The most frequent disturbance after harvesting anterior mandibular bone grafts is impaired sensibility of chin soft tissue, with less lip and teeth disturbance.

Objective: To determine the long-term morbidity of chin bone graft donor harvests.
Design: Retrospective clinical follow-up study.
Participants: 60 consecutive patients who had harvests of monocortical bone from the anterior mandible.
Methods: All 60 patients needed alveolar crest augmentations prior to placement of implants. Patients were evaluated clinically and radiographically. None of the patients had pre-existing inferior alveolar nerve deficiencies. Monocortical grafts were harvested from the intraforaminal area of the mandible. Cortical bone cuts in the donor area were made with either fissure burs or a bone saw, a minimum of 5 mm inferior to the incisor tooth apices and at least 5 mm anterior to the mental foramen. A bovine collagen sponge was placed into the osseous donor site defect. Patients were followed-up clinically at 10 days, at 1 and 4 to 6 months, at 1 year, and then annually thereafter. Patient's mental nerve area sensory perception was evaluated with sharp, blunt, and light touch testing. Postoperative panoramic and lateral cephalometric radiographs were taken after 10 days, 4 to 6 months, and individually as indicated thereafter.
Results: 46 of the 60 patients who had chin area bone harvests participated in this follow-up study. Patient mean age was 49 years, and the mean follow-up time was 7.5 years, with a minimum follow-up time of 3 years. Altered sensory perception in the mental nerve area was found in 10 of the 46 patients (the authors say 4.6%; I calculate 21.7%), with the chin more affected than the lower lip. Mandibular teeth from the second bicuspid to the contralateral second bicuspid were tested for sensitivity by percussion, ice, and electric pulp testers. Five teeth had no sensitivity by pulp testing electrically (1.5%) and 24 teeth had no response to ice (6.5%). In all, 12% of the involved teeth had the least altered sensitivity after the donor harvest, but none were hyperesthetic with percussion. Radiographically, 1.7% of the teeth in the area had increased lamina dura width and 1.2% had new apical pathology. In all, 91% of the patients demonstrated a radiographic or clinically noticeable chin concavity 3 years after the bone harvest procedures. In a patient questionnaire, to which 38 of the patients responded, 31.6% of the responders had persisting donor site symptoms, but difficulties encountered with these symptoms were minimal.
Conclusions: Long-term follow-up of chin graft donor harvest patients show several sensory disturbances, especially in the chin, with lesser effects on the lower lip and teeth. In general, these long-term symptoms had little effect on daily life.
Reviewer's Comments: This is an interesting paper with findings most of us would expect. The authors match their findings to the total number of patients treated, not to the ones they were actually able to follow long term. (Reviewer-Sterling R. Schow, DMD).

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Keywords: Grafts, Chin Bone Harvesting, Graft Donor

Print Tag: Refer to original journal article
Intentional coronectomy in cases of deep impacted mandibular third molars can almost eliminate nerve injury.

**Objective:** To compare coronectomy with traditional extraction for the treatment of mandibular third molars at high risk for inferior alveolar nerve injury.

**Design:** Prospective study of patients requiring removal of impacted mandibular third molars in close contact with the inferior alveolar nerve.

**Participants/Methods:** 220 patients were included in the study. After screening utilizing panoramic x-rays, patients where the root of the mandibular third molar appeared to be close to the inferior alveolar nerve had dental computed tomography (CT) scans. Those patients where the root of the tooth was in contact with the inferior alveolar canal were offered either conventional extraction of the tooth or intentional coronectomy. A total of 118 patients chose traditional extraction and 102 chose coronectomy. The 2 groups were statistically compared following surgery for postoperative pain, any complications, and the incidence of inferior alveolar nerve injury.

**Results:** There were 6 inferior alveolar nerve injuries in the extraction group and only 1 instance in the coronectomy group, which disappeared within 1 month. There was a higher incidence of postoperative pain in the coronectomy group, possibly due to a pulpitis from removal of the crown of the tooth. There was no incidence of dry socket in the coronectomy group, but there was dry socket in the extraction group.

**Conclusions:** Intentional coronectomy in high-risk mandibular third molars can virtually eliminate inferior alveolar nerve injury during removal of the impacted tooth.

**Reviewer’s Comments:** This is an excellent paper with a small number of patients; its results agree with previously published studies on coronectomy where the choice of removing the crown of the tooth and leaving the roots in place has markedly decreased the instances of injury to the inferior alveolar nerve. (Reviewer: Edwin D. Joy, Jr, DDS).

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Keywords: Dentoalveolar Surgery Technique, Coronectomy, Mandibular Third Molars, Dental CT

Print Tag: Refer to original journal article
How Successful Are Implants in Free Fibular Flaps?

Lizio G, Corinaldesi G, et al:


The overall success rate was 55% due to significant peri-implant bone loss and persistent soft tissue problems secondary to insufficient keratinized mucosa adjacent to the implants.

