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## Emdogain in the treatment of intrabony defects

**Esposito M, Grusovin MG, Coulthard P, Worthington HV.**

*Enamel matrix derivative (Emdogain®) for periodontal tissue regeneration in intrabony defects. Cochrane Database of Systematic Reviews 2005; issue 4*

This update to the Cochrane Review on enamel matrix derivative (EMD; Emdogain®, Biora Malmö, Sweden) for periodontal tissue regeneration in intrabony defects was published in the Cochrane database at the end of last year. It updates the review we considered in this journal in 2003.<sup>1</sup>

At that time the reviewers found that EMD was able to significantly improve probing attachment level (PAL) levels (1.3 mm) and probing pocket depth (PPD) reduction (1 mm) compared with flap surgery, but the results may not have a great clinical impact since it has not been shown that more periodontally compromised teeth could be saved. They also found no evidence of clinically important differences between guided tissue regeneration (GTR) and EMD.

The updated review included a meta-analysis of eight studies and again showed that EMD-treated sites displayed statistically significant PAL improvements (mean difference, 1.2 mm; 95% confidence interval, 0.7–1.7) and PPD reduction (0.8 mm; 95% confidence interval, 0.5–1.0) when compared with placebo or control-treated sites, although a high degree of heterogeneity was found. This would mean that six patients would need to be treated to have one patient gaining 2 mm or more PAL over the control group, based on a prevalence in the control group of 35%.

The updated conclusions are very similar to the original in that 1 year after its application, EMD significantly improved PAL levels (1.2 mm) and PPD reduction (0.8 mm) when compared with placebo or control, but the high degree of heterogeneity observed among trials suggests that the results have to be interpreted with great caution. In addition, sensitivity analyses indicated that the overall treatment effect might be overestimated.

The actual clinical advantages of using EMD are unknown. With the exception of significantly more postoperative complications in the GTR group, there was no evidence of clinically important differences between GTR and EMD.

In summary, the review found that adjunctive application of Emdogain regenerates a little more tissue than surgical cleaning alone, although it is unclear to what extent such improvement is noticeable because patients did not observe any difference in the aesthetic results. Emdogain showed similar clinical results to GTR, but is simpler to use

and results in fewer complications. It has not been compared with bone grafting. No serious adverse reactions to Emdogain were reported in trials.

1. Baelum V, Lopez R. Weak evidence for a benefit of Emdogain in the treatment of intrabony defects *Evid based Dent* 2003; 4:66.

## Increasing evidence supports use of oral appliances in obstructive sleep apnoea

**Lim J, Lasserson TJ, Fleetham J, Wright J.**

*Oral appliances for obstructive sleep apnoea. Cochrane Database of Systematic Reviews 2006; issue 1*

This Cochrane review is an update on the one we first considered in EBD in 2004.<sup>1</sup> This review went on to consider a further four trials that met the inclusion criteria, bringing the number of trials to 16 and the total number of participants from 504 to 745. As in the initial review, all the studies had shortcomings such as small sample size, under-reporting of methods and data, and lack of blinding. The results were similar to the previous review but the additional trials mean that the reviewers could change their conclusions: after the earlier limited evidence suggesting oral appliance (OA) use improves subjective sleepiness and sleep-disordered breathing, the increased evidence suggests now that OA use improves subjective sleepiness and sleep-disordered breathing compared with a control.

The current first-choice therapy in people with obstructive sleep apnoea/ hypopnoea is CPAP (continuous positive airway pressure) but this can be difficult for some patients to tolerate and comply with on a long-term basis. OA are now widely used as an alternative to CPAP therapy. They are designed to keep the upper airway open by either advancing the lower jaw forward or by keeping the mouth open during sleep. This review found that OA should not be considered as first choice therapy for Obstructive sleep apnoea-hypopnoea (OSAH) where symptoms and sleep disruption are severe.

There remains insufficient research examining the effects of OA compared with CPAP in terms of symptoms and quality of life. Although CPAP was clearly more effective at reducing the disruption to sleep, some people with OSAH may prefer using OA if they are found to be tolerable and more convenient than CPAP. When an active OA was compared with an inactive OA, there were reductions in daytime sleepiness and apnoea/ hypopnoea severity.

OA may be more effective than corrective upper airway surgery. Further research should consider whether people with more distinctly severe symptoms respond in a similar way to those patients represented in the studies included in the review. Another issue, noted by Cohen in his commentary,<sup>1</sup> was reports of tooth movement in as many as 10% of long-term cases: this is a potential adverse effect of long-term OA use that will need to be considered.

1. Cohen R. Limited evidence supports use of oral appliances in obstructive sleep apnoea. *Evid based Dent* 2004; 5:76. sic therefore should not be considered a first-line treatment for pain relief.

