

ABSTRACT

GET A GRIP: ANALYSIS OF MUSCLE ACTIVITY AND PERCEIVED COMFORT IN USING STYLUS GRIPS

by

Evanda Vanease Henry

The design of handwriting instruments has been based primarily on touch, feel, aesthetics, and muscle exertion. Previous studies make it clear that different pen characteristics have to be considered along with hand-instrument interaction in the design of writing instruments. This should include pens designed for touch screens and computer based writing surfaces. Hence, this study focuses primarily on evaluating grip style's impact on user comfort and muscle activity associated with handgrip while using a stylus-pen.

Surface EMG measures were taken approximate to the adductor pollicis, flexor digitorum, and extensor indicis of eight participants while they performed writing, drawing, and point-and-click tasks on a tablet using a standard stylus and two grip options. Participants were also timed and surveyed on comfort level for each trial. Results of this study indicate that participants overall felt using a grip was more comfortable than using a stylus alone. The claw grip was the preferred choice for writing and drawing, and the crossover grip was preferred for pointing and clicking. There was reduction in muscle activity of the extensor indicis using the claw or crossover grip for the drawing and point and click tasks. The reduced muscle activity and the perceived comfort shows the claw grip to be a viable option for improving comfort for writing or drawing on a touchscreen device.

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COMFORT IN USING STYLUS GRIPS**

**by
Evanda Vanease Henry**

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APPROVAL PAGE

**GET A GRIP: ANALYSIS OF MUSCLE ACTIVITY AND PERCEIVED
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This thesis is dedicated to those that have been there with me through thick and thin.

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