releasing Incisions Using Upward-Motion Scissors Technique for Flap Mobilization for Guided Bone Regeneration or Periodontal Surgery
DOI: 10.11607/prd.3205.
**Type:** Technical Introduction and a Case Report  
**Reviewer:** Afarin Arghami  
**Rating:** good  
**Keywords:** periosteal release, bone augmentation, UMST

**Background:** Blood supply for the gingiva and periosteum comes from supraperiosteal vessels, which run roughly parallel to the long axis of teeth, branch and subdivide in the lamina propria of the gingiva and form the vascular network on the periosteum. Releasing incisions that extend deep into the underlying tissue, should be avoided to minimize damage to the microvasculature and nerves.

**Purpose:** to introduce a releasing incision method for effective flap advancement to obtain tension-free primary closure.

**Methods:** The 'upward-motion scissors technique' (UMST) involves the use of surgical scissors handled with an upward motion to create multiple shallow incisions. The use of UMST is demonstrated in an anatomically challenging case requiring bone augmentation.

**Technique:** Following the crestal and vertical releasing incision, full thickness flap is reflected. The incision is started by holding the flap straight up with a hemostat. A pair of scissors (preferably Goldman Fox #1, Hartzel) is then inserted between the periosteum and the underlying soft tissue. The periosteum is incised by upward motion using scissors, lifting the layer of periosteum to avoid damage to the vessels and nerves. It is necessary to go back to the incision line with the blunt side of the scissors to make sure the thin periosteal fibers are not left behind. The subsequent incision starts 1 mm apical from the first one.

**Conclusion:** This technique provides a novel approach for flap advancement and may reduce potential complications involved in releasing incisions. The true benefit of UMST needs to be evaluated in future studies.

---

**Topic:** Soft tissue  
**Author:** Carnio P, Camargo P, Klokkevold P, Pirih F  
**Title:** The Modified Apically Repositioned Flap Technique: A Long-Term (4 to 16 years) Retrospective Study  
**Source:** Int J Periodontics Restorative Dent. 2018 July/August;38(4):519–524  
**DOI:** 10.11607/prd.3028  
**Type:** Retrospective study  
**Reviewer:** Phillip Crum  
**Rating:** Good
Keywords: Modified apically repositioned flap technique; retrospective

Purpose: The objective of this study was to report long-term results of the modified apically repositioned flap (MARF) procedure, including an assessment of its effectiveness in increasing the dimensions of keratinized tissue, attached gingiva, and periodontal stability.

Methods:
- 25 systemically healthy patients (21 women and 4 men; mean age of 40.58 years) were included in this retrospective study with a follow-up period ranging from 4 to 16 years.
- A total of 28 surgical sites including 75 teeth were treated with the MARF technique.
- Primary clinical outcomes evaluated in this study were the apicocoronal dimension of the keratinized tissue and the apicocoronal dimensions of the attached gingiva.

MARF Surgical Technique
- Horizontal incision made parallel to the MGJ so that approximately 0.5mm of gingiva remained along the coronal portion of the flap. (Extended at least 1 tooth on each side of site)
- Split-thickness flap was elevated, and the dissection was extended approximately 4mm in the apical direction
- Flap is secured to the periosteum with simple interrupted resorbable sutures
- Non-Eugenol periodontal dressing was applied over the surgical site.

Results:
- The long-term results of the MARF procedures demonstrated a SS increase in the apicocoronal dimension of the KG (mean gain of 2.06mm) and attached gingiva (mean gain of 2.15mm)
- Broke up into 2 groups:
  - Follow-up ≥10: (n=34)
  - Follow-up <10: (n=41)
- The gain in KG and AG in both groups was SS compared to baseline, and NSSD were observed between the 2 groups.

Discussion: Though FGG has been shown to be effective and stable over time, the procedure is associated with increased morbidity due to the additional donor site. Recently MARF technique was compared with the FGG over a period of 1 year. Both surgical procedures resulted in SS gains in KG and AG. MARF procedure required less morbidity, time and had better esthetic results when compared to the FGG procedure. MARF procedure should not be used in cases where bone dehiscence is present because there is an increased risk of gingival recession.

Bottom Line: The MARF technique is a predictable and reliable procedure to increase the zone of keratinized tissue and attached gingiva, without attachment loss or gingival recession over long periods. It is a viable treatment alternative to the FGG because it involves a simpler and faster surgical procedure resulting in less postoperative morbidity.

Topic: Regeneration
Author: Trombelli L, Farina R, Minenna L, Toselli L, Simonelli A
Title: Regenerative Periodontal Treatment with the Single Flap Approach in Smokers and Nonsmokers
DOI: 10.11607/prd.3615
Type: Retrospective study
Background: The Single flap approach (SFA) involves the elevation of a limited mucoperiosteal flap to allow access to the defect from the buccal or oral aspect only, depending on the main buccal/oral extension of the lesion. SFA was shown to be at least as effective as traditional papilla preservation techniques.

Purpose: To evaluate the 6-month clinical outcomes of regenerative periodontal surgery with enamel matrix derivative (EMD) and deproteinized bovine bone mineral (DBBM) at intraosseous periodontal defects accessed with SFA in smoking and non-smoking patients.

