Topic: Immediate Implants
Authors: Amato F, Polara G, Spedicato GA.
Title: Tissue Dimensional Changes in Single-Tooth Immediate Extraction Implant Placement in the Esthetic Zone: A Retrospective Clinical Study.
Source: Int J Oral Maxillofac Implants. 2018 Mar/Apr;33(2):439-447 doi: 10.11607/jomi.6146.
Type: Review
Rating: Good
Keywords: flapless, immediate implant placement, single tooth, tissue dimensional changes

Purpose: The aim of this study was to evaluate the buccopalatal volumetric tissue change that occurs following flapless single-tooth immediate extraction placement in the esthetic area and to analyze the role of four different variables.

Material and methods: Patients in need of a single-tooth replacement in the anterior maxillary or mandibular area (premolar to premolar) were recruited for the study. Patients were treated using four different therapeutic modalities: group 1 (healing abutment), group 2 (healing abutment + bone graft), group 3 (provisional restoration), and group 4 (provisional + bone graft). Alginate impressions were taken the day of implant insertion before tooth extraction (T0), at 1 month (T1), at 3 months (T2), and at 6 months (T3). Buccopalatal dimension (BPD) was measured on the study casts at 1, 3, and 5 mm apical to the free gingival margin and compared between T0 and T1 and T2 and T3.

Results: Seventy-seven patients were included in the study, 29 men and 48 women with a mean age of 54 years (range: 24 to 76 years), and 80 implants were inserted. Thirteen implants were inserted in group 1, 13 in group 2, 20 in group 3, and 34 in group 4. The BPD contraction was more evident for group 1, smaller in group 2 and group 3, and minimal in group 4. Repeated measures analysis of variance (ANOVA) and post hoc tests were used. The data analyzed were considered statistically significant with a level of $\alpha = .05$. The interaction effect P value was numerically zero.

Conclusion: The results of this study seem to indicate that volumetric tissue changes after immediate extraction placement in the esthetic area can be minimized if a provisional is immediately connected and a bone graft is inserted simultaneously.

Topic: Implant Surface/ Peri-implantitis
Authors: Grande M, Zuffetti F, Testori T.
Title: Incidence of Peri-implant Diseases on Implants With and Without Laser-Microgrooved Collar: A 5-Year Retrospective Study Carried Out in Private Practice Patients.
Source: Int J Oral Maxillofac Implants. 2018 Mar/Apr; 33(2):457-465
Type: Review
Rating: Good
Keywords: dental implants, laser-microgrooved collar surface, peri-implantitis, peri-implant mucositis, prevalence

Purpose: To retrospectively evaluate the incidence of peri-implant mucositis and peri-implantitis around dental implants with the same body design and surface but different collar surface (laser-microgrooved vs not laser-microgrooved) after 5 years of loading in private practice patients.

Material and methods: The study was carried out on patients at a private dental clinic enrolled in a periodontal maintenance program, who received at least one implant with a

laser-microgrooved collar surface and one implant without a laser-microgrooved collar surface. Clinical variables such as plaque, pocket depth, bleeding on probing, suppuration, and radiographic marginal bone loss at > 5 years around implants were investigated. The correlation between the prevalence of peri-implant mucositis or peri-implantitis and biotype, keratinized tissue width, prosthetic connection type, and prosthetic design type was also analyzed.

Results: A total of 166 implants in 74 patients were investigated. At the end of the 5-year follow-up period, 38 implants presented peri-implant mucositis, accounting for 22.8% of the total, affecting a total of 24 patients (32.4%), while 13 implants (7.8%) in 10 patients (13.5%) were diagnosed with peri-implantitis. Sixteen of 82 laser-microgrooved implants (19.5%) and 24 of 84 implants (28.5%) without a laser-microgrooved collar presented peri-implant mucositis, while 3 of 82 (3.6%) of laser-microgrooved implants and 10 of 84 (11.9%) implants without a laser-microgrooved collar demonstrated peri-implantitis. The difference in implant-based incidence of peri-implant diseases between implants with and without a laser-microgrooved collar were statistically significant ($P < .05$).

Table 2 Descriptive Results Among Different Diseases in Two Groups of Implants at End of Follow-up Period

	Implant-based prevalence (n/%)	Patient-based prevalence (n/%)	Probing depth (mm)	Bone loss/Rate of bone loss (mm)
Implants with laser-microgrooved collar (82)				
Peri-implant mucositis	16/19.5	16/21.6	3.5 ± 1.4	2.6 ± 0.8/0.52 ± 0.3
Peri-implantitis	3/3.6	3/4.0	6.1 ± 1.1	5.2 ± 0.4/1.04 ± 0.2
Implants without laser-microgrooved collar (84)				
Peri-implant mucositis	24/28.5	24/32.4	4.3 ± 0.8	2.9 ± 0.8/0.58 ± 0.4
Peri-implantitis	10/11.9	10/13.5	6.3 ± 1.9	5.5 ± 0.2/1.1 ± 0.8

Table 4 Prevalence of Peri-implant Mucositis and Peri-implantitis According to Implant Group, Fixation, Prosthetic Design, Width of Keratinized Gingiva, and Biotype

	Implants with laser-microgrooved collar		Implants without laser-microgrooved collar		
	Peri-implant mucositis	Peri-implantitis	Peri-implant mucositis	Peri-implantitis	*P* value between groups
Prosthetic fixation					
Cemented	10	3	15	7	> .05
Screwed	6	0	9	3	> .05
P value	< .05	< .05	< .05	< .05	
Prosthetic design					
Unitary	9	1	8	2	> .05
Splinted	7	2	13	8	< .05
P value	> .05	< .05	> .05	< .05	
Width of keratinized gingiva					
< 2 mm	9	2	12	6	> .05
≥ 2 mm	8	1	12	4	> .05
P value	> .05	> .05	> .05	> .05	
Biotype					
Thin	10	1	9	4	> .05
Thick	7	2	15	6	> .05
P value	> .05	> .05	> .05	> .05	

Conclusion: In private practice patients enrolled in a professional, controlled oral hygiene regimen, it was found that implants with a laser-microgrooved collar, compared with implants without a laser-microgrooved collar, presented a statistically significantly lower incidence of peri-implant diseases.

