

ABSTRACT

A Comparison of Perceived Spine Comfort, Soreness, and Stiffness in a Prolonged Sitting Posture between a Conventional Chair and a Novel Ergonomic Chair Design

Joselito “Jojo” V. Sayson, DMT

Purpose

The purpose of this study was to determine the extent to which subjects perceived greater comfort, less soreness, and less stiffness at three different levels when maintaining a prolonged sitting posture in two different chairs. Levels included low-back, mid-back and neck, while one of the chairs was of conventional design and the other was a novel ergonomic design.

Methodology

The research design was descriptive in nature and included the collection of self-report data from each of the subjects on comfort, soreness, and stiffness for the low-back, mid-back, and neck.

Subjects were 20 males and 20 females who were available to participate in the research on two consecutive days. They were given a thirty minute continuous and repetitive task while sitting in the test chairs.

Data were analyzed utilizing a mixed factorial analysis of variance approach which took into account a variety of factors including self-report data on each chair.

Findings

Observed differences in self reports regarding the relative comfort, stiffness, and soreness that resulted from performing continuous and repetitive tasks on each of the chairs favored the novel ergonomic chair to a statistically significant degree in regard to less low back soreness, less neck soreness, less low back stiffness, less neck stiffness, more low back comfort, and more neck comfort.

Conclusions

Since several of the findings supported the efficacy of the novel chair over the conventional chair, it appears that alternative designs of chairs used to support workers who are sitting for long periods of time is an important focus for research. Recommendations for future research include refinements to the biomechanical model that supported the design of the novel ergonomic chair, variations in chair design, and collection of data on other variables in addition to self reports.