The aim of this study was to evaluate the effect of a mandibular advancement splint (MAS) on daytime sleepiness and a range of other symptoms in obstructive sleep apnea (OSA). Using a randomized crossover design, patients received 4 weeks of treatment with MAS and a control device (inactive oral appliance), with an intervening 1-week washout. At the end of each treatment period, patients were reassessed by questionnaire, polysomnography, and multiple sleep latency test. Fifty-nine men and 14 women with a mean (± SD) age of 48 ± 11 years and proven OSA experienced a significantly improved mean (± SEM) sleep latency on the multiple sleep latency test (10.3 ± 0.5 versus 9.1 ± 0.5 minutes, \( p = 0.01 \)) and Epworth sleepiness scale score (7 ± 1 versus 9 ± 1, \( p < 0.0001 \)) with the MAS compared with the control device after 4 weeks. The proportion of patients with normal subjective sleepiness was significantly higher with the MAS than with the control device (82 versus 62%, \( p < 0.01 \)), but this was not so for objective sleepiness (48 versus 34%, \( p = 0.08 \)). Other OSA symptoms were controlled in significantly more patients with the MAS than with the control device. **MAS therapy improves a range of symptoms associated with OSA.**