Topic: Soft tissue around implants
Authors: Cho-Ying Lin, Zhaozhao Chen, Whei-Lin Pan, and Hom-Lay Wang
Title: Impact of timing on soft tissue augmentation during implant treatment: A systematic review and meta-analysis
Source: Clin Oral Impl Res. 2018;1–14.
Type: Systematic Review

Rating: Good
Keywords: dental implants, keratinized tissue, mucosal recession, soft tissue augmentation, soft tissue thickness, systematic review and meta-analysis

Purpose: The aim of this systematic review and meta-analysis was to assess the influence timing soft tissue augmentation procedures during implant treatment and evaluate soft tissue stability, thickness and keratinization

Material and methods: Electronic and manual searches for articles were performed by two independent reviewers. Methods of soft tissue grafting included FGG, CTG + CAF, CTG +APF, de-epithelialized CTG harvested from maxillary tuberosity. Human clinical studies with at least 3-month follow-up of autogenous soft tissue graft for augmentation during implant treatment were included. Groups were separated into subjects who received simultaneous grafting at placement or after soft tissue after implant placement (administered within 1.5 – 6 months after implant placement). Soft tissue thickness measurements from individual studies included endodontic file + rubber stoppers, periodontal probe, superimposing of digital models, and one used an ultrasonic device. Mucosal recession measurements were collected by periodontal probes, photographic analysis, and calipers. Measurements of keratinized tissue were done with staining solution or via periodontal probe. Cumulative changes of keratinized tissue width, soft tissue thickness, and mid-buccal mucosal recession data were analyzed with a random-effects model to compare the postoperative outcomes and to avoid potential bias.

Results: Twenty-nine human studies met the inclusion criteria and were included. Among all groups, the recorded mean soft tissue thickness levels after grafting at 1 year after surgery was 1.03 mm. It was seen for the simultaneous implant placement + soft tissue grafting group mean soft tissue thickness was 1.12 mm and staged group had a mean of 0.95 mm. There was no statistically significant difference in keratinized tissue width and buccal mucosal recession.

Conclusions: This review revealed that the stability of soft tissue around dental implants, in terms of keratinized tissue and mucosal recession, can be seen at least 3 months after surgery. There is no difference between simultaneous and staged soft tissue augmentation in phases of treatment, and both procedures show dimensional stability with significant amounts of soft tissue thickness and amount of keratinized tissue.

Topic: Peri-implantitis management

Authors: Berglundh T., Wennström J., and Lindhe J.
Title: Long-term outcome of surgical treatment of peri-implantitis. A 2-11- year retrospective study
Source: Clin Oral Impl Res. 2018;400-410. DOI: 10.1111/clr.13138
Type: Retrospective study
Rating: Good
Keywords: clinical, dental implant, modified implant surface, radiographs

Purpose: To assess long-term clinical and radiological outcomes of surgical treatment of peri-implantitis through a non-regenerative approach.

Material and methods: Data was collected from charts and radiographs of 50 patient who had received surgical treatment for peri-implantitis. The data was analyzed. Data on clinical characteristics prior to surgical therapy and at the latest follow-up visit were obtained. In each radiograph, the marginal bone level was assessed at the mesial and distal aspects of the affected implants. In addition, data on clinical characteristics (BOP, PD, etc.) at baseline, that is, prior to surgical therapy, and at latest follow-up were obtained.

Treatment protocol:
Phase 1: All patients first received oral hygiene instructions, professional supra-gingival debridement and polishing. Systemic antibiotics as an adjunct to surgical therapy were provided to patients exhibiting implant sites with suppuration after non-surgical treatment. Antibiotic regimen consisted of 10 days of amoxicillin 750 mg BID, commencing 3 days prior to surgery.

Surgical protocol: Screw-retained prosthetics were removed. Surgical approach was directed toward elimination of pocket depth. Intra-sulcular incisions were made and full-thickness flaps were elevated around the affected implants. Inflamed, peri-implant tissue was removed. The implants were cleaned using sterile gauze soaked in saline. Calculus if present was removed using titanium-coated curettes. Osseous re-contouring was carried out if applicable to facilitate pocket elimination. Flaps were sutured and compressed to the crestal bone. Screw-retained reconstructions were reconnected to the implants. Patients were placed on CHX rinse for 14 days and oral hygiene instruction was reinforced. Self-performed mechanical infection control procedures were re-introduced. Professional cleanings were performed together with oral hygiene controls with 4-month intervals. Clinical examinations were carried out on an annual basis. Post therapy radiographs were obtained at varying intervals.

Results: The follow-up period after surgical therapy varied between 2 and 10.8 years. Treatment was effective in resolving the inflammatory condition as documented by marked reduction in peri-implant probing depth and bleeding on probing scores together with crestal bone level preservation. The average PD reduction was 2.6 ± 2.2 mm, frequency of BoP was 63.3%, and bone level change at latest follow-up for all patients was found between −0.1 ± 1.6 mm. Treatment outcome was significantly better at implants with non-modified surfaces than at implants with modified surfaces. It was also found that the probability of an implant to exhibit no further bone loss or bone gain after treatment was high if the peri-implant mucosa at the site presented with shallow pockets and the absence of bleeding on probing was noted at follow-up. The probability of no further bone loss was 77% for the absence of BOP and 83% for PD ≤ 5 mm at follow-up. The probability of no further bone loss for the combination of the two clinical categories was 78%.

Conclusions: The results of the study revealed that pocket reduction surgical treatment, without regeneration, for peri-implantitis sites was effective in the long-term. It was seen

that outcome was better at implants with non-modified than with modified surfaces. It was also seen that BOP and deep PDs may be correlated with progressive bone loss following treatment

Topic: Renal disease and periodontal disease
Authors: Samietz et al
Title: Cross-sectional association between oral health and retinal microcirculation
Source: J Clin Periodontol. 2018 Apr;45(4):404-412. DOI: 10.1111/jcpe.12872
Type: Review
Rating: Good
Keywords: renal disease, periodontal disease, men

Purpose: To investigate the relation between oral health status and microcirculation, we analysed the association between periodontitis and number of teeth with retinal vessel diameters in a population-based study.