Objective: To determine the outcomes of implants placed into fibular free flaps following a vertical distraction. Design: Retrospective clinical investigation. Participants: 6 patients (1 female patient and 5 male patients) were included. Methods: All patients presented for treatment of either a malignancy or osteomyelitis of the maxilla or mandible and underwent a subsequent reconstruction with an osteomuscular fibular free flap. All patients had healthy dentition in their remaining quadrants, and all presented with insufficient bone for implant placement and underwent distraction osteogenesis in a routine fashion. A total of 35 implants were placed in the distracted segments and were restored with screw-retained provisional dentures. After 6 to 12 months of function, the provisional dentures were replaced with the definitive prosthesis. Participants were examined clinically and radiographically during the study period. Results: The mean vertical gain following distraction was 13.6 mm. Two major complications occurred during the distraction phase—segment displacement and a basal fracture. Four of the 35 implants failed over the study period for an overall survival rate of 89%. In 4 of the 6 cases, the implants had a significant overgrowth of granulation tissue surrounding them necessitating surgical treatment. In 3 of the 4 cases, the granulation recurred, which required a skin graft. The soft-tissue complications associated with the implants decreased the success rate to 52%. The mean peri-implant bone loss was 2.5 mm over the study period. Conclusions: Distraction osteogenesis of a fibular free flap is associated with significant complications. Implant placement into the distracted segments resulted in an overall success rate of 55% due to significant peri-implant bone loss and persistent soft tissue concerns. Reviewer's Comments: The authors' complications are consistent with what we have found at our institution; the lack of proper keratinized soft tissues at the implant sites leads to peri-implant bone loss and persistent soft-tissue problems. (Reviewer-David M. Grogan, DMD).

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Keywords: Dental Implants, Complications

Print Tag: Refer to original journal article
A postoperative MRI is the most accurate imaging for the morphology of a TMJ, including the disc, after open treatment for fractures of the condyle.

**Objective:** To evaluate the use of MRIs for examining the structure and functional modifications of the TMJ in patients with extracapsular unilateral fractures of the mandibular condyle following open reduction and internal fixation.

**Design:** A prospective study of patients with unilateral fractures of the mandibular condyle treated with open reduction and rigid fixation through a transparotid approach.

**Participants/Methods:** 20 patients with unilateral fractures of the condyle were treated with a transparotid approach to the condylar neck, which was reduced and fixated with a titanium plate. Twelve months after surgery, an MRI examination was carried out in order to determine any structural changes in the TMJ or in the parotid.

**Results:** Of the 20 patients at 1 year after surgery, 5 had anteriorly displaced discs. The condyle was in good alignment, and 1 patient had a parotid fistula. There was no evidence of effusion or any other problem within the TMJ or with the disc other than the anterior displacement.

**Conclusions:** MRI is an accurate means of examining any morphologic changes within the TMJ following open reduction of a condylar fracture.

**Reviewer’s Comments:** This paper may be a plea for postoperative MRIs in patients with condylar neck fractures in order to determine any change in morphology within the joint. However, with the absence of a pre-trauma MRI, it is difficult to determine whether any changes present postoperatively were not present prior to trauma. (Reviewer-Edwin D. Joy, Jr, DDS).

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Keywords: Condyle Fractures, Transparotid Approach, MRI

Print Tag: Refer to original journal article
Many improvements are needed in institutional design, management, and support for emergency care to be safely delivered in U.S. emergency departments.

**Objective:** To determine the degree, in general, to which emergency departments (EDs) are designed, managed, and supported in ways that ensure patient safety.

**Design:** Validated, psychometrically tested survey of ED clinicians.

**Participants:** 3562 ED clinicians in 65 EDs in the United States.

**Methods:** The authors designed a survey questionnaire to assess the status of critical systems in EDs. The goal was to determine the extent to which safe and efficient care can be provided to patients in the ED. Key informants who responded to the questionnaires included ED chairpersons, medical directors, physicians, nurses, nurse managers, and administrators. The survey contained 50 questions about ED systems, respondent demographics and job class, ED physical environment staffing, equipment, supplies, nursing, teamwork, triage and monitoring, information coordination, consultation, annual visits, number of ED beds, census region, and resident affiliation. The survey was given to a random sample of 80 eligible staff at each ED who worked ≥1 ED clinical shifts each week.

**Results:** The survey response rate was 66%, including 3562 respondents from 65 EDs. Most of the EDs cared for both adults and children. One-half of the EDs had patient annual visit volumes in excess of 60,000, and 75% of the EDs were emergency medicine residency program affiliated. The majority of the respondents were white males <40 years of age, and all respondents worked in urban EDs. Just 38% of the respondents felt their ED had adequate space for delivery of care; they also felt that the number of patients treated exceeded the safe capacity of their facility. About one third reported sick patients often receiving care in hallways where appropriate monitoring and privacy were not possible. Only 44% believed that the ED staff in their unit could properly observe all patient beds. Just 60% thought ED physician staffing was adequate to handle patient load, and only 33% felt that nursing staff was sufficient. Almost all respondents felt that interruptions consistently disrupt patient care. Almost 50% of the respondents question the consistent transfer of information between physicians and nurses or between physicians and consultants. Access to consultants and attending radiologists within 30 minutes is almost universally doubtful. Only 6% of respondents reported that ED patients had timely transfers to ICU or hospital beds.

**Conclusions:** This survey suggests that many substantial improvements are needed in institutional design, management, and support for emergency care in U.S. EDs.

**Reviewer's Comments:** Hopefully, these findings are not universal in all U.S EDs. The facilities contacted for this study were all large urban centers likely associated with emergency medicine training programs. Are conditions better in smaller or non-residency-affiliated EDs? (Reviewer-Sterling R. Schow, DMD).