## Bone augmentation techniques for dental implant treatment

**Esposito M, Grusovin MG, Worthington HV, Coulthard P.**  
*Interventions for replacing missing teeth: bone augmentation techniques for dental implant treatment. Cochrane Database of Systematic Reviews 2006; issue 1*

Dental implants offer an alternative to traditional replacement of missing teeth and are undoubtedly one of the most significant scientific breakthroughs in dentistry over the past 30 years. Dental implants require sufficient bone to be adequately stabilised and for some patients implant treatment would not be an option without bone augmentation. This update on a Cochrane review assesses whether there is any difference in the success, function, morbidity and patient satisfaction between different bone augmentation techniques.

From 29 potentially eligible trials thirteen randomised controlled trials reporting the outcomes from 330 patients were suitable for inclusion. Since different techniques were evaluated in different trials, no meta-analysis could be performed. Six trials evaluated different techniques for vertical or horizontal bone augmentation or both. Four trials evaluated different techniques of bone grafting for implants placed in extraction sockets and three trials evaluated different techniques to treat bone dehiscence or fenestrations around implants.

Overall it was found that short implants are more effective and cause fewer complications than conventional implants placed in thin mandibles augmented with bone from the hip. Bone substitutes [Bio-Oss (Geistlich Pharmaceutical, Wolhusen, Switzerland) or Cerasorb (Curasan, Kleinostheim, Germany)] might be used instead of autogenous bone graft to fill large maxillary sinuses. Bone could be regenerated in a vertical direction using both the osteodistraction technique and guided bone regeneration techniques, but it was unclear if any one technique is preferable. There was not enough evidence supporting or refuting the need for augmentation procedures when single extracted teeth were immediately replaced with dental implants, nor is it known whether any augmentation procedure is better than any other. There was not enough evidence to demonstrate superiority of any particular technique for regenerating bone around exposed implants.

## Effectiveness unclear of massage for improving neck pain and function

**Haraldsson BG, Gross AR, Myers CD, et al.**  
*Massage for mechanical neck disorders. Cochrane Database of Systematic Reviews 2006; issue 3*

Neck pain is common and can limit a person's ability to participate in normal daily activities. The prevalence of neck pain in dentists has been

recorded to be as high as 44%.<sup>1</sup> Massage is widely used as a treatment and this Cochrane review included studies that looked at traditional Chinese massage, ischemic compression, self-administered ischemic pressure using a J-knob cane, conventional Western massage and occipital release, among other methods, but did not include studies that examined techniques such as Reiki or Polarity.

The review included 19 trials (1395 participants) that assessed whether massage alone or in combination with other treatments could help reduce neck pain and improve function. Results showed that massage is safe and any side effects were temporary and benign. Neither massage alone nor massage combined with other treatments showed a significant advantage over other comparison groups, however. It was compared with other treatments after use alone, or in combination with other treatments as follows: no other treatment, hot packs, active range-of-movement exercises, interferential current, acupuncture, exercises, sham laser, transcutaneous electrical nerve stimulation (TENS), manual traction, mobilisation, education and pain medication.

Overall, the quality of the studies was poor and the number of participants in most trials was small. Most studies lacked a definition, description or rationale for massage, the massage technique or both. In some cases, it was questionable whether the massage in the study would be considered effective massage under any circumstances. Details of the credentials or experience of the person giving the massage were often missing, and only 11 out of 19 trials reported enough detail to determine who actually was giving the massage. There was such a range of massage techniques and comparison treatments in the studies that results could not be combined to get an overall picture of the effectiveness of massage. Therefore, no firm conclusions could be drawn and the effectiveness of massage for improving neck pain and function remains unclear.

1. Milerad E, Ekenvall L. Symptoms of the neck and upper extremities in dentists. *Scand J Work Environ Health* 1990; 16:129-134.

## Electrotherapy for neck disorders

**Kroeling P, Gross A, Goldsmith CH, Houghton PE, Cervical Overview Group.**  
*Electrotherapy for neck disorders. Cochrane Database of Systematic Reviews 2005; issue 2*

This Cochrane review included 14 comparisons (525 people with mechanical neck disorders) in 11 publications but the analysis was limited by underpowered low-quality trials, paucity of literature and heterogeneity of treatment subtypes. It was not possible to make definitive statements on the effects of electrotherapy for people with acute or chronic mechanical neck disorders. Based on this review the current evidence on Galvanic current (direct or pulsed), iontophoresis, transcutaneous electrical nerve stimulation (TENS), electrical muscle stimulation, low or high frequency pulsed electromagnetic field and permanent magnets is lacking, limited or conflicting.

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