Methods:
- For each nonsmoking patient, a smoking patient was selected by matching the severity (depth of infrabony component) and configuration (bony walls) of the intraosseous defect.
- Smokers were categorized according to daily cigarette exposure (1 to 10 cigarettes per day and 11 to 20 cigarettes per day).
- All patients underwent phase I therapy and surgical phase was delayed until a minimal residual inflammation (BOP <20%) were obtained.
- PD and interdental recession measured both clinically and off photographs were evaluated at baseline and 6 months after surgery.

Surgical Procedure
- Bone sounding performed to evaluate defect morphology and extension.
- Elevation of buccal mucoperiosteal flap.
- Sulcular incision was made following the gingival margin of the teeth included in the surgical area.
- An oblique or horizontal butt-joint incision made at the level of the interdental papilla overlaying the intraosseous defect.
- The greater the distance from the tip of the papilla to the underlying bone crest, the more apical the buccal incision in the interdental area.
- Once debrided, root surface treated with 24% EDTA gel for 2 minutes.
- First application of EMD, placement of DBBM mixed with DEM, and second application of the graft.
- Buccal flap repositioned and sutured with horizontal mattress.

Results:
- 22 patients (11 smokers, 11 non-smokers), each contributing one periodontal intraosseous defect were included for the analysis.
- Number of sites showing optimal wound healing was 45.5% in non-smokers and 0% for smokers.
- The procedure resulted in SS changes in CAL from 10.0 ± 1.9mm to 5.5 in smokers and from 10.1 ± 2.5mm to 6.5 ± 2.0mm in nonsmokers.
- The 6 months CAL gain was NSSD between the groups.
- PD was SS reduced from 8.4 ± 1.6mm to 3.1 ± 0.5mm in smokers and from 7.7 ± 1.2mm to 3.6 ± 0.9mm in non-smokers.
- At 6 months, PD was similar in smokers and non-smokers.
- In both groups interdental recession did not show significant variations at 6 months compared to before surgery.
- A trend toward lower 6-month CAL gain and PD reduction was observed in patients smoking 11 to 20 cigarettes per day compared to those smoking 1 to 10 cigarettes per day.

**Discussion:** Unlike previous studies, this study did not find that smoking had a detrimental effect on periodontal regenerations. One explanation for this was the inclusion criteria for what constituted a smoker. The inclusion of light smokers may have mitigated, at least in part, the negative effect of smoking on the clinical outcomes. On average, gingival recession on the buccal or interdental aspect was limited and not significantly different between smokers and non-smokers.

**Bottom Line:** The treatment of intraosseous defects with buccal SFA in association with EMD and DBBM may lead to substantial CAL gain and limited residual PD over the short term (6 months) in smokers and nonsmokers.

---

**Topic:** Dentin hypersensitivity  
**Author:** Schlee M, Rathe F, Bommer C, Bröseler F, Kind L.  
**Title:** Self-assembling peptide matrix for treatment of dentin hypersensitivity: A randomized controlled clinical trial  
**Source:** J Periodontol. 2018 Jun;89(6):653-660  
**DOI:** 10.1002/JPER.17-0429  
**Type:** Randomized controlled clinical trial  
**Reviewer:** Jenny Herman  
**Rating:** Good  
**Keywords:** dentistry, gingival recession, quality of life, scanning electron microscopy, self-assembling peptides, tooth wear

**Purpose:** To test a novel 7-day treatment regimen of a novel desensitizing self-assembling peptide matrix (SAPM) agent against an established therapy of daily 8% arginine and calcium carbonate (ACC) product in combination with a low-abrasion toothpaste for 90 days.

**Methods:** Patients were recruited from a private practice in Germany. 23 patients were in the control group and received a sensitivity toothpaste containing ACC for the duration on the 90-day study. They were instructed to apply to root surfaces 1-2 times daily. The test group (22) applied the SAPM compound 1-2 times daily and used a standard fluoride toothpaste. Sensitivity assessment was done on days 3, 7, 30, and 90. Assessment was carried out with visual analog scale (VAS), visual response scale (VRS), and questionnaires. SEM assessment was carried out on bovine teeth to determine and compare morphological changes on the dentin surface and within the dentin tubules.

**Results:** Both groups showed improvements at all time points, with greater relief being reported in the test group, which was not statistically significant according to the VAS/VRS results. Questionnaires regarding treatment success showed a similar trend favoring the test group. Both the SAPM gel and the ACC toothpaste showed occlusion of the dentinal tubules, though partial occlusion was seen in the control group versus full occlusion in the test group.

**Discussion:** Both the SAPM gel and the ACC toothpaste were successful in providing relief from hypersensitivity and demonstrated similar success in VAS and VRS scores throughout the study. According to the questionnaires, the SAPM gel resulted in greater patient
satisfaction within the first week and more patients identifying as pain free. Additional studies should be performed.

**Topic:** Piezosurgery  
**Author:** Lajolo C, Valente NA, Romandini WG, Petruzzi M, Verdugo F, D'Addona A  
**Title:** Bone heat generated using conventional implant drills versus piezosurgery unit during apical cortical plate perforation  
**Source:** J Periodontol. 2018 Jun;89(6):661-668  
**DOI:** 10.1002/JPER.17-0502  
**Type:** Ex vivo study  
**Reviewer:** Jenny Herman  
**Rating:** Good  
**Keywords:** bone, dental implants, heat-stress reaction, piezosurgery

**Purpose:** To evaluate the temperature increase during implant osteotomies at the apical portion of the cortical plate, using two different surgical protocols, conventional drills versus a piezosurgery device, with two different pressure loads.