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**Keywords:** Emergency Care Systems, Patient Safety

**Print Tag:** Refer to original journal article
Corticosteroids for Tx of Bell Palsy Reduce Risk of Unsatisfactory Recovery

Combined Corticosteroid and Antiviral Treatment for Bell Palsy: A Systematic Review and Meta-Analysis.
De Almeida JR, Khabori MA, et al:

JAMA 2009; 302 (September 2): 985-993

The use of corticosteroids is associated with a reduced risk of an unsatisfactory outcome, and the addition of an antiviral may be associated with a slight reduction in risk for patients with Bell palsy.

Objective: To determine the outcomes of combined therapy with corticosteroids and antivirals for the treatment of Bell palsy.
Design: Literature search involving 2786 patients in 854 articles.
Methods: Multiple electronic databases were searched to identify appropriate investigations. The primary outcome assessed was unsatisfactory recovery, defined as recovery in >4 months. Secondary outcomes, such as synkinesis, life-threatening adverse events and autonomic dysfunction, were also analyzed.
Results: 18 of the 854 articles met the inclusion criteria and represented 2786 subjects. The majority of the studies evaluated the efficacy of a corticosteroid alone, but 7 studies evaluated antiviral agents alone and 3 studies evaluated the efficacy of both therapies in combination. Statistical analysis revealed that the use of corticosteroids alone was associated with a reduced risk of autonomic dysfunction, synkinesis, and an unsatisfactory recovery. When antivirals were used as a sole therapy, there was no reduction in the risk of an unsatisfactory recovery. When used in combination, antivirals were shown to have a minimally significant reduction in risk for an unsatisfactory outcome.
Conclusions: For the treatment of Bell palsy, the use of corticosteroids is associated with a reduced risk for an unsatisfactory recovery. When corticosteroids are used in combination with antivirals, the antiviral may provide some additional benefits. Reviewer's Comment's: A casual observation would seem to indicate that the use of an antiviral would significantly improve recovery since over one-third of Bell palsy cases have a documented etiology of a viral infection. But, this is just 1 of many studies that have shown that the use of antivirals is associated with a minimal benefit. (Reviewer-David M. Grogan, DMD).

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Keywords: Bell Palsy, Corticosteroid/Antiviral Treatment

Print Tag: Refer to original journal article
While surgical management shows promise, there is currently no accepted standardized treatment for bisphosphonate-related osteonecrosis of the jaw.

**Objective:** To report clinical features, risk factors, and treatment outcomes of bisphosphonate-related osteonecrosis of the jaws (BRONJ) in a series of 26 patients.

**Design:** Case descriptive study of patients treated at a major medical center in Minnesota.

**Participants/Methods:** Over a period of 4 years, 26 patients with a diagnosis of bisphosphonate-related osteonecrosis of the jaws were included in this study. Risk factors, duration of administration of bisphosphonates, time from commencement of bisphosphonate therapy to development of BRONJ, classification of BRONJ, whether it was spontaneous or followed dental treatment, management, and outcomes are described.

**Results:** 16 of the 26 patients developed BRONJ after dental treatment. All patients received palliative care with antibacterial rinses, antibiotics, and conservative debridement of dead bone. Of the 26 patients, 22 had disease in the mandible. Pain and infection were the most common symptoms. Only 4 of the 26 patients had complete response to the management described, and 8 patients had a partial response. Seven patients became stable and 7 patients had progression of their disease. None of the patients who had disease following a dental procedure had a complete response to therapy.

**Conclusions:** The management of BRONJ by the protocols described was only, at best, partially successful in eliminating this disease.

**Reviewer's Comments:** This series study ended in 2007 and since then, there has been a dramatic and radical change in the management of this disease toward a more surgical approach, which has resulted in marked improvement over that reported in this study. (Reviewer-Edwin D. Joy, Jr, DDS).
Radiation therapy, in addition to surgery, improves the outcome of osteosarcoma of the head and neck when surgical margins are uncertain or positive.

**Objective:** To examine outcomes for patients with head and neck osteosarcoma who were treated with surgery with or without radiotherapy (RT).

**Design:** Clinical treatment and follow-up study.

**Participants:** 119 head/neck osteosarcoma patients.

**Methods:** All 119 patients had head/neck osteosarcoma and underwent macroscopic total resection with or without RT and/or chemotherapy. All patients included in the study had initial nonmetastatic disease. Histopathologic confirmation of the diagnosis of osteosarcoma was confirmed for every case. Tumor distribution and size were recorded as was the treatment method. The type of surgery was documented as were efforts at reconstruction. Resection histologic margin status was determined. The use of adjunctive RT and chemotherapy as a part of primary disease management was also documented. The length of follow-up after treatment for patients still living was 5.8 years.

**Results:** 52% of the patients were males. The median patient age at diagnosis was 33 years; 13% of patients had radiation-associated osteosarcoma. Forty-five percent of lesions were found in the mandible, 40% in the maxilla, and the remainder in any of the other cranial/facial bones. Tumor size ranged from 1.2 to 15 cm, but had a median size of 5.5 cm. Soft tissue tumor extension was seen in 68% of the patients. Tumors were treated by hemimandibulectomy for 28% of the patients, marginal mandibulectomy for 2%, infrastructure or total maxillectomy for 38%, and the others were treated with different procedures. Osseous reconstruction was done for 42% of patients and soft tissue reconstruction for 57%. Margin status after surgery was positive in 19% of patients and uncertain in 13%. Seventy-seven percent of the patients were treated with surgery alone, while 23% had surgery and RT. Median RT dose was 60 Gray; 53% of the patients also had chemotherapy. Thirty-three percent of patients died of their osteosarcoma. Overall, survival rates were 63% and 55% at 5 and 10 years, respectively. Local recurrence was observed in 85% of patients who expired from their tumor. Questionable margin status and high-grade tumors led to poorer survival times. Patients with positive margins who received RT had improved overall survival rates. The use of RT in these patients also improved disease-free survival, while the use of chemotherapy did not impact overall-survival or disease-free survival rates. Distant metastatic lesions were noted in 21% of patients, while 46% had local recurrence. Usual sites of metastasis were the lungs or bone.

