

Measurements and Estimations of Subjective Hand Force Exertions

Kai-Way Li
Chung Hua University

Abstract: Subjective rating is one of the alternatives to quantify hand force exertion. The rating of the Borg CR-10 scale has been used to quantify the perception of physical exertion. An experiment was conducted to test the grip force of male subjects at subjective ratings on the CR-10 scale under hand-posture conditions. It was found that the subjects applied a higher grip force than they perceived at levels 2, 5, and 7 on the scale. The grip forces between dominant and non-dominant hands at low levels were negligible. The grip forces were significantly different between the two hands at level 10. Similar results were found for the posture conditions. The overall correlation coefficient between the CR-10 rating and the grip force was significant ($r=0.92$; $p<0.0001$). This implied that the Borg CR-10 is an valid tool in quantifying power grip force.