Methods: We analysed data from the Study of Health in Pomerania-TREND (SHIP-TREND). All subjects (3,183 for number of teeth, 3,013 for mean probing depth and 2,894 for mean attachment level) underwent nonmydriatic funduscopy and dental examination. We measured central retinal arteriolar (CRAE), venular (CRVE) vessel diameters and calculated arterio-venous ratio (AVR) from static vessel analysis (SVA). Periodontal status was assessed using the case definition of the Center for Disease Control and Prevention/American Academy of Periodontology (CDC/AAP). Data were analysed by linear (CRAE, CRVE, AVR) and logistic regression (AVR < 0.8), adjusted for age, sex, smoking status, alcohol consumption, body mass index, systolic blood pressure, hsCRP and type-2-diabetes mellitus.
Results: Only in men, significant associations were found between periodontal and retinal conditions. Severe periodontitis [β = -0.0120 (-0.0218; -0.0007 95%-CI)] and mean probing depth [β = -0.0054 (-0.0105; -0.0002 95%-CI)] were inversely associated with AVR; severe periodontitis [β = 3.80 (0.61; 6.98 95%-CI)], mean probing depth [β = 1.86 (0.23; 3.49 95%-CI)] and mean attachment level [β = 1.31 (0.34; 2.27 95%-CI)] with CRVE and mean attachment level with CRAE [β = 0.91 (0.14; 1.69 95%-CI)].
Results: Our results point towards an association between periodontal conditions and AVR in men. Periodontitis may impact microvascular endothelium function. Improving oral health to reduce periodontitis might lead to reduced risk for other age-related diseases.

Topic: Periodontal microbes and Coronary artery disease
Authors: Pietiäinen M et al.
Title: A. actinomycetemcomitans serotypes associate with periodontal and coronary artery disease status.
Source: J Clin Periodontol. 2018 Apr;45(4):413-421. doi: 10.1111/jcpe.12873
Type: Clinical study
Rating: Good
Keywords: A. actinomycetemcomitans, serotypes, periodontal status, coronary artery disease

Purpose: We investigated the association between the Aggregatibacter actinomycetemcomitans serotypes, periodontal status and coronary artery disease (CAD).

Methods: The study population included 497 patients who underwent coronary angiography, and clinical oral examination. Quantitative polymerase chain reaction assays were designed to identify the serotypes from saliva samples.

Results: Aggregatibacter actinomycetemcomitans serotype frequencies were as follows: serotype "c" 35.7%, "b" 28.6%, "a" 26.2%, "e" 7.1%, "d" 2.4% and "f" 0%. The subjects with a detectable serotype had less teeth and higher bleeding on probing than those with no serotype. Serotypes "b" and "c" associated with periodontal probing depths and periodontal inflammatory burden. The saliva and subgingival bacterium quantities and serum antibody levels against A. actinomycetemcomitans were highest in patients harboring serotype "c." Serotypes "b" and "c" were most frequent (59.3%) in patients with CAD (p = .040), and they associated with the risk of stable CAD with an odds ratio of 2.67 (95% confidence interval 1.06-7.44). Also, the severity of CAD (p = .018) associated with serotypes "b" and "c."

Conclusions: Aggregatibacter actinomycetemcomitans serotypes "b" and "c" associate with both periodontal and CAD status. Detectable serotypes associate with the quantity and the serology of the bacterium emphasizing both local and systemic effect of the A. actinomycetemcomitans serotypes.

Topic: perio and gestational diabetes
Authors: Kumar A, Sharma DS, Verma M, Lamba AK, Gupta MM, Sharma S, Perumal V
Title: Association between periodontal disease and gestational diabetes mellitus (GDM) - a prospective cohort study.
Source: J Clin Periodontol. 2018 Apr 3. DOI: 10.1111/jcpe.12902. [Epub ahead of print]
Type: clinical
Rating: good
Keywords: gingivitis, periodontitis, risk factor(s), diabetes, pregnancy

Background: Gestational diabetes mellitus (GDM) is defined as carbohydrate intolerance with onset or first detection during pregnancy. GDM is associated with significantly increased maternal and fetal morbidity, including macrosomia, shoulder dystocia, birth injury, preeclampsia, preterm birth and need for cesarean section.

Purpose: To determine the association between periodontal disease and gestational diabetes mellitus (GDM) and the effect of this association on pregnancy outcome in North Indian population.

Methods: Prospective cohort study conducted in India. A total of 584 primigravidae aged 20-35 years, were recruited at 12-14 weeks of gestation. Their periodontal examination was done along with 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 (≥140mg/dL). Women with normal plasma glucose values underwent a repeat 75g oral glucose load test at 24-28 weeks of gestation. All patients were followed up for pregnancy outcomes. Periodontitis was defined as the presence of ≥4 teeth having ≥1 sites with PD ≥4 mm and CAL ≥3mm associated with BOP.

Results: Out of 584 primigravida, 184 (31.5%) had gingivitis and 148 (25.3%) had periodontitis. Overall, 332 (56.8%) pregnant women had periodontal disease (periodontitis + gingivitis).
Even though overall GDM incidence was 9.8%, it varied significantly between the three groups with the least GDM incidence (4.4%) in healthy women and the maximum incidence (19.6%) among the women with periodontitis disease. Forty-six (13.8%) of 332 women with periodontal disease had GDM.

The incidence of GDM was found to be significantly higher in women with gingivitis, periodontitis and periodontal disease (in general) as compared to women with healthy gums with an Odds Ratio of 2.23, 5.34 and 3.52, respectively.
Forty (12%) of 332 women with periodontal disease had preeclampsia. The occurrence of preeclampsia was significantly higher in women with periodontitis (20.3%) and periodontal disease (12%) compared to women with healthy gums (3.2%).
Presence of gingivitis alone not found to be significant risk factor for preeclampsia.

Conclusion: The study shows a significant association of periodontal disease with GDM and an increased risk (18-fold) of developing preeclampsia due to this association.