**Conclusions:** RT improves overall survival, disease-free survival, and local control of surgically treated osteosarcoma of the head and neck with positive or uncertain resection margins.

**Reviewer's Comments:** There is a large amount of data in this interesting paper. I doubt there are many centers where a patient pool with craniofacial osteosarcoma of this size can be studied. (Reviewer-Sterling R. Schow, DMD).
Recombinant human bone morphogenetic protein on a collagen sponge results in an 80% success rate after 24 months in supporting implants in the maxilla.

**Objective:** To evaluate the safety and effectiveness of recombinant human morphogenetic protein (BMP) on an absorbable collagen sponge compared with an autogenous bone graft for sinus floor augmentation.

**Design:** This prospective, multicenter, parallel study compared autogenous bone and BMP on an absorbable collagen sponge for sinus floor augmentation and the successful implantation and load bearing in patients who were scheduled to have an implant-supported prosthesis in the posterior maxilla.

**Methods/Participants:** 21 surgical centers were included in this study. Of the 160 patients with <6 mm of bone in the edentulous posterior maxilla who were selected, 80 patients were placed in the BMP cohort, and 80 were placed in a cohort scheduled to receive autogenous bone grafting for augmentation of the sinus floor prior to implant placement. After surgery, patients were followed up for 2 years after implant placement. CTs were taken before surgery and at 6 months and at regular follow-up appointments up to 24 months after implant placement. The height of bone was measured on the CT taken preoperatively and at 6 months. The density of bone was also taken at this time. At 6 months, a trephine bone sample was taken for histologic examination. The level of success was set at 73% for implants at the end of 24 months.

**Results:** There was excellent increase in bone with either the autogenous bone graft or the BMP. The BMP bone was denser than that of the bone grafting on histologic exam. There were no adverse effects in either study; however, there was 17% morbidity in the donor site in the bone grafting group. There was a 79% success rate at 24 months for the implants placed in the bone graft group and the BMP group, which exceeded the target success rate for the study. No significant morbidity was found in the BMP group.

**Conclusions:** There is comparable success with BMP on a collagen sponge and autologous bone grafting. However, in this study, there was far less morbidity in the BMP group compared to the donor site of the bone graft group.

**Reviewer's Comments:** This classic study provides strong evidence for the use of recombinant human BMP for augmentation of the maxillary alveolar ridge through a sinus lift procedure. (Reviewer-Edwin D. Joy, Jr, DDS).

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Keywords: Recombinant Human BMP, Autogenous Bone Graft, Maxillary Sinus Floor Augmentation

Print Tag: Refer to original journal article
A 1:2 mixture of Bio-Oss® and autologous bone appears to be a predictable combination for socket preservation.

**Objective:** To present the outcomes of 3 different procedures for soft tissue closure following immediate bone grafting after the extraction of a single tooth.

**Design:** Retrospective clinical investigation.

**Participants:** 45 patients (24 women and 21 men) between the ages of 19 and 59 years were included.

**Methods:** In all cases, the failing tooth was extracted atraumatically and the buccal wall defect was mapped with a bone sounding technique. All defects were >5 mm in the vertical dimension and exceeded one-third of the mesiodistal length. All sockets were immediately grafted with a 1:2 mixture of autogenous bone harvested from the tuberosity region with Bio-Oss®. Soft-tissue closure was randomly performed with 1 of the following techniques: a subepithelial connective tissue graft; a full-thickness palatal mucosal graft; or a Bio-Gide® GBR membrane. Three months following the grafting, the implants were placed and allowed to integrate for 3 months prior to restoration. A provisional crown was initially placed followed by the final restoration in 3 months. All patients were followed at specific times, and implant success, soft tissue contours, papillae form, and soft tissue contours were assessed. Patients’ subjective outcomes were assessed via a questionnaire.

**Results:** Prolonged postoperative pain was noted in 11 patients, with no statistical differences noted between groups. All Bio-Gide membranes were resorbed within 3 to 5 weeks. In all cases, sufficient bone was noted at the time of implant placement. Implant success rate was 100% at 1 year follow-up. At 1-year follow-up, the full-thickness palatal mucosa graft patients showed the greatest soft tissue aesthetics, and no statistical differences were noted in papillae form between all 3 groups. The mesial and distal bone measurements revealed no bone changes >1 mm in all subjects, and there was no statistical differences noted between groups.

**Conclusions:** Socket preservation with a mixture of Bio-Oss and autologous bone appears to be a predictable procedure when combined with adequate soft tissue closure. Soft-tissue closure with a full thickness palatal mucosal graft appears to provide the best buccal soft tissue aesthetics.

**Reviewer’s Comments:** A very well-done investigation that once again shows the predictability of socket preservation as long as there is sufficient coverage of the augmented socket. Maintenance of the alveolus is mandatory for a predictable aesthetic result. (Reviewer-David M. Grogan, DMD).