**Methods:** 24 implant sites were prepared using a conventional drill system and a piezoelectric device on fresh porcine ribs. An infrared thermometer was used to measure temperature readings through a hole in the apical portion of the osteotomy. Both methods were used with 1000g of pressure and 1500g of pressure. A rubber dam was used to prevent the irrigation fluid from getting to the apical site and preventing an accurate infrared measurement. Statistical analysis was performed.

**Results:** The average temperature increase was 0.07°C for group 1 (Drill 1000g); 0.22°C for group 2 (Drill 1500g); 9.18°C for group 3 (Piezo 1000g); and 8.17°C for group 4 (Piezo 1500g). The difference between the average increase between the drill and the piezo unit was statistically significant. Increase in pressure load did not lead to significant temperature differences.

**Discussion:** Bone overheating using a piezosurgery unit is a potential risk during implant site preparation. The piezosurgery unit was two times more likely to increase the osteotomy temperature by 10°C and was often higher than the critical 10°C threshold. The perforation of the apical cortical plate during implant preparation may lead to harmful temperature increases with the piezo unit if the area is not under direct irrigation. Traditional drilling did not result in an increase of temperature above the critical threshold, thus suggesting a safer clinical approach.

---

**Topic:** periosteal pedicle graft  
**Author:** Mahajan A, Asi KS  
**Title:** Comparison of effectiveness of the novel periosteal pedicle graft technique with coronally advanced flap for the treatment of long-span unesthetic multiple gingival recession defects  
**Source:** Clin Adv Periodontol 2018; 8(2):77-83  
**DOI:** 10.1002/cap.10015  
**Type:** clinical study  
**Reviewer:** Mary Elizabeth Bush  
**Rating:** Good  
**Keywords:** multiple gingival recession, periosteal pedicle graft, coronally advanced flap
**Purpose:** To evaluate the periosteal pedicle graft (PPG) and coronally advanced flaps (CAF) for the treatment of multiple gingival recession defects (MGRD) in maxillary teeth.

**Methods:** 38 patients (20M:18F, 25-40yo) with MGRD on the buccal of maxillary teeth were randomly assigned to either CAF (control) or CAF + PPG (test) groups. Subjects had to have Miller Class 1 or 2 defects greater than 2mm in depth with an identifiable CEJ. Evaluation was based on patient satisfaction, recession depth, probing depth, width of keratinized tissue, width of attached tissue and gingival thickness.

- **Case Management:**
  - Phase 1 included SRP and OHI (modified Stillman brushing technique)
  - Surgery performed 4wks after phase 1
- **CAF + PPG**
  - Technique described by Mahajan
    - Intrasulcular incision
    - Vertical releasing incisions
    - Split thickness flap to expose periosteum
    - Separate apical periosteum from bone leaving the coronal aspect attached
    - Invert the periosteum over the exposed roots and suture
    - Coronally advance flap and suture
- **CAF only**
- **Post-op management**
  - Periodontal dressing
  - NSAIDS 5 days
  - No brushing the surgical area for 2 weeks
  - CHX 2x/day for 2 weeks
  - Sutures and dressing removed at 1 wk

**Results:** After 1 year, 50 teeth in the test group and 48 teeth in the control group were treated. PPG + CAF mean defect coverage was 91.3% while CAF treated sites had mean defect coverage of 76.3%.

PPG group had statistically significant better root coverage and increased width of keratinized and attached gingiva. PPG + CAF resulted in complete root coverage (CRC) 64.7% of the time while with CAF alone CRC was just 27.77%.

**Discussion:** This is the only study comparing PPG + CAF to CAF alone so cannot be directly compared with other results. Other studies have found that perioosteal cells release vascular endothelial growth factor (VEGF) which helps with healing and angiogenesis. PPG can also be left exposed and survive and the cells have the potential for regenerating periodontal attachment. PPG + CAF may be a potential predictable technique for treating MGRD without requiring membranes, allografts or a second surgical site.

**Topic:** oral path

**Author:** Marlow AK, Ramos ED, Blanchard SB
Title: Verruciform xanthoma of the buccal gingiva: two cases with different clinical presentations
Source: Clin Adv Periodontol 2018; 8(2):88-91
DOI: 10.1002/cap.10017
Type: case report
Reviewer: Mary Elizabeth Bush
Rating: Good
Keywords: histology, oral pathology, periodontal medicine, diagnosis

Purpose: This report describes two occurrences of oral verruciform xanthoma (VX) with differing clinical presentations.

Background: VX of the oral cavity is an uncommon, hyperplastic, benign lesion of unknown etiology. VX typically affects the masticatory mucosa. It may resemble other lesions and is frequently misdiagnosed as an oral papilloma. VX presents as pink/red/yellow colored lesion with rough/pebbly texture and may be pedunculated or sessile. Incidence is reported as 0.025-0.095%.

