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CERAMIC PAINTING

ANIRUTH MANOTHUM : THE CONSTRUCTION OF A CERAMIC  
PAINTER'S CHAIR FOR REDUCING MUSCULAR FATIGUE. THESIS  
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The objective of this study is to construct a ceramic painter's chair to reduce muscular fatigue. The designs were mainly based on anthropometry and ergonomic principles. The recommended improved chair dimensions were as follows: a seat height adjustable in a range of 10 cms.; a seat depth of 41 cms.; and a seat width of 41 cms. The improved chair had armrests and a back support. The back support is adjustable in a range of 10 cms., and has an adjustable angle of 15-120 degrees. The study group consisted of 28 female ceramic painters. The mean age of these subjects was 35.53 years and mean weight and mean height were 53.60 kgs, 157.97 cms, respectively. The workers had experience in ceramic painting work for an average of 6.43 years with no history of either muscle or bone disease or accidents. The subjects were both objectively and subjectively assessed for fatigue while doing ceramic painting on existing chairs and the improved chair. Each workstation had 6 working hours (9.00 a.m.-3.00 p.m.). The percentage of maximum voluntary contraction (MVC) was measured by electromyography every 30 minutes and the fatigue feeling was assessed by questionnaire at 0,3,4 and 6 working-hours.

The results showed that while the ceramic painters worked on the improved chair, the fatigue feeling of the general body, trapezius muscle and deltoideus muscle were significantly less than while working on existing chairs ( $\alpha = 0.05$ ). The percentage of MVC of the trapezius muscle and the deltoideus muscle during work while using the improved chair were significantly less than the percentage during work while using the existing chairs ( $\alpha = 0.05$ ). Finally, there was no relationship found between fatigue feelings assessed by using questionnaires and muscular activity measured by using electromyography. Therefore, this study concludes that the improved chair could reduce trapezius and deltoideus muscular fatigue of ceramic painters.