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Keywords: Bone, Osseous Defects, Endosseous Implant, Soft Tissue Closure

Print Tag: Refer to original journal article
While large-diameter monocortical miniscrews provide more orthodontic anchorage than do smaller-diameter monocortical screws, bicortical smaller-diameter screws are an alternative to larger monocortical devices.

Objective: To compare the force resistance of larger-diameter orthodontic monocortical miniscrews to smaller-diameter monocortical and bicortical miniscrews.

Design: In vitro study involving 24 hemisected maxillary and 24 hemisected mandibular cadaveric specimens into which titanium alloy screws could be placed between the first and second premolars.

Methods: Radiographs were made of each specimen to verify adequate bone and root divergence in the bicuspid areas for placement of orthodontic miniscrews. In 12 hemisected maxillae and 12 hemisected mandibles, 24 monocortical miniscrews 2.5 in mm diameter and 24 monocortical miniscrews 1.5 mm in diameter were placed. In a second study using a similar number of hemimaxillae and hemimandibles, 24 of the 2.5-mm monocortical screws were compared to 24 of the 1.5-mm diameter screws placed bicortically. Monocortical screws were placed to a depth of 4 mm. Bicortical screw placement was verified by visualization of the screw tip as it began protruding through palatal cortical bone. To mimic orthodontic loading, each screw was subjected to tangential forces loaded 3 mm from the screw-to-bone interface tangentially perpendicular to the miniscrew. Loading forces to cause a screw deflection up to 0.6 mm were applied to each screw and recorded.

Results: The mean maxillary and mandibular anchorage force values of 2.5-mm diameter monocortical screws were significantly greater than those found with the narrower 1.5-mm diameter monocortical screws. Mean maxillary anchorage force values of the bicortical 1.5-mm diameter screws were significantly greater than those found with the 2.5-mm diameter monocortical screws. Mean anchorage force values at mandibular sites were significantly greater than at maxillary sites with the 2.5-mm and the 1.5-mm diameter monocortical screws.

Conclusions: 2.5-diameter monocortical orthodontic miniscrews provide more anchorage force resistance than do smaller 1.5-mm diameter monocortical screws in both the maxilla and mandible. However, bicortical smaller-diameter miniscrews provide enough anchorage resistance to be an alternative to larger monocortical screws when the clinical situation and tooth position allow.

Reviewer’s Comments: The miniscrews used for orthodontic anchorage are not intended to become osseointegrated; they depend on mechanical factors to resist orthodontic load application, usually soon after placement. During orthodontic loading, the authors’ pilot study indicated a displacement of the screw 0.6 mm in the cortical bone that still allowed anchorage application without screw slippage. Bicortical screws provide more resistance to tangential orthodontic load application than do monocortical screws. (Reviewer-Sterling R. Schow, DMD).

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Keywords: Implants, Screw Diameter

Print Tag: Refer to original journal article
Obesity May Affect Relapse After Mandibular Advancement

Relationship of Body Mass Index to Stability of Mandibular Advancement Surgery With Rigid Fixation.

Neeley WW II, Dolce C, et al:


Obese and overweight mandibular surgical advancement patients may have forward movements of B-point up to 5 years after surgery, while thinner patients tend to have a negative relapse.

**Objective:** To determine if there is any association between obesity and both skeletal and soft-tissue relapse in patients who have sagittal split mandibular advancement with rigid fixation for the treatment of Class II malocclusions.

**Design:** Retrospective cephalometric analysis taken from a previous multicenter, prospective, randomized trial.

**Participants:** 78 patients who underwent rigid fixation after bilateral mandibular sagittal ramus osteotomies for mandibular advancement.

**Methods:** Lateral cephalometric radiographs were available and traced for comparison before surgery, 1 week after surgery, and again 2 and 5 years after surgery. Body mass index (BMI) was calculated for all subjects, with a BMI of <25 classified as normal, a BMI of 25 to 30 being overweight, and a BMI of >30 being obese. Two-year follow-up studies were available for all subjects, but just 54% of the 78 patients were available for the 5-year evaluations. A cephalometric analysis for all subjects was done at all time intervals to assess stability over time using linear measurements for anteroposterior and vertical dimensions.

**Results:** At baseline (before surgery), the patients differed in BMI but not in height. Skeletal relationships were similar among the normal, overweight, and obese patients. In the obese group, differences were found initially, with A and B points showing more forward initial locations. Vertical movement of B-point at surgery was a mean 5.1 mm in obese subjects, 4.6 mm in overweight subjects and 3.1 mm in slender patients. B-point horizontal movement at surgery was not significantly different between groups, averaging just <5 mm. Two years after surgery, the greatest differences on hard- and soft-tissue position changes were observed between thin and obese subjects. B-point in obese patients moved 2.6 mm anteriorly and down 3.7 mm, whereas thinner patients had 0.7 mm of posterior movement and 1.4 mm of downward movement. The change in the SNB angle was 2° more positive in the obese group. BMI maintenance over the 2 years was confirmed for all subjects with just slight increases. Over the last 3 years, in the 54 patients who continued the study, B-point moved an additional 1 mm forward, and the SNB angle became 2° smaller than in the thin group. Subjects had no significant dental changes at either the 2- or 5-year periods.

**Conclusions:** Obese patients have different stability responses to mandibular advancement surgery than do thinner patients.

**Reviewer’s Comments:** An excellent study with most interesting results. Thinner patients appear to experience more surgical relapse after mandibular advancement with rigid fixation of sagittal osteotomies. In contrast, more obese patients as a group show significant forward mandibular movements over time after similar surgeries. (Reviewer-Sterling R. Schow, DMD).