Cases:
- Patient 1: 21yo male with asymptomatic tissue lesion on buccal of #1
  - Lesion: well-circumscribed 1cm, pedunculated nodule with light pink-yellow coloration and papillary texture
  - TX: Excisional biopsy and histopathology
  - Histo: papillary proliferation of surface epithelium overlying nodules of connective tissue packed with xanthoma cells, crypts of parakeratin with exocytosis of neutrophils
  - Outcome: uneventful healing

- Patient 2: 46yo female with lesion buccal to #19
  - Lesion: well-circumscribed, flat lesion on the buccal gingiva, 2x6mm with a speckled white/yellow appearance
  - TX: Excisional biopsy and histopathology
  - Histo: papillary proliferation of hyperplastic, hyper-parakeratinized epithelium organized into finger-like projections, large macrophages with foamy cytoplasm were noted
  - Outcome: uneventful healing and no recurrence during 2yrs follow up

Discussion: Two cases of a relatively rare benign lesion of masticatory mucosa were both found to be VX. VX can resemble other lesions so histopathology is needed for a definitive diagnosis. The authors recommend complete removal of the lesion to prevent recurrence and continued monitoring.

Topic: Immediate implant and CTG
Author: Noelken R.
Title: Clinical and esthetic outcome with immediate insertion and provisionalization
with or without connective tissue grafting in presence of mucogingival recessions: A retrospective analysis with follow-up between 1 and 8 years

**Source:** Clin Implant Dent Relat Res. 2018;20:285–293.

**DOI:** 10.1111/cid.12595

**Type:** Retrospective

**Reviewer:** Hector Carmona

**Rating:** Good

**Keywords:** Autogenous bone grafting, connective tissue grafting, immediate implant placement, soft tissue esthetics

**Purpose:** To observe soft tissue level changes following immediate implant insertion and provisionalization of implants with or without connective tissue grafts in the anterior maxilla in patients with initial mucogingival recession.

**Methods:**

- 26 patients received 26 Osseospeed implants and were immediately provisionalized in Mainz Germany.
- Inclusion criteria were a hopeless tooth with 1 to 3mm recession and variable defects in the facial bony wall. Implants were placed with a flapless procedure.
- 2 groups Autologous grafting (ABG) (condensing autogenous bone chips to the bottom of the defect for reconstruction of the facial contour in both groups) without CTG and autogenous grafting with CTG via the Pat Allen tunneling technique under a chair side microscope.
- Pre-op CBCT was taken, 27% of sites showed between 0 and 1mm facial bone loss, 50% showed between 1 and 7.5mm of facial bone loss and 23% showed facial bone loss between 7.5 and 13mm.
- The temporary restorations were either manufactured from acrylic denture teeth to be cemented on top of titanium abutments using temporary cement or individual temporary screw-retained restorations were fabricated by a laboratory technician using temporary abutments. All temporary restorations were inserted at the day of implant placement, adjusted to clear all contacts and splinted to neighboring teeth or to each other using a glass fiber ribbon for eight weeks.
- Mean follow up of 45 months was observed

**Results:**

- The CTG with ABG showed lower Mean mid facial soft tissue recession at all time points.
  - 0.4mm vs 1.0mm at the three-year mark
- Width of keratinized mucosa was also higher for the CTG group at the 5-year mark 5.0mm vs 4.0mm.
- CTG group also showed a higher Pink esthetic score at the 5-year mark- 13.0 vs 12.0.
Conclusion: This retrospective observational study provides evidence that immediate implant placement might improve the facial soft tissue level and soft tissue esthetics in sites with initial recessions between 1 and 3 mm. This was more evident in cases with a greater recession and an additional treatment with a connective tissue graft, which improved significantly the width of the keratinized mucosa and protected the marginal bone level against initial resorption.

**Table 1:** Mean changes of midfacial soft tissue level, the width of keratinized mucosa, the alveolar process contour and the PES sum from preoperatively to three-year follow-up examination

