## Abstract

The purpose of this study was to compare the retentive force of the denture on different undercut of modified custom abutments (0.01, 0.02, 0.03 and 0.04 inches) before and after insertion-removal cycle ,a telescopic custom abutment as a control group by conducting 5 times each. Retentive force was measured before and after 480 insertion-removal cycles. The data were analyzed by Kruskal-Wallis and Conover-Inman Test ($\alpha$ = 0.05). A result showed that the difference of retentive force before and after insertion-removal cycle in 0.02 inch undercut gauge and telescopic abutment is not statistically significant ($p$ = .7742). The difference of retentive force before and after insertion-removal cycle in 0.01 and 0.03 inch undercut gauge is not statistically significant ($p$ = .1255) and the difference of retentive force before and after insertion-removal cycle in 0.03 and 0.04 inch undercut gauge is not statistically significant ($p$ = .2444). The conclusion of this study was that the higher undercut gauge group was more the change of retentive force than the lower undercut gauge group after insertion-removal cycle.

**Key words:** custom abutment; insertion-removal cycle; retention