

## EVALUATION OF AN ERGONOMICALLY DESIGNED NON-POWERED HACKSAW

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### **Abstract**

An experimental investigation was conducted to evaluate three non-powered hacksaws and in particular the hacksaw handles: (1) original-horizontal (handle), (2) conventional/market, and (3) ergonomically designed. The evaluation criteria were: performance or productivity (depth of cut), muscular effort or strain (EMG) and subjective scores (acceptance/comfort). The experimental results conclusively proved that the ergonomically designed hacksaw handles (with proper hand size) were significantly better than the original-horizontal and conventional/market hacksaw handles, in terms of task performance (depth of cut), muscle activity/strain (EMG values of 5 muscles) and subjective scores. The performance or productivity improvements of the ergonomically designed handle were about 25 and 148%, when compared with the conventional and horizontal handles, respectively.