Topic: transcrestal sinus lift
Authors: Rosario Rizzo, Alessandro Quaranta, Massimo De Paoli, Giorgio Rappelli, Matteo Piemontese
Title: Three-Dimensional Bone Augmentation and Immediate Implant Placement via Transcrestal Sinus Lift: 8-Year Clinical Outcomes
Source: Int J Periodontics Restorative Dent. 2018 May/Jun;38(3):423-429. DOI: 10.11607/prd.476.
Type: clinical
Rating: good
Keywords: trans-crestal sinus lift, dental implants, bone augmentation,

Purpose: To illustrate a new reconstructive surgical technique to solve extreme three-dimensional bone atrophy by means of a single augmentative surgical procedure and simultaneous implant placement.

Methods: Study conducted in Italy. During a period of 8 years, 382 graft block augmentative procedures were performed and a total of 1,024 implants were placed. In 95 cases, a bilateral sinus surgery was carried out.

Technique:
Patients with maxillary single or bilateral Cawood and Howell class V to VI* atrophy met the inclusion criteria. All patients underwent same surgical protocol and bone augmentation procedure. Fresh frozen human bone allograft (FHBA) were used to graft the site. After incision and flap reflection, a trap door matching the dimensions of the graft was created on the edentulous alveolar ridge. The bone was completely removed by erosion and intrusion within the sinus, detached from the mem- brane, crushed in a bone mill, and used as additional filler during the regenerative procedure.
Next, the sinus membrane was raised with extreme caution for at least 5 to 6 mm all around the trap door. This allowed proper placement of the graft inside the maxillary sinus without any membrane tear or tension (Fig 1). At this point, the graft was modeled by gradual reduction until exact adaptation to the recipient site was obtained. During this step, great attention was paid to find any anchorage sites in the recipient area that might help secure the graft
In case of a single implant placement, the block was designed to be cylindrical in shape. The block and the recipient site were shaped using special trephine drills of different diameters (Physioplant) so that the resulting block graft was slightly larger in diameter than the recipient site. The implant was first placed in the graft and subsequently the block was secured to the recipient site. A resorbable collagen membrane was then placed to completely cover the graft. Flap closure was obtained with a locking continuous suture.
5-8 months after, implants were uncovered. Final restorations were delivered 3 to 4 months following gradual implant loading.

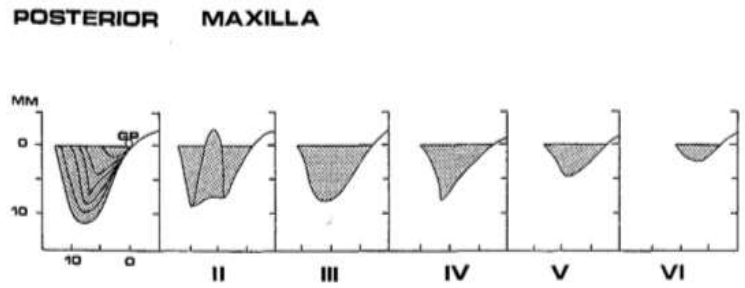
Results: A total of 382 surgical procedures were performed, and 1,024 implants were placed.
At the implant uncovering procedure performed 5 to 8 months following implant placement, 23 implants were not osseointegrated (2.25% failure rate) in 6 cases due to graft failure. Graft failures occurred in 3 out of 382 procedures (0.8% failure rate). Moreover, 6 of the 23 implant failures were due to 3 graft failures caused by infection. All other grafts showed good integration.
At 60 months, success and survival of the implants were assessed:

Table 1 Success and Survival of Implants (n)

	Implant success grade				
Time	I	II	III	IV	Available implants
Baseline	1,005	24	0	19	1,024
12 mo	977	24	0	23	1,024
24 mo	969	24	8	23	1,024
48 mo	969	24	8	23	1,024
60 mo	969	24	8	23	1,024

Conclusion:
Within the limitations of the present 96-month clinical study, it is possible to state that the use of a bone augmentation procedure with immediate implant placement via transcrestal sinus lift is an effective technique in selected cases. FHBA grafts have been shown to be a reliable means to increase bone volume while simultaneously placing dental implants.

*Cawood and Howell classification:



Topic: Regeneration
Author: Johnson TM, Baron D.
Title: Tunnel Access for Guided Bone Regeneration in the Maxillary Anterior
Source: Clinical Advances in Periodontics, Vo1. 8, No. 1, March 2018. 27-32 DOI: 10.1902/cap.2017.170032
Type: Case Report
Rating: Good
Keywords: Allografts; alveolar ridge augmentation; bone regeneration; minimally invasive surgical procedures; orthodontics; polytetrafluoroethylene

Purpose: To introduce a ridge augmentation technique utilizing a remote incision, laparoscopic tunnel access to the deficient ridge, and establishment of a subperiosteal pouch without advancing a traditional flap.

Case Presentation:

- 30 year old with congenitally missing lateral incisors with a diastema present between 8 and 9
- Ortho treatment was used to move tooth #6 into the #7 position, optimally space teeth #8 and #9 for porcelain veneers, and create proper space in the #10 position for implant placement.
- After therapy, CBCT showed adequate bone crestally, but apically the bone was deficient. The patient elected for a GBR procedure.

Technique

- Vertical incisions were placed in the midline labial frenum and between teeth #11 and #12.
- Intrasulcular incisions were made on the facial of teeth #9 and #11 as well as the proximal tooth surfaces adjoining the #10 sites
- A tunneling kit was used to create sub-periosteal tunnel access to the deficient ridge
- A dPTFE membrane was tailored to the surgical site and placed in tunnel access.
- Mid-crestal incision was made to assure proper membrane positioning, and 1cc FDBA was placed using a graft syringe to precisely apply the allograft.
- Incisions were closed with 4-0 PTFE sutures.
- Allowed 7 months of healing before proceeding with DI placement #7.
- Patient experienced minimal post-operative swelling and discomfort

Discussion:

- The rigidity and resilience of the PTFE membrane allows for proper positioning within the tunnel access.
- This technique minimizes the risk of membrane exposure and resorption of the critical line-angle bone.
- Careful reflection with a tunneling kit appears helpful for preserving periosteum integrity and limiting surgical trauma.
- Controlled clinical study is warranted to determine if this technique consistently produces favorable clinical and patient-centered outcomes.