<table>
<thead>
<tr>
<th></th>
<th>Pre-op</th>
<th>Delivery</th>
<th>One-year</th>
<th>Two-year</th>
<th>Three-year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midfacial soft tissue recession</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABG group</td>
<td>1.8 ± 0.6 mm</td>
<td>0.9 ± 0.6 mm</td>
<td>0.8 ± 0.7 mm</td>
<td>0.9 ± 0.8 mm</td>
<td>1.0 ± 0.7 mm</td>
</tr>
<tr>
<td>n = 13</td>
<td>n = 13</td>
<td>n = 12</td>
<td>n = 10</td>
<td>n = 10</td>
<td></td>
</tr>
<tr>
<td>ABG + CTG group</td>
<td>2.3 ± 0.7 mm</td>
<td>0.4 ± 0.6 mm</td>
<td>0.3 ± 0.4 mm</td>
<td>0.4 ± 0.7 mm</td>
<td>0.4 ± 0.7 mm</td>
</tr>
<tr>
<td>n = 13</td>
<td>n = 13</td>
<td>n = 9</td>
<td>n = 8</td>
<td>n = 5</td>
<td></td>
</tr>
<tr>
<td>Width of keratinized mucosa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABG group</td>
<td>4.1 ± 1.0 mm</td>
<td>4.7 ± 0.7 mm</td>
<td>4.4 ± 1.1 mm</td>
<td>4.2 ± 0.8 mm</td>
<td>4.5 ± 1.1 mm</td>
</tr>
<tr>
<td>n = 13</td>
<td>n = 13</td>
<td>n = 12</td>
<td>n = 10</td>
<td>n = 10</td>
<td></td>
</tr>
<tr>
<td>ABG + CTG group</td>
<td>3.3 ± 1.1 mm</td>
<td>3.9 ± 1.0 mm</td>
<td>3.9 ± 0.9 mm</td>
<td>4.1 ± 1.4 mm</td>
<td>5.0 ± 0.6 mm</td>
</tr>
<tr>
<td>n = 13</td>
<td>n = 13</td>
<td>n = 9</td>
<td>n = 9</td>
<td>n = 5</td>
<td></td>
</tr>
<tr>
<td>PES: Alveolar process contour</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABG group</td>
<td>1.9 ± 0.3 mm</td>
<td>1.5 ± 0.5 mm</td>
<td>1.4 ± 0.5 mm</td>
<td>1.4 ± 0.5 mm</td>
<td>1.3 ± 0.5 mm</td>
</tr>
<tr>
<td>n = 13</td>
<td>n = 13</td>
<td>n = 13</td>
<td>n = 13</td>
<td>n = 13</td>
<td></td>
</tr>
<tr>
<td>ABG + CTG group</td>
<td>1.8 ± 0.4 mm</td>
<td>1.9 ± 0.3 mm</td>
<td>1.9 ± 0.3 mm</td>
<td>1.9 ± 0.3 mm</td>
<td>2.0 ± 0.0 mm</td>
</tr>
<tr>
<td>n = 13</td>
<td>n = 13</td>
<td>n = 13</td>
<td>n = 13</td>
<td>n = 13</td>
<td></td>
</tr>
<tr>
<td>PES sum</td>
<td>10.3 ± 1.5 mm</td>
<td>12.0 ± 1.1 mm</td>
<td>12.4 ± 1.2 mm</td>
<td>12.2 ± 0.9 mm</td>
<td>12.2 ± 0.6 mm</td>
</tr>
<tr>
<td>ABG group</td>
<td>8.7 ± 2.6 mm</td>
<td>11.2 ± 1.2 mm</td>
<td>12.0 ± 0.9 mm</td>
<td>12.2 ± 1.2 mm</td>
<td>13.0 ± 1.2 mm</td>
</tr>
<tr>
<td>n = 13</td>
<td>n = 13</td>
<td>n = 9</td>
<td>n = 9</td>
<td>n = 9</td>
<td></td>
</tr>
</tbody>
</table>

**Table 2:** Mean interproximal marginal bone level changes in relation to the reference level from implant insertion to the three-year follow-up

<table>
<thead>
<tr>
<th></th>
<th>Insertion</th>
<th>Delivery</th>
<th>One-year</th>
<th>Two-year</th>
<th>Three-year</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABG group</td>
<td>0.6 ± 0.8 mm</td>
<td>0.1 ± 0.5 mm</td>
<td>0.2 ± 0.4 mm</td>
<td>0.1 ± 0.7 mm</td>
<td>0.0 ± 0.7 mm</td>
</tr>
<tr>
<td>n = 13</td>
<td>n = 13</td>
<td>n = 11</td>
<td>n = 10</td>
<td>n = 10</td>
<td></td>
</tr>
<tr>
<td>ABG + CTG group</td>
<td>0.9 ± 0.6 mm</td>
<td>0.1 ± 0.2 mm</td>
<td>0.1 ± 0.4 mm</td>
<td>0.1 ± 0.4 mm</td>
<td>0.1 ± 0.3 mm</td>
</tr>
<tr>
<td>n = 13</td>
<td>n = 13</td>
<td>n = 9</td>
<td>n = 7</td>
<td>n = 5</td>
<td></td>
</tr>
</tbody>
</table>

**Topic:** Periodontal Prognosis  
**Author:** Martinez, N.  
**Title:** Clinical and radiographic evaluation of implants placed by means of inferior alveolar nerve lateralization: a 5-year follow-up study  
**Source:** Clin. Oral Impl. Res. 29, 2018, 779–784  
**DOI:** 10.1111/clr.12857  
**Type:** Clinical  
**Reviewer:** Hector Carmona  
**Rating:** Good  
**Keywords:** implantology, inferior alveolar nerve, nerve repositioning

**Purpose:** To evaluate clinical and radiological responses of implants placed in combination with inferior alveolar nerve lateralization, analyzing survival and success rates over 5 years functional loading.

**Methods:**
- 43 patients ASA 1 or 2, Smokers were included provided that they did not smoke more than 10 cigarettes per day.
- A mucoperiosteal flap was raised, and subperiosteal dissection of the mental foramen was carefully performed. To free the inferior alveolar nerve from the supporting bone, circumference osteotomy was performed 3 mm behind the mental foramen, using the piezotome following the line of the nerve canal.
• Phibo TSATM Implants were placed, and Bioss Bovine grafts were placed with Bio-guide membranes over the surgical window defects.
• Follow up was performed at 3,12,24,36,48, and 60 months.

Results:
• Of the 48 lateralizations performed, 6 were bilateral, with 58.33% of the unilateral lateralizations performed on the right side. A total of 129 implants were placed, two of which were lost. The implant failure rate per year was 1.6% in the first year and 0.0 in the remaining four years. The success rate over 5 years was 98.44%.
• Mean probe depth (PD) was 2.66 mm in women and 3.19 mm in men (mean: 2.92 mm) after the first year and 3.41 and 3.70 mm after five years, respectively (mean: 3.53 mm).
• Hypoesthesia was identified during the first postoperative months, which desisted gradually so that no permanent sensory disturbances remained by the twelve-month follow-up

Conclusion: Within the limitations of the present study, the use of Phibo implants combined with lateralization of the inferior alveolar nerve in patients with mandibular atrophy obtained predictable clinical and radiological outcomes.