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Keywords: Orthognathic Surgery, BMI, Stability

Print Tag: Refer to original journal article
Early vs Delayed Loading Using Different Implant Systems

A Retrospective Analysis of Early and Delayed Loading of Full-Arch Mandibular Prostheses Using Three Different Implant Systems: Clinical Results With Up to 5 Years of Loading.

Eliasson A, Blomqvist F, et al:


While immediate loading protocols require more adjustments or replacement prostheses and are costlier to complete than delayed protocol prostheses, patients prefer them.

**Objective:** To evaluate clinical outcomes and patient satisfaction with early versus delayed loading in patients with fixed prostheses using 3 different implant systems.

**Design:** Retrospective clinical records study.

**Participants:** 109 consecutively treated patients who received implant-supported, full-arch, fixed prostheses.

**Methods:** Evaluations began at the time of implant placement, and all patients had at least a year's follow-up after prosthesis insertion. All patients had edentulous mandibles. Half the patients had implants with an early loading protocol, and half had implants with delayed loading. Clinical follow-ups were completed for a full year. The treatment protocol was selected by the prosthodontist and surgeon with no random allocation to treatment groups. Patients received 4 to 6 mandibular implants each, with a 1-stage surgery for early loading within 3 weeks of placement or 2-stage surgery for delayed loading after 3 months. Implants used were either Brånemark conical machined, Brånemark turned, Brånemark TiUnite, Astra Tech TiOblast, or Strauman ITI Monotype SLA. Radiographs were taken after 3 months and at the 1- and 5-year follow-up visits. Follow-up visits, prosthesis adjustments, repairs, and complications were recorded, as was information about periodontal status.

**Results:** In patients whose implants were loaded early, 4.8% of the implants failed. In the delayed loading group, 2.1% of the implants were lost. Crestal bone loss at 1 year after loading was a mean of 0.49 mm and 0.25 mm in the early and delayed loading groups, respectively; 52.5% of the early loading implants and 60.4% of the late loading implants had no additional bone loss after the first year. Countersunk implants had greater bone loss than those that were not countersunk. No significant differences were noted between implant types or in bone loss between the same types of implants with different loading protocols. Prosthesis survival was 92.5% for the early loading group and 98.0% for the delayed loading group. Four prostheses in the early loading group had to be removed, and prosthesis relining was also more common in early loading cases. The most common complication was acrylic tooth fracture in the early loading group. Emergency visits were more common in the early group, as were the number of scheduled appointments. In questionnaire responses, patients with early loading were the most satisfied.

**Conclusions:** Early loading of implant-supported prostheses in the edentulous mandible when high-risk patients are excluded is successful. No significant differences in results or crestal bone loss were noted between the different implants included in the study.

**Reviewer’s Comments:** This very interesting paper has a huge amount of data and a thorough discussion that reviews prosthesis construction and framework types, periods of edentulism in treatment plan selection, and countersinking versus not countersinking effects on bone loss. (Reviewer-Sterling R. Schow, DMD).

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Keywords: Implants, Early vs Delayed Loading

Print Tag: Refer to original journal article
Can Radiofrequency Ablation in the Soft Palate Stop Snoring?

Radiofrequency Ablation Treatment of Soft Palate for Patients With Snoring: A Systematic Review of Effectiveness and Adverse Effects.
Bäck LJJ, Hytönen ML, et al:
Laryngoscope 2009; 119 (June): 1241-1250

Soft-palate radiofrequency ablation for snoring treatment causes little pain and few, if any, adverse effects, but long-term efficacy is questionable.

Objective: To look at the effectiveness and complications of radiofrequency ablation of the soft palate in the treatment of snoring.

Design: Literature review using electronic databases. Thirty of 159 articles identified met inclusion criteria.

Methods: Electronic databases searched for studies on radiofrequency soft-palate ablation. These databases included MEDLINE, the Cochrane Controlled Trials Register, and the Current Controlled Trial Register. All articles included in the study reported outcomes of soft-palate radiofrequency ablation treatment in snorers based on at least 10 subjects aged >18 years without moderate or severe obstructive sleep apnea. Two of the 30 studies were randomized controlled trials, 1 was a placebo-controlled trial, 1 compared 4 different radiofrequency generators, 4 were clinical controlled trials, and 24 were prospective uncontrolled studies. The indication for radiofrequency soft-palate ablation in all studies was snoring. Most studies assessed the site of obstruction with or without endoscopy, and polysomnography was performed for most patients. Treatment variations were recorded, including the number and location of ablations, adverse effects, and evidence of treatment success.

Results: Soft-palate radiofrequency ablation, compared to other surgical procedures such as laser-assisted uvulopalatoplasty or uvulopalatopharyngoplasty, has much less morbidity. The short-term results of radiofrequency soft-palate ablation, however, are comparable to those resulting from the more aggressive treatments. Unfortunately, long-term results and controlled studies with large testing groups were not found.

Conclusions: Soft-palate radiofrequency ablation is a simple, safe, well-tolerated procedure that reduces snoring symptoms, at least in the short term. It causes only minor discomfort with little risk of objectionable side effects.

Reviewer's Comments: The results of this literature review should be confirmed by larger, well-planned, double-blind, placebo-controlled clinical trials that include long-term follow-up. (Reviewer-Sterling R. Schow, DMD).

