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Assessment of Hand Grip Strength of Orthopedically Challenged Persons Affected with Upper Extremity

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ABSTRACT The present investigation was aimed to assess the extent of variation in grip strength in relation to the sex and type of deformity among the orthopedically challenged persons affected with upper extremity and to compare the grip strength with that of control (normal) persons. For this purpose 213 subjects having the age range 20-60 years were selected at random. Among them 109 subjects were orthopedically challenged and 104 subjects were normal, who were treated as control subjects. Orthopedically challenged subjects were taken from three categories, viz., stroke patient, accidental patient and arthritis patient. Hand grip strength was measured by using Lafayette Hand Grip Dynamometer. Some anthropometric measures of the subjects of both groups were taken. The result showed that the hand grip strength of orthopedically challenged subjects was significantly lesser ($p<0.001$) than that of the control subjects in both hands. The male subjects had significantly higher hand grip strength than that of the female subjects in both groups. The mean values of different anthropometric measures also showed the same results. The grip strength was found to be significantly correlated with a few anthropometric measures of the subjects. The results of the ANOVA showed that the grip strength of different categories of orthopedically challenged persons had significant variations ($p< 0.01$) only in case of left hand of female subjects. It can be concluded that the lower value of hand grip strength of the orthopedically challenged persons may be considered during designing control panel, switches and other hand arm operated devices.