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Mandibular advancement with dental appliances in obstructive sleep apnoea.

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The purpose of this study was to compare the effects of a modified Herbst appliance (mHA) and a muscle relaxation appliance (MR) on nocturnal breathing and body movement activity in patients with obstructive sleep apnoea syndrome (OSAS). To increase the airway space posterior to the tongue base without severely affecting the craniomandibular joint, the mHA was adjusted to anchor the mandible at 50% of maximum protrusion. MR producing an occlusal coverage but no protrusion served as a control appliance. All-night static charge-sensitive bed (SCSB) and finger oximeter recordings were done to six male patients in three conditions: first without dental device and then with mHA and with MR, in a random order, after a 2 month period of habituation. The oxyhaemoglobin desaturation events were 44.7 h-1 of recording observed during the control night, 29.6 h-1 with mHA (P = 0.087). The frequency of body movements decreased from 34.9 to 20.4 h-1 (P = 0.0079), respectively. MR had no significant effects either on the frequency of the desaturation events or the frequency of body movements, but the increased respiratory resistance breathing, indicating presence of partial upper airway obstruction, was reduced from 14.3 to 6.9% of the time in bed (P = 0.022). We conclude that 50% protrusion chosen for these experiments, produced with a mHA, brought about some alleviation of upper airway obstruction in our preselected patients, but did not lead to sufficient control of apnoea. The reduction of partial upper airway obstruction induced with a MR warrants further studies in a larger patient population.

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