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Keywords: Systemic Disorders

Print Tag: Refer to original journal article
Is Cyanoacrylate Glue Better Than Sutures for Third Molar Surgery Sites?

Tissue Adhesive and Suturing for Closure of the Surgical Wound After Removal of Impacted Mandibular Third Molars: A Comparative Study.

Ghoreishian M, Gheisari R, et al:


Postoperative bleeding from mandibular third-molar surgical sites is reduced by closing with cyanoacrylate adhesive but does not improve postoperative discomfort levels more than when sites are sutured.

Objective: To compare cyanoacrylate glue with silk sutures for surgical site closure after mandibular third-molar removal.

Design: Prospective controlled clinical trial.

Participants: 16 patients undergoing impacted third-molar removal.

Methods: The study patients, 9 women and 7 men aged 18 to 24 years, had similar osseous impactions on their right and left sides. All patients were in good health with good oral hygiene. Removal of the third molars was done in 2 stages, 4 weeks apart, with local anesthesia. All surgeries were done by the same surgeon. Identical surgeries were performed on the right and left sides. After the impactions were removed and the sites well irrigated, flap closure was done with 3-0 silk on the right side. The left impactions, which were removed 28 days later, had flap repositioning and closure with 2 layers of ethyl-cyanoacrylate. Patients received identical postoperative instructions and completed a pain and bleeding record for each side for 5 days.

Results: Patients reported no significant differences in postoperative discomfort between the 2 different closure techniques, but they did believe they had less postoperative bleeding when the cyanoacrylate was used for closure.

Conclusions: Significant differences in postoperative discomfort and bleeding were not recorded between third-molar surgery site closure with silk suture versus cyanoacrylate adhesive, except for a suggestion of less bleeding when adhesive was used.

Reviewer's Comments: Cyanoacrylate adhesives have been used in medicine and dentistry for years. In the mid 1960s, the U.S. Army Institute of Dental Research investigated the early cyanoacrylates for clinical use. Those used in medicine today are not absorbable but are sloughed from skin or mucosal surfaces 7 to 10 days after their application. (Reviewer-Sterling R. Schow, DMD).

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Keywords: Dentoalveolar Surgery, Tissue Adhesive, Suturing

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 Cone-beam CT images appear to be an acceptable alternative to conventional CT images for navigational surgery. Reduced cost and radiation exposure make CBCT more appealing over conventional CT.

**Objective:** To determine the effectiveness of a cone-beam CT (CBCT) in navigational surgery.

**Design:** Retrospective clinical investigation.

**Participants/Methods:** 7 patients presented for the removal of a foreign body with the aid of a surgical navigation system. Registration templates were fabricated for the maxilla out of acrylic, and titanium screws were fixed to the templates and served as fiducial markers for registration. All CBCT imaging was performed with the registration templates attached to the maxillary dentition. Axial slices were obtained at 1-mm intervals. The CBCT data were then imported into the navigation system. At the time of surgery, a tracking body was attached to the patient's head, and the registration template was inserted to complete patient-to-image tracking.

**Results:** 3 of the 7 patients presented for the removal of displaced teeth under the orbital floor, below the zygoma, and under the zygomatic arch. Other foreign bodies consisted of broken instruments and/or stabilization hardware. In all cases, the foreign bodies were removed without incident, and the CBCTs provided appropriate data and resolution for navigation surgery.

**Conclusions:** Cone-beam CT images appear to be a credible alternative to conventional CT images for navigational surgery. The only limitation may be the restrictive field of view.

**Reviewer's Comments:** This is a very interesting paper. I have very little experience with navigational surgery, but since the CBCT images are cheaper and produce less radiation, it is nice to know that their images are sufficient for navigational surgery. (Reviewer-David M. Grogan, DMD).

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Keywords: Cone-Beam CT, Navigation Based

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Is Zinc an Important Predictor of Orofacial Clefts?

Relation Between the Concentration of Zinc in Maternal Whole Blood and the Risk of an Infant Being Born With an Orofacial Cleft.

Hozyasz KK, Kaczmarczyk M, et al:


Low concentrations of zinc in the mother's blood are associated with an increased incidence of orofacial clefts.

Objective: To determine the relationship between the concentration of zinc in maternal whole blood and the incidence of orofacial clefts.

Design: Retrospective clinical investigation.

Participants: 116 mothers of children with orofacial clefts and 64 mothers with normal children.

Methods: All participants were enrolled at a single institution over a 5-month period; 116 mothers gave birth to children with orofacial clefts, and 64 mothers had children with no congenital malformations (control group). Blood was drawn from the mothers of children who had orofacial clefts 3 years after the child's birth versus 6.3 years for the control group. Whole blood was then analyzed for both zinc and copper levels, and odds ratios were calculated to estimate the risk of having a child with an orofacial cleft.

Results: The median concentration of zinc in the cleft group was lower than in controls (53.1 μmol/L vs 55.5 μmol/L). A zinc concentration of <47.1 μmol/L was found to increase the risk of an orofacial cleft 2.5 times.

Conclusions: A low concentration of zinc in the maternal blood is associated with an increased risk of giving birth to a child with an orofacial cleft. The elevated risk was found to be 2.5 times normal.

Reviewer's Comments: This is a very interesting finding that may serve as a screening device for expectant mothers. The validity of these findings will need to be confirmed, and I had a hard time understanding why the samples were taken several years after the birth of the child. I believe it would be more effective to evaluate zinc levels during the pregnancy to accurately determine the risk factor. (Reviewer-David M. Grogan, DMD).