Bottom Line: This technique appears most useful at apically located deficiencies. When significant augmentation is needed at the crest, direct access may be necessary to assure proper membrane position and placement of adequate biomaterial.

Topic: Regeneration
Author: Rodriguez JAM, Caffesse RG.
Title: A New Papilla Preservation Technique for Periodontal Regeneration of Severely Compromised Teeth
Source: Clinical Advances in Periodontics, Vo1. 8, No. 1, March 2018 Pgs. 33-38. DOI: 10.1902/cap.2017.170033
Type: Case report
Rating: Good
Keywords: Periodontitis; reconstructive surgical procedures; regeneration; surgical flaps; surgical procedures.

Purpose: To describe a surgical approach to improve regenerative parameters in hopeless teeth with a deep intrabony defect with non-containing topography affecting its buccal, lingual, mesial and distal aspects.

Case Presentation:

- 40 year-old female former smoker who had underwent surgical treatment and years of maintenance, the patient was stabilized.
- Mandibular right canine showed:
    - CAL of 13mm and PD of 10mm on the buccal, mesial and lingual aspects.
    - CAL of 10mm and PD of 7mm on the distal aspect.
    - REC of 3mm with loss of papilla height
    - Reduced KG of 2mm
    - Class III mobility
    - Positive vitality
- Non-Incised Papilla surgical approach was chosen due to lack of KG, risk of soft tissue collapse, and post-surgical tissue shrinkage.
- Canine was stabilized with splinting
- Patient received 2g of amoxicillin 1 hour before surgery

<u>Non-Incised Papillae Surgical Approach (NIPSA)</u>

- One apical horizontal incision was made on the buccal mucosa, as far as possible from the interdental papillae and marginal KG. Extended Mesio-distally enough to allow correct visualization of the defect
    - Clear mapping of the defect via bone sounding and CT are necessary
- Soft tissue was reflected by FTF, exposing the coronal limit of the defect
- SRP was performed
- EDTA was applied to root surface for 2 minutes and enamel matrix derivative (EMD) was applied to root.
- Horizontal mattress sutures were used as well as interrupted sutures using a 6-0 resorbable suture\

Clinical Outcomes:

- Primary wound healing of incision area and excellent state of the interdental papillae and marginal tissue was observed at 1 week.
- No pain or discomfort was reported to the point that no post-op analgesic was needed.
- A CT scan at 18 months showed no new bone formation.
- At the 18-month maintenance visit the splint was removed, showing Class I mobility.

Clinical Parameters	Baseline				18 Months			
	Mesial	Buccal	Lingual	Distal	Mesial	Buccal	Lingual	Distal
PD (mm)	10	10	10	4	2	2	2	2
CAL (mm)	13	13	13	7	5	5	5	5
REC (mm)	3				3			
	Papilla mesial		Papilla distal		Papilla mesial		Papilla distal	
PH (mm)	2		2		2		2	
KT (mm)	2				2			
Vitality	+				+			
Mobility	Class III				Class I			

Discussion:

- NIPSA represents a new surgical approach for the management of soft tissues in periodontal surgery, maintaining the papillae and marginal tissues intact.
- No dissecting the marginal tissue maintaining the papillae intact assures the best closure in that critical area over the periodontal defect.
- NIPSA is indicated in cases where the buccal wall is involved in the defect, allowing access to treatment.

- The lingual aspect of the root had to be treated without direct vision.

Bottom Line: NIPSA promoted a favorable environment creating and maintaining the clot space, without the use of graft or barrier membrane, resulting in the resolution of the defect with no alteration of the papilla and marginal tissues.

Topic: Kiwis
Author: Graziani F et al.
Title: The effect of twice daily kiwifruit consumption on periodontal and systemic conditions before and after treatment: A randomized clinical trial
Source: J Periodontol. 2018;89:285–293. DOI: 1 0.1002/JPER.17-0148
Type: Randomized clinical trial
Rating: Good
Keywords: Fruit, inflammation, periodontal diseases, randomized clinical trial, therapy

Purpose: To investigate the effect of twice daily kiwifruit consumption as sole treatment modality in untreated periodontitis, and 2 months after followed by initial periodontal therapy supported by continued kiwifruit consumption as well as 3 months later. Kiwifruits have high vitamin C, which has been shown to be inversely related to periodontal severity. Kiwis also have high quantities of antioxidants such as lutein, an oxycarotenoid, and alpha-linolenic acid, an omega-3 fatty acid, making the positive contributions of vitamin C only moderate compared to the phenolic compounds. Heavy metal elements and ions are also present.

Methods: Patients with periodontal disease (proximal attachment loss at least 3 mm in at least 2 non-adjacent teeth, probing depth (PD) 4 or greater and 25% BOP with radiographic bone loss) were identified for this study. 25 patients were in each group. Blood samples and periodontal exams were obtained at baseline. Patients in the Kiwi group had to eat 2 kiwis a day. Kiwis had to be provided by the participants themselves. 8 weeks (2 months) after patients started eating kiwis, blood samples were taken again, and another clinical exam performed. Subjects received full-mouth SRP at appropriate sites at that time. 3 months after (5 months from baseline) SRP a final exam was performed, and blood samples taken. Subjects in the kiwi group were compared to the no kiwi group.

Results: Participants in the kiwi group were highly compliant with consuming 2 kiwis a day. Side effects included 3 days of diarrhea in one patient and 2 days of itching lips 9 days after the beginning of the consumption in another. Neither patient discontinued kiwi consumption. The control group showed no changes in the 2-month period (before treatment) after the study began, while in the test group, bleeding scores significantly decreased, and the number of pockets also showed a minor reduction. In the second period of the study (after treatment), both groups showed improvement. More reduction in bleeding, plaque and clinical attachment level in the control group. Triglycerides increased and HDL decreased in the test group compared to the control group after treatment.

Discussion: Daily kiwifruit consumption determines a significant reduction of gingival inflammation in untreated periodontal disease. This may provide support for improved nutritional approaches in the prevention of periodontal diseases. No adjunctive effects of kiwifruit consumption to periodontal treatment were noted.