---

**Topic:** Hand-grip strength and number of teeth relationship  
**Author:** Shin, H.  
**Title:** Handgrip strength and the number of teeth among Korean population  
**Source:** J Periodontol Jul 18  
**DOI:** 10.1002/JPER.18-0242  
**Type:** clinical  
**Reviewer:** Hillary Wright  
**Rating:** fair  
**Keywords:** handgrip strength; tooth loss

**Purpose:** to investigate the association between the number of teeth and handgrip strength and whether the association was independent of sociodemographic factors, oral and general health status and general health behaviors.

**Methods:** Data from the 2014-2015 Korea National Health and Nutrition Examination Survey were used. Participants were randomly selected by geographical area, age, and sex based on 2005 National Census Registry. The final sample included 7,741 adult participants. Assessment of existing permanent teeth excluded missing teeth, impacted or implants and wisdom teeth. Number of teeth were categorized into 3 groups: 0-9, 10-19, and 20-28 teeth. Severe tooth loss is defined as less than 20 teeth. Assessment of hand grip strength was measured by a digital hand dynamometer. Exclusions included: without arms, hands, or thumbs; paralysis of the hand, hand or finger cast; bandage of the entire hand or wrist; surgery of the hands or wrists within the last 3 months; and within the last 1-week hand or wrist pain, tingling, stiffness. Participants were measured 3 times at 60 second intervals on both hands. The maximum handgrip strength of the dominant hand was used. The cut-off value of low muscle handgrip strength is <26kg in males and <18 kg in females.

Education level, smoking, alcohol consumption, obesity, hypertension, and diabetes mellitus were all assessed and categorized. All analyses were performed separately for men and women.
Results: Handgrip strength was the highest in the 30-49-year-old group and tended to decrease with age. Higher education level, smoking and drinking groups had higher average handgrip strengths. Diabetic and hypertensive participants exhibited lower average handgrip strength, but obese group had higher handgrip strength. Also, participants wearing partials or complete dentures had lower handgrip strength. The majority of the distribution of handgrip strength (85.2%) was represented by participants with 20-28 teeth. Both adjusted and unadjusted means for handgrip strength showed a tendency to decrease as the number of teeth decreased.

Discussion: This study found a positive association between the number of teeth and handgrip strength after adjusting for various confounders. The association between 0-9 teeth and reduction of handgrip strength weakened after adjusting for age. Also, the association between number of teeth and the reduction of handgrip strength in females disappeared in the fully adjusted model; however, the association remained in males. Gender differences in the number of teeth and handgrip strength need to be further studied.

Topic: Insulin resistance and periodontal inflammation
Author: Oelisoa M. et al.
Title: Insulin resistance predicts the risk of gingival/periodontal inflammation
DOI: 10.1002/JPER.17-0384
Type: prospective
Reviewer: Hillary Wright
Rating: good
Keywords: periodontal inflammation; insulin resistance; bleeding on probing

Purpose: to show an association between insulin resistance (IR) and gingival and periodontal inflammation by assessing bleeding on probing (BOP) and teeth with pocket depth (PPD) ≥4mm and BOP.

Methods: The San Juan Overweight Adults Longitudinal Study (SOALS) recruited overweight or obese Puerto Rican adults 40-65 years of age free of self-reported or diagnosed diabetes and followed them from baseline to 3 years follow-up. 870 participants underwent glucose testing and periodontal measurements (BOP and PPD) and remained in the study for the duration. A subsample of 597 participants had baseline and follow-up measures of serum Tumor necrosis factor (TNF)-α and adiponectin levels. In addition to blood glucose and periodontal measurements, participants also were interviewed to obtain socio-demographic characteristics, health behaviors, smoking status, alcohol consumption, and physical activity. Medical history was collected, blood pressure measured, waist-circumference (WC) and BMI calculated. Blood samples determined triglycerides and high-density lipoprotein cholesterol and low-density lipoprotein cholesterol were assessed.

Results: Participants in the highest Homeostasis Model Assessment of Insulin Resistance (HOMA-IR) tertile were more likely to be males, more educated, higher BMI or WC, fasting glucose or glycated hemoglobin (HbA1c), triglycerides, TNF-α, and blood pressure, lower HDL-C and adiponectin levels than those in the lower two tertiles. At baseline and follow-up, the highest tertile had a higher number of BOP sites and PPD >4 + BOP sites; however, all number of sites decreased from baseline at follow-up. They grouped 1st and 2nd tertiles together and redefined HOMA-IR as low (1st and 2nd) vs. high (3rd) tertiles. Crude RR for high HOMA-IR and BOP: 1.17; PPD >4 + BOP: 1.21. After adjusting for age, gender, smoking, education level, alcohol consumption, physical activity, WC, mean plaque index,
and baseline number of BOP sites/ PPD>4 +BOP, participants with high HOMA-IR had a significant increased number of sites with BOP (RR: 1.17) and PPD >4 + BOP (RR:1.09)

**Discussion:** The results show that baseline IR is an independent predictor of gingival/periodontal inflammation after three years of follow-up. Overweight/obese individuals in the upper tertile of HOMA-IR had a 19% increase in the number of sites with BOP and a 39% increase in the number of teeth with PPD >4 + BOP. These findings have public health relevance, as prevention of IR through healthy lifestyle may help reduce periodontal inflammation as well as diabetes. The presence of gingival and/or periodontal inflammation may reflect undetected IR.