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Keywords: Zinc Concentration, Whole Blood, Orofacial Cleft

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Is Erythropoietin a Marker of Survivability in SCC?

Prognostic Significance of Erythropoietin and Erythropoietin Receptor in Tongue Squamous Cell Carcinoma.
Li H-G, Li J-S, et al:


The widespread progression of erythropoietin and its receptor is associated with a significantly shorter survival time in patients with SCC of the tongue. This expression may be indicative of a greater degree of angiogenesis.

**Objective:** To evaluate the effects of erythropoietin and its receptor on the prognosis of patients with tongue squamous cell carcinoma (SCC).

**Design:** Retrospective investigation.

**Participants:** 65 patients.

**Methods:** All patients presented with a primary SCC of the tongue at a specific institution over a 7-year period. The majority of the malignancies were classified as stage II. Immunohistochemical analysis was performed to identify levels of erythropoietin and erythropoietin receptors in all specimens. Microvascular density was also analyzed with appropriate staining.

**Results:** Over the study period, 29 disease-specific deaths occurred. The follow-up period ranged from 1 to 117 months. Stronger staining was found for both erythropoietin and its receptor in the carcinoma than in normal tissues. The expression of both entities was found to be significantly correlated with age; younger patients had greater expression and a higher TNM stage. Patients who had a greater expression of erythropoietin had a much shorter survival time (20 vs 66 months).

**Conclusions:** The widespread expression of erythropoietin and its receptor was associated with a shorter survival time and may serve as a predictor of survivability. The widespread expression may be associated with a greater degree of angiogenesis.

**Reviewer's Comments:** Since the survivability of SCC has not significantly improved in the last 4 decades, perhaps this marker can be utilized to target specific therapies to treat the disease more effectively and improve survivability. (Reviewer-David M. Grogan, DMD).

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Keywords: Tongue Squamous Cell Carcinoma, Erythropoietin

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Adhering to both a higher degree of physical activity and a Mediterranean-style diet appears to reduce the risk of developing Alzheimer disease.

**Objective:** To determine the efficacy of diet and physical activity on reducing the risk of Alzheimer disease (AD).

**Design/Participants:** Prospective cohort investigation involving 1880 elderly subjects.

**Methods:** In all subjects, physical and neurological examinations were performed at the time of entry into the study. Once enrolled, all patients underwent a neuropsychological battery of tests that evaluated the following: short- and long-term verbal and nonverbal memory, abstract reasoning, orientation, visual/spatial abilities, and abstract reasoning. Physical activity was determined via the Godin leisure time exercise questionnaire. Subjects' diets over the last year were analyzed via the Willett Semiquantitative Food Frequency Questionnaire. Other factors analyzed included age, body mass index (BMI), sex, smoking history, depression, leisure activities, and ethnicity. Testing occurred from 1992 to 2006.

**Results:** 282 subjects were diagnosed with AD over the study period. These individuals were more likely to be less educated, have a lower BMI, be Hispanic, and be less physically active. When adherence to a Mediterranean-style diet and high physical activity were analyzed together, a lower Alzheimer risk was noted. Those adhering to diet and activity had a 12% risk of developing AD, whereas those not adhering to diet and activity had a 19% risk.

**Conclusions:** Adherence to a Mediterranean-style diet and higher physical activity were independently associated with a reduced risk of developing AD. In this cohort study participating in physical activity and a healthy diet were highly correlated.

**Reviewer's Comments:** It is always difficult to fully understand the statistical analysis in large-cohort investigations in which risk is assessed, but this investigation agrees with previous trials in that remaining physically active and maintaining an appropriate diet significantly reduce your risk. Subjects who were in the highest percentiles for both diet and activity had a risk reduction approaching 65%. (Reviewer-David M. Grogan, DMD).

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Keywords: Alzheimer Disease, Diet, Physical Activity

Print Tag: Refer to original journal article
It appears that there is a correlation between sexual abuse and several somatic disorders. There is no valid explanation for the etiology of these lifetime somatic disorders.

**Objective:** To evaluate the relationship between sexual abuse and the presence of lifetime somatic disorders.

**Design:** Literature review.

**Participants:** 4640 subjects.

**Methods:** A comprehensive electronic review of the literature was performed utilizing several established databases. Sexual abuse was divided into 2 distinct categories: rape and all other forms of sexual abuse. The somatic disorders investigated included chronic headache, gastrointestinal disorders, syncope, fibromyalgia, obesity, chronic pelvic pain syndrome, and chronic pain syndromes.

**Results:** 23 studies met inclusion criteria, 16 of which included only females. A statistically significant correlation was noted between sexual abuse as a child and the following chronic disorders: functional gastrointestinal disorders, nonspecific chronic pain, chronic pelvic pain, and psychogenic seizures. No correlation was found between syncope, obesity, chronic headache, and/or fibromyalgia.

**Conclusions:** There appears to be a significant correlation between sexual abuse and several lifetime functional disorders (gastrointestinal, chronic pelvic pain, and chronic nonspecific pain). There also seems to be no valid explanation for the development of lifetime somatic disorders.

**Reviewer's Comments:** This is a very well-done analysis showing a significant correlation between abuse and chronic somatic disorders. It is interesting to note that there appears to be no valid explanation for the somatic disorders, but neuroendocrine maladaptation may play an important role in the development of somatic disorders. (Reviewer-David M. Grogan, DMD).

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Keywords: Somatic Disorders, Sexual Abuse

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