Topic: Diabetes
Author: Ferreira CL et al.

Title: Periodontal response to orthodontic tooth movement in diabetes-induced rats with or without periodontal disease
Source: J Periodontol. 2018;89:341–350. DOI: 10.1002/JPER.17-0190
Type: Animal study
Rating: Good
Keywords: Alloxan diabetes, orthodontic tooth movement, periodontal disease

Purpose: To evaluate periodontal responses after orthodontic movement in rats presenting induced diabetes mellitus (DM), with or without periodontal disease.

Methods: 40 rats were used in this study and divided into induced diabetes and non-diabetes groups. Groups were further divided into 4 experimental groups: Control (C), orthodontic movement (OM), ligature induced periodontitis (P), and ligature-induced periodontitis with orthodontic movement (P+OM). Ligatures were used to induce periodontal disease 30 days after DM was induced. Orthodontic devices were placed 7 days after periodontitis was induced. 40 g was exerted on the first molar for 7 days. Animals were euthanized, and jaws were analyzed for tooth movement and bone loss.

Results: Histologic analysis revealed tissue differences between the diabetic and non-diabetic groups, with more inflammatory infiltrate present in the diabetic rats. Significantly more tooth movement was seen in the P+OM in both groups of rats. In regard to bone loss, there was a statistically significant difference between diabetic and non-diabetic conditions among the C, OM, P, and P+OM groups, indicating that diabetes leads to greater bone loss. More bone loss was seen in the P+OM rats in both groups of rats. Bone density was also lowest in the P+OM groups.

Discussion: Results obtained in this study indicate that diabetes has deleterious effects, especially regarding bone loss and bone density in the furcation region. These effects are maximized when diabetes is associated with periodontal disease and orthodontic movement.

Topic: anterior loop
Author: Pradeep CJ, Thenaruvi M, Krithika C, Poorna D, Santhosh MK
Title: Prevalence and measurement of anterior loop of the mandibular canal using CBCT: A cross sectional study
Source: Clin Implant Dent Relat Res 2018; 1-4. DOI: 10.1111/cid.12609
Type: cross-sectional study
Rating: Good
Keywords: CBCT imaging, implant placement, mental foramen, mental nerve, mental nerve loop, nerve injury, paresthesia

Purpose: To analyze the prevalence and length of the anterior loop of the mental nerve using CBCT in Indian population to determine safety margins when working in the mental nerve loop region.

Methods: Cross-sectional study done with CBCT of 85 patients. 140 mandibular quadrants were analyzed. Length of mandibular loop was measured in mm using standardized anatomical measurements.

Results: Out of 85 patients, 10 patients had an anterior loop of the mental nerve (11.76%). 6 patients had the loop on one side only, 4 had the loop bilaterally. Mean length of the mental nerve loop was 2.79mm (range 1.75-3.58mm).

Conclusion: CBCT has higher sensitivity to show the anterior loop of the mandibular canal. This study showed 11.76% prevalence of a loop. The prevalence reported incidence in the literature ranges from 7-82%. The authors conclude that a margin of 4mm anterior to the mental foramen should be safe to avoid inadvertent damage.

Topic: alcohol risks
Author: Wood AM et al
Title: Risk threshold for alcohol consumption: combined analysis of individual-participant data for 599,912 current drinkers in 83 prospective studies
Source: Lancet 2018; 391: 1513-23
Type: clinical
Rating: Good
Keywords: alcohol consumption, threshold, risk, mortality, cardiovascular disease

Background: Risk limits recommended for alcohol consumption vary widely across different guidelines. Current guidelines in the USA for the upper limit of consumption are 196g/week for men and 98g/week for women. Some countries guidelines are 50% higher or lower.

Roughly: 14g of alcohol in one standard US drink: 5oz/wine, 12oz/beer, 1.5oz liquor
In this study: 1 unit = 8g of alcohol

Purpose: To characterize risk thresholds for all-cause mortality and cardiovascular disease subtypes in current drinkers of alcohol.

Methods: Combined analysis of individual-participant date from three large scale data sources available, which included data from 83 prospective studies with similar methods. Characterized dose-response associations and hazard ratios (HRs) per 100g/week of alcohol adjusting for age, sex, smoking and diabetes. The main analysis focused on current drinkers, whose baseline alcohol consumption was categorized into 8 groups, in relation to all-cause mortality, total cardiovascular disease (CVD) and CVD subtypes.

Results: A total of 599,912 current drinkers were included in the analysis. Mean age of participants was 57years, 44% were women, and 21% were current smokers. In the follow-up, 40,310 deaths occurred, 39,018 had an incident of cardiovascular disease. 50% drank more than 100g/week and 8.5% drank more than 350g/week. For all-cause mortality there was a positive, curvilinear association with the level of alcohol consumption. The minimum mortality risk was around 100g/week. Alcohol consumption was linearly associated with a higher risk of stroke (HR per 100g/wk higher consumption 1.14), coronary disease (1.06) and heart failure (1.09), fatal hypertensive disease (1.24) and fatal aortic aneurysm (1.15). It was found that alcohol consumption was associated with lower life expectancy at age 40. Specifically, when compared to those who drank 1-100g/wk, those who reported drinking 101-200g/wk had 6months lower life expectancy, 201-350g/wk 1-2yr lower life expectancy, and >350g/wk 4-5yr lower life expectancy.

Conclusion: For current drinkers the threshold for lowest risk of all-cause mortality is about 100g/wk. For cardiovascular disease there we no clear thresholds. Overall, the paper supports lower thresholds for alcohol consumption than is currently recommended. The main limitation is dependent on self-reported data for alcohol consumption.

For standard US Drinks: 100g/wk = 7.14 drinks/week

Topic: Income and periodontitis
Author: Schuch H.S., Peres K.G., Demarco F.F., Horta B.L., Gigante D.P., Peres M.A.
Title: Effect of life-course family income trajectories on periodontitis: Birth cohort study.
Source: J Clin Periodontol. 2018;45:394–403. DOI: 10.1111/jcpe.12845
Type: Cohort
Rating: Good

Purpose: To quantify the impact of life course income trajectories on periodontitis in adulthood.