**Topic:** Chronic Periodontitis  
**Author:** Martín et al.  
**Title:** Chronic periodontitis is associated with erectile dysfunction. A case-control study in European population  
**Source:** J Clin Periodontol. 2018;45:791–798  
**DOI:** 10.1111/jcpe.12909  
**Type:** Case-control Study  
**Reviewer:** Thao Nguyen  
**Rating:** Good  
**Keywords:** cardiovascular diseases, case-control studies, chronic periodontitis, erectile dysfunction, periodontics

**Purpose:** Currently, there is a lack of epidemiological controlled studies of homogenous populations to appropriately evaluate the role of Chronic Periodontitis (CP) as a risk factor for Erectile Dysfunction (ED). Specifically, the available 15 studies addressing this topic have been conducted solely in Asian population. Therefore, this case-controlled study aims to determine the association between CP and ED accounting for biochemical markers and other comorbidities in European population.

**Methods:** Out of a total of 158 subjects, 80 cases were obtained from patients newly diagnosed with ED, according to the International Index of Erectile Function (IIEF) from the Urology Service of the "San Cecilio" University Hospital from January 2015 to June 2017. Control group consisted of 78 patients from the same period of time in the same department that did not have ED diagnosis, and ±3 years of age were matched between control and case groups. Inclusion criteria were: age of 18-70, presence of ≥11 teeth. Exclusion criteria consisted of: previous periodontal treatment, current treatment with atenolol, hydrochlorothiazide or hypertensive without treatment (possible ED as side effect), antibiotics for anti-inflammatory therapy in the previous 2 months, diagnosis of psychiatric disorder, and presence of neoplastic diseases, HIV or other severe systemic infection.

Sociodemographic data was collected from each patient, such as: age, alcohol consumption, tobacco consumption, diabetes and CVD-related pathology. Diagnosis of ED is considered with a score of ≥25 in the IIEF.

Periodontal exams were performed by the same researcher who was blinded as the recruitment was conducted by a different urologist researcher. Number of present teeth was recorded. Pocket probing depth (PPD) was measured in mm in 6 sites per tooth. Recession was measured, and CAL was calculated. BOP was recorded in percentage, and supragingival plaque score also determined. Severity of periodontitis was evaluated based on a modified Periodontal Inflammatory Severity Index (PISIM). Periodontitis was diagnosed when ≥4
teeth showed ≥1 site with BoP, PPD ≥4mm, and CAL ≥3mm based on the index proposed by Lopez et al (2002).

Levels of testosterone, C-reactive protein (CRP), cholesterol, triglycerides, LDL, HDL, glucose, HbA1c were measured from serum obtained from each subject. Sociodemographic, periodontal, urologic and biochemical variables were compared between both groups using a variation of statistical tests. A multivariate logistic regression model was constructed to identify the factors associated with being an ED patient.

**Results:** Among the sociodemographic variables, only the presence of diabetes and CVD were (p = 0.04 for both) higher in the case group. Among the biochemical variables, Triglycerides, CRP, and HbA1c levels were significantly higher in the case group (p < 0.01, p = 0.02, and p = 0.04, respectively). Among the periodontal clinical variables: oral hygiene, BoP and present teeth number were similar in both groups. Case group had a higher number of sites with PPD 4-6mm and a higher number of sites with CAL loss > 3mm (P = 0.05 and p < 0.01, respectively). There was 74% of periodontitis in case group, as opposed to 58% in control group (p = 0.005). The result of the multivariate logistic regression analysis showed that CP is an independent risk factor of ED after adjusting for other risk factors.

**Discussion:** The results of this study showed an association between chronic periodontitis and erectile dysfunction. Chronic periodontitis seems to be a risk factor in the pathogenesis of erectile dysfunction, independently of other morbidities. Urologists should consider periodontitis as an important parameter for erectile dysfunction and that periodontal treatment could play a role in preventing and treating erectile dysfunction.

---

**Topic:** immediate molar implants  
**Author:** Amato F, Polara G  
**Title:** Immediate Implant Placement in Single-Tooth Molar Extraction Sockets: A 1- to 6-Year Retrospective Clinical Study  
**Source:** Int J Perio Rest Dent 2018; 38(4): 495-501  
**DOI:** 10.11607/prd.3179  
**Type:** retrospective clinical study  
**Reviewer:** Maggie Weber  
**Rating:** Good  
**Keywords:** immediate implants, molar teeth, retrospective study, piezoelectric  

**Purpose:** To evaluate the survival rates of immediately placed implants in fresh molar extraction sockets using the combined piezoelectric osteotome/drill sequence.

**Methods:** 102 patients participated in this study with a total of 107 molars. All teeth had to be in good periodontal condition; teeth were excluded for abscesses, fistula, exudate, pathology, or contraindicated systemic conditions. Smoking and periapical lesions were not considered in the exclusions. CBCTs were conducted for the patients. Each tooth was extracted atraumatically, preserving interradicular bone and alveolar walls. The osteotomy preparation was performed using piezosurgical tips up to 3mm in diameter; then the standard drilling sequence followed. Conical drills were used in the mandible and osteotomies were used in the maxilla. Osteotomies were undersized, to achieve high insertion torque (≥50Ncm) and greater primary stability, using a final drill of the same diameter as the implant but one size shorter than the implant length. The tapered implants
(Biomet 3i) were 5mm in diameter and had lengths of 10, 11.5, and 13mm. All the implants were placed using a motor unit and the final seating was torqued. Healing abutments of 4mm platform were placed for all implants and expanded to a 6 or 7.5mm wide body. The healing abutment screw was torqued immediately to 10Ncm. All restorations were screw retained. Patients were followed up every 6 months when PA’s were taken. Implants were well integrated if: no mobility was present and <3mm of bone loss detected. Implants were healthy if: no sign of inflammation. Restorations were successful if: <1mm recession occurred.

