Lingual and Buccal Strength: Innovations in Clinical Assessment

H. Clark, N.P. Solomon, K. O'Brien, A. Calleja, S. Newcomb

Clinically feasible tools for objectively measuring lingual strength have previously been limited to tongue elevation movements only. An adaptor for the Iowa Oral Performance Instrument allows for the assessment of lingual strength during protrusion and lateralization as well as assessment of cheek strength during buccal compression. Lingual and buccal strength measures were obtained from healthy adults across three assessment sessions separated by at least 24 hours. The highest mean pressures were generated during protrusion, followed closely by tongue elevation and lateralization. Pressures generated by buccal compression were lowest. Assessment of test-retest reliability revealed that measures obtained during Session 1 were significantly lower than those obtained during Sessions 2 and 3, however measures from Sessions 2 & 3 did not differ significantly from each other. This pattern of results was noted for each of the four lingual measures and the two cheek measures. Clinicians intending to use these objective measures on a one-time basis should anticipate that initial measures may slightly underestimate true strength measures. Moreover, clinicians intending to utilize these measures to assess the effects of intervention or disease process should obtain repeated baselines to control for learning effects.