Methods:

- 2 This study used data from the 1982 Pelotas Birth Cohort Study and is reported according to the STROBE (Strengthening the Reporting of Observational studies in Epidemiology) Statement. Pelotas is a medium-sized city, with around 300,000 inhabitants, located in the southernmost state of Brazil.
- The prospective population-based birth cohort study started in 1982, when all hospital births that occurred in the city of Pelotas, Brazil, were identified. 5,914 live births, whose families lived in the urban area of the city, were included on the cohort study.
- Follow ups were conducted at age 15, 24, and 31.
- Group-based trajectory analysis (GBTM) was the statistical technique adopted to construct the income trajectories. The main exposure variable was trajectories of relative family income over the life course. To estimate the income trajectories, family income data from participants at birth and at ages 15, 19, 23 and 30 years were used. Income at each assessment was collected through face-to- face interviews.
- Clinical examinations were performed at participant's homes using a headlight, dental mirror, and dental probe. Measurements were BOP, PD, Recession, and Supragingival calculus.
- Covariates included sex and maternal education at participant's birth, smoking status at age 23, dental flossing, bleeding on probing, dental calculus and presence of periodontal pocket at age 24 and participant's level of education at age 30.

Results:

- The GBTM identified three distinct income trajectories: trajectory 1 (Stable high income) comprised of 31.6% of the sample; trajectory 2 (Stable middle income) accounted for 46.0%; and trajectory 3 (Low and variable income) comprising 22.4% of the total sample.

TABLE 3 Description of the sample according to socio-economic trajectories. 1982 Pelotas Birth Cohort Study, Brazil

	Trajectory 1		Trajectory 2		Trajectory 3	
	Stable high income		Stable middle income		Low and variable income	
Variables	*n*	%	*n*	%	*n*	%
Periodontitis (CDC-AAP; *n* = 539)						
No periodontitis	142	42.0	134	39.6	62	18.3
Mild	42	20.3	52	23.8	30	26.3
Moderate/severe	23	11.1	32	14.7	22	19.3
Sex (*n* = 539)						
Male	111	53.6	114	52.3	48	42.1
Female	96	46.4	104	47.7	66	57.9
Education (years of study—age 30; *n* = 492)						
12+	126	70.0	83	39.9	15	14.4
9–11	38	21.1	78	37.5	39	37.5
0–8	16	8.9	47	22.6	50	48.1
Maternal education at birth (years; *n* = 538)						
9+	78	37.7	36	16.5	8	7.1
5–8	96	46.4	120	55.1	38	33.6
0–4	33	15.9	62	28.4	67	59.3
Smoking status (*n* = 511)						
Never	160	80.8	131	64.5	71	64.5
Former	17	8.6	20	9.9	13	11.8
Current	21	10.6	52	25.6	26	23.6
Dental flossing (age 24; *n* = 477)						
Yes or sometimes	113	61.4	99	51.8	34	33.3
Never	71	38.6	92	48.2	68	66.7
Bleeding on probing (age 24; *n* = 539)						
0 Tooth	171	82.6	174	79.8	83	72.8
1 or more teeth	36	17.4	44	20.2	31	27.2
Dental calculus (age 24; *n* = 539)						
0 Tooth	63	30.4	47	21.6	28	24.6
1 or more teeth	144	69.6	171	78.4	86	74.4
Presence of 4 mm+ periodontal pocket (age 24; *n* = 539)						
0 Tooth	204	8.5	212	97.2	104	91.2
1 or more teeth	3	1.5	6	2.8	10	8.8
Income birth (*n* = 539)						
1st tertile	27	13.0	34	15.6	98	86.0
2nd and 3rd tertiles	180	87.0	184	84.4	16	14.0
Income age 15 (*n* = 534)						
1st tertile	0	—	86	39.8	105	92.9
2nd and 3rd tertiles	205	100.0	130	60.2	8	7.1
Income age 19 (*n* = 530)						
1st tertile	0	—	84	39.3	89	80.2
2nd and 3rd tertiles	205	100.0	130	60.7	22	19.8

Conclusion: In conclusion, income trajectories from birth to age 30 years affected moderate-to-severe periodontitis measured in the fourth de- cade of life, even after controlling for demographic, behavioral and clinical variables. The findings contribute to identifying income as a structural determinant of this chronic oral condition and inform population-based measures to prevent periodontitis.

Topic: Periodontal Prognosis
Author: Martinez-Canut, P.
Title: A comprehensive approach to assigning periodontal prognosis
Source: J Clin Periodontol. 2018;45:431–439 DOI: 10.1111/jcpe.12857
Type: Retrospective Case series
Rating: Good
Keywords: periodontal disease, periodontal prognosis, tooth loss

Purpose: To evaluate the usefulness and performance of a comprehensive approach to assigning periodontal prognosis by assessing the risk of tooth loss due to periodontal disease (TLPD) and estimate survival time (ST).

Methods:

- 100 maintenance patients who were followed from 20 to 28 years
- inclusion criteria was diagnosis of moderate to severe chronic periodontitis and the absence of previous periodontal treatment and complete records on PA's at baseline, PA's of TLPD during follow-up and intra-oral photos at baseline and at the end of follow-up.
- Patients all received similar treatment and complied with recall every 4 months.
- The long-term outcome index (TLO) which assess five variables:
    - Value ranges from the presence of 0 to 5 of the following variables: fewer subgingival calculus deposits, a Gingival Index below 1.7, vertical and circumferential bone defects and/or furcation defects, mean gingival recession >1.5 mm and abfractions. The higher the value of the Index, especially with bruxism and smoking, the higher the resulting TLPD rate and the accuracy of the Index.
- The prediction model utilized for this purpose consists of a mathematical algorithm that calculates the probability of TLPD by introducing to the model 11 predictors of TLPD as they were at baseline. These variables were five patient-related factors (severe periodontitis, smoking, bruxism, fewer baseline teeth and younger age) and six tooth-related factors (type of tooth, probing pocket depth, bone loss, furcation involvement mobility and crown-to-root ratio). The probability of TLPD from 0 to 1 was associated with the following intervals of expected survival time of periodontally compromised teeth: 12–22 years; 9–20 years, 6–20 years, 5–18 years and 4–13 years.