**Results:** There was a total of 102 patients with a total of 107 molars. 62 of the patients were smokers. In 99 of the patients, one site required extraction, two patients required two sites to be extracted, and one patient required three sites to be extracted. 53 implants were placed in the maxilla and 54 were placed in the mandible. The mean follow-up time was 3 years: 20 implants with 1 year follow up, 70 implants with 2-5 year follow up, 17 implants with greater than 5 year follow up. 1 implant failed in the mandible 4 weeks after placement. The implant that failed was removed and replace with subsequent osseointegration. There was a cumulative success rate of 99.06%.

**Conclusion:** Achieving primary stability in molar extraction sites is difficult due to the shape of the alveolus and the presence of anatomical structures. The interradicular area is the optimal site for implant position. Immediate implant placement in molar sites may be a good alternative to the conventional protocol.

---

**Topic:** Journal Club

**Author:** Zadeh H, Gulje F, Palmer PJ, Abrahamsson I, Chen S, Mahallati R, Stanford CM

**Title:** Marginal bone level and survival of short and standard-length implants after 3 years: An Open Multi-Center Randomized Controlled Clinical Trial

**Source:** Clin Oral Impl Res. 2018;00:1–13

**DOI:** 10.1111/clr.13341

**Type:** Randomized Controlled Clinical Trial

**Reviewer:** Ronald Young

**Rating:** Good

**Keywords:** dental implants, marginal bone loss, randomized controlled clinical trial, short, survival

**Purpose:** To test the hypothesis that alterations in marginal bone level is equal for patients with 6mm and 11mm implants.

**Methods:** International multicenter clinical trial, sponsored by Dentsply Sirona Implants that took place in the US, Netherlands, London, Sweden, and Australia. Groups were determined by a computer-generated list with half being in the maxilla and half being in the mandible and those two groups were further divided into 6mm and 11mm implant groups. Inclusion criteria were those with edentulous space of 2-3 teeth in posterior region of either maxilla or mandible that were anatomically qualified to receive an 11mm implant. These implants received an implant supported FPD with even contacts. Implant surgery was performed by single surgeon at each center with any dehiscence being grafted using autogenous bone. Antibiotics, drill size, and chlorhexidine were at the discretion of the dentist. Implants were all OsseoSpeed brand and installed using product manual, abutments were torqued at the same forces, and provisional prostheses were delivered 6 weeks after implant placement and definitive prosthesis delivered 6 months after implant placement.
**Results:** 108 implants were allocated to the 6mm group and 98 completed the 3-year follow-up. 101 implants were selected for the 11mm group with 88 remaining in the study through the follow-up. The cumulative survival rate of the implants was 96.2% in the 6mm implants and 99% in 11mm implants by the end of treatment, however this was not statistically significant. Clinical characteristics including: plaque, BOP, and probing depths were not found to have any significant difference between the two groups after the restoration was delivered. Mucositis was found in 1.1% of the test implants and 4.9% of control implants. Mean marginal bone level from placement to 3-year follow-up was below .25mm. No 6mm implants showed a loss of more than 1mm of bone and 10% of 11mm implants lost more than 1mm of marginal bone. Sites showing positive BOP, probing depths of greater than 5mm and bone loss of greater than 2mm post loading were considered to have peri-implantitis. In the 6mm group 0% showed peri-implantitis and 1.2% of control implants showed peri-implantitis. The mean crown heights for the 6 and 11mm implants were 10.67 and 10.19 respectively which gave a ratio of 1.78 for 6mm implants and .93 for 11mm implants. Adverse device complications were noted in four 6mm implants and only one 11mm implant.

**Discussion:** When patients lose vertical dimension in the posterior portion of either the maxilla or mandible then alveolar ridge augmentation, sinus augmentation or short implants are necessary to allow for implant placement. It has been shown that success of vertical augmentation is very limited, sinus augmentation is predictable and successful but has extreme morbidity, which is why shorter implants have been studied to help bypass these limitations. Systematic reviews have shown that short implants have similar survival rates to that of standard length implants, and RCTs have shown comparisons of short implants to sinus and ridge augmentation in terms of survival and marginal bone levels. For short implants there are very few randomized control trials that show data past one year or take into account variables other than survival. The maximum degree of bone loss at 3 years was 1mm for 6mm. 11mm implants showed 1-2mm of loss in 7% and 3 implants showed 2-3mm of bone loss. It is possible that the increased bone loss could be due to increased heat from deeper osteotomies and the more supracrestal position of the implants due to anatomical factors % change in marginal bone is more useful when considering implants of differing lengths. It was also shown in this study that micro threads and platform switching may have helped maintain marginal bone levels, which is consistent with other studies on the topic.

**Conclusion:** There was no difference in survival rates or marginal bone loss in 6 and 11mm implants in patients that had enough room for either size and were restored with a splinted FDP.