Oral appliances for obstructive sleep apnea - Cochrane Database

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Background: Obstructive sleep apnoea-hypopnoea (OSAH) is a syndrome characterised by recurrent episodes of partial or complete upper airway obstruction during sleep that are usually terminated by an arousal. Nasal continuous positive airway pressure (CPAP) is the primary treatment for OSAH, but many patients are unable or unwilling to comply with this treatment. Oral appliances (OA) are an alternative treatment for OSAH.
Objectives: The objective was to review the effects of OA in the treatment of OSAH in adults.
SEARCH STRATEGY: We searched the Cochrane Airways Group Specialised Register. Searches were current as of June 2005. Reference lists of articles were also searched.
Selection criteria: Randomised trials comparing OA with control or other treatments in adults with OSAH

Data collection and analysis: Two authors independently extracted data and assessed trial quality. Study authors were contacted for missing information.
Main results: Sixteen studies (745 participants) met the inclusion criteria. All the studies had some shortcomings, such as small sample size, under-reporting of methods and data, and lack of blinding. OA versus control appliances (six studies): OA reduced daytime sleepiness in two crossover trials (WMD -1.81;95%CI -2.72 to -0.90), and improved apnoea-hypopnoea index (AHI) (-10.78; 95% CI-15.53 to -6.03 parallel group data - five studies). OA versus CPAP (nine studies): OA were less effective than CPAP in reducing apnoea-hypopnoea index (parallel group studies: WMD 13 (95% CI 7.63 to 18.36), two trials; crossover studies: WMD 7.97; (95% CI 6.38 to 9.56, seven trials). However, no significant difference was observed on symptom scores. CPAP was more effective at improving minimum arterial oxygen saturation during sleep compared with OA. In two small crossover studies, participants preferred OA therapy to CPAP. OA versus corrective upper airway surgery (one study): Symptoms of daytime sleepiness were initially lower with surgery, but this difference disappeared at 12 months. AHI did not differ significantly initially, but did so after 12 months in favour of OA.
Authors' conclusions: There is increasing evidence suggesting that OA improves subjective sleepiness and sleep disordered breathing compared with a control. CPAP appears to be more effective in improving sleep disordered breathing than OA. **The difference in symptomatic response between these two treatments is not significant,** although it is not possible to exclude an effect in favour of either therapy. Until there is more definitive evidence on the effectiveness of OA in relation to CPAP, with regard to symptoms and long-term complications, **it would appear to be appropriate to recommend OA therapy to patients with mild symptomatic OSAH, and those patients who are unwilling or unable to tolerate CPAP therapy**. Future research should recruit patients with more severe symptoms of sleepiness, to establish whether the response to therapy differs between subgroups in terms of quality of life, symptoms and persistence with usage. Long-term data on cardiovascular health are required.