Results:

- Thirty-five patients maintained the whole dentition, excluding third molars, (980 teeth) and 65 patients presented 193 non-replaced missing teeth with a mean 2.9 per patient and a total of 1.820 teeth. In the 2.607 teeth sample, 1.024 teeth (39%) were assigned a certain survival time and 219 of these teeth (21.3%) were actually lost.

- The mean percentage of TLPD increased as the survival time decreased: 6%, 18%, 37% and 58% for the survival time intervals 12–22 years, 9–20, 6–20 and 5–18 plus 4–13 years, respectively, with significant differences between the intervals
- When the percentage of TLPD was analyzed for each LTO index category and each survival time interval, statistical significant differences were found between groups. However, no significant differences were found between all the LTO categories
- When TLPD occurred, it matched the assigned survival time in a high percentage of cases: 82% for the survival time 12–22 years and close to 90% for the remaining survival time intervals.
    - For the survival time 12–22 years, five of 27 teeth (18%) were lost before 12 years and all of them presented an unfavorable crown-to- root (C/R) ratio 1/1.
    - For the survival time 9–20, two of 47 teeth (with an unfavorable C/R ratio 1/1) were lost before 9 years and 4 after 20 years (all of them with a favorable C/R ratio 2/1).
    - For the survival time 6–20, one of 62 teeth was lost (with an unfavorable C/R ratio 1/1) before 6 years and 6 after 20 years (five of them with a favorable C/R ratio 2/1)
    - For the shortest survival time (5–18 and 4–13), one of 83 teeth was lost before 4 years (with a deep vertical defect) and eight were lost after 18 years (seven of them with a favorable C/R ratio 1⁄2).

Conclusion: This approach might be useful to predict TLPD in patients with an initial higher risk of TLPD while it was not useful in patients with lower risk of TLPD. Additionally, it was useful to predict the TLPD of teeth assigned the shortest survival time. These patients represented 22% of the total sample but accumulated 58% of the total TLPD sample

Disclaimer: Pedro Martinez-Canut has developed and owns Perioproject (patent pending), a web-based with an open access and free of charge tool to assigning periodontal prognosis.
Comment: Survival time brackets are very confusing because they overlap.

Topic: Peri-implantitis treatment
Authors: Neely A., Maalhagh-Fard A.
Title: Successful Management of Early Peri-Implant infection and bone loss using a multidisciplinary treatment approach
Source: J Clin Adv Perio Vol 8(1) March 2018 5-10.
DOI: 10.1902/cap.2017.170014
Type: case report
Rating: good
Keywords: Peri-implantitis, treatment, early infection

Purpose: to report a case on using multidisciplinary treatment to arrest peri-implant infection.

Case: 52-year old white female presented with non-restorable 5-unit FPD #27-31. Radiographic evaluation showed normal cortical and trabecular bone with <10mm bone height from inferior alveolar nerve and <6mm bucco-lingual width. New restorative plan: 3-unit implant supported FPD #28-30 and single crowns on #27 and #31. Implant sites: #28 (8.0mm x 4.1mm) #30 (10mmx 4.8mm). Implants were sand-blasted and acid-etched before placement. Autogenous and deproteinized bovine bone xenograft and resorbable

collagen membrane were placed buccal aspect of implant #28 to cover two exposed threads. Healing abutments placed and flaps closed. Inflammation present 2 and 4 week follow-up. Removed healing abutments and irrigated with .12% CHX and placed taller healing abutments. Severe tissue inflammation and bone loss present on #28 at 7-week follow-up. No mobility was noted but more than 2/3 bone loss of the length of the implant. Guided bone regeneration was then done: debrided area, rinsed with saline and .12% CHX, slurry mixture of tetracycline and sterile saline to detoxify implant, marrow penetrations on buccal aspect, healing abutment placed and defect filled with DFDBA and covered with collagen membrane. Azithromycin, .12% CHX and Ibuprofen was prescribed.
Outcome: 3 month follow-up showed almost complete bone regeneration. Final restorations included: cemented crown #27, #28 implant, screw- retained FPD #30 and #31 with cantilever pontic #29. 5.5 years post-loading, soft tissue remains healthy with maximum PD of 3mm and no radiographic changes.

Conclusion: Early implant infection can be treated successfully by eliminating inflammation and performing bone grafting.

Topic: gingival recession
Authors: Pini Prato, GP, Magnani C., Chambrone L.
Title: Long-term evaluation (20 years) of the outcomes of coronally advanced flap in the treatment of single recession-type defects.
Source: J. Periodontol 2018;89:265-274. DOI: 10.1002/JPER.17-0379
Type: case series
Rating: good
Keywords: gingival recession; surgery; surgical flaps

Purpose: to evaluate the long-term outcomes following CAF in the treatment of gingival recession and to explore the influence of tooth/patient-related factors on the stability of gingival margin at 5, 10 and 20 years after surgery.

Methods: 94 patients with 97 gingival recessions (73 Miller class I and 24 Miller class III) localized on incisors, canines, or premolars were treated with CAF by one surgeon. Recession depth (RD), probing depth (PD) and keratinzed tissue (KT) and patient/ tooth-associated variables were recorded at baseline, 1,5,10, 15 and 20 years
Results: 72 patients with 72 recessions were available at the 20 year follow-up. 56% of sites did not display RD changes between short term (1 year) and long-term (20 year) examinations. Average root coverage decreased from 68.59% to 56.11%. Complete root coverage at 1 yr was associated with recessions that did not present interdental loss, good root condition, KT band >2mm and baseline RD. Recession recurrence was influenced by age, RD at 1yr, less than 2mm KT, and interdental tissue loss.
Conclusion: The aging process, condition of interdental periodontal tissue, and inadequate KT (<2mm) are negative factors that influence the stability of gingival margin during 20-year follow-up. Within the limits of this study, more than half of the root coverage achieved with CAF could be maintained up to 20 years.