

POTENTIAL HEALTH EFFECTS OF DYNAMIC SEATS

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Seated work has been associated with an increased risk for low back pain. This is mainly attributed to the prolonged and monotonous mechanical load on low back structures (Grieco, 1986). Dynamic office seats that have a moveable seat and back rest are believed to accommodate trunk movements, which interrupt the static loading and thereby prevent damaging effects.

To evaluate the potential health effects of dynamic seats, we measured the trunk kinematics, the activation of the back muscles, and the change in spinal length in ten subjects. These subjects performed a three-hour simulated office task, consisting of word processing, reading and computer aided design. This was performed on three different seats of which the back rest and seat were either freely movable, or movable with a fixed ratio, or not movable at all. The spinal length measurements indicated an advantage of the two dynamic chairs over the fixed seat: a significant increase during the three-hour task in the spinal length for both dynamic seats (on average by 3.8 mm), was not observed for the fixed seat. The trunk kinematics and back muscle activation were not significantly affected by seat type, but these parameters were