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Ergonomic comparison between a 'pistol like' handle style and standard style paint brush

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Epidemiologic studies have consistently demonstrated a strong positive association between repetition and "occupational overuse syndromes (OOS). The repetitive nature of painting then can predispose many people to these disorders.

Objective: The purpose of this study therefore was to conduct ergonomic risk factors assessments of pistol-like handle painting applicator and commonly used equal quality standard handle paint brush.

Method: A randomized cross over repeated measures design was implemented where 30 volunteers were randomly given a paint brush handle type while muscle activity (EMG) recorded from eight upper limb muscles groups were analyzed. Subjects were their own controls returning within one week to perform the same painting activity with the other paint brush handle type. ANOVA with repeated measures was used to analyze the integrated EMG data and the median frequencies among muscles groups between the two painting trials.

Results: Analysis revealed that there were no differences in EMG activity or Median frequency between the two types of muscle handle paint brushes in of the muscles studied ($p>0.05$).

Conclusion: A pistol like handle has no added ergonomic advantage over a commonly used standard handle paint brush in people without injury. Thus it was concluded that the pistol style brush does not prevent OOSs from occurring. It must be emphasized, however, that this study's results cannot be extrapolated to people who already have an OOS and need a device to prevent further injury and pain. Further study is needed.

Biography

James Agostinucci is an occupational therapist (1975) and has a ScD from Boston University (1988) in the area of Applied Anatomy and Neuroscience. He is an Associate Professor in the Physical Therapy Department, at the University of Rhode Island. He has several published papers in reputed journals and is actively involved in hand rehabilitation.

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