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The aim of this study was to assess the effect of bite opening induced by a mandibular advancement splint (MAS) on efficacy and side effects in the treatment of obstructive sleep apnea. In a randomized crossover fashion, 23 adult patients received either MAS-1 (4 mm of interincisal opening) or MAS-2 (14 mm of interincisal opening) for 2 weeks, followed by the alternate treatment for 2 weeks, with an intervening 1-week washout. Complete response was defined as a resolution of symptoms and a reduction in apnea/hypopnea index (AHI) to less than 5 per hour. Partial response was defined as improved symptoms and a reduction in AHI of 50% or more, with the AHI remaining at a value of 5 or more per hour. Both MAS-1 and MAS-2 produced similar reductions in mean (± SEM) AHI from baseline: 21 ± 2 versus 8 ± 1/hour and 21 ± 2 versus 10 ± 2/hour, respectively (p < 0.001). Either complete response or partial response occurred in 74 and 61% of patients with MAS-1 and MAS-2, respectively. Subjective improvements were reported with both appliances by the majority of patients. Patients preferred MAS-1 (78 versus 22%, p = 0.007). **This study suggests that the amount of bite opening induced by MAS does not have a significant impact on treatment efficacy but does have an impact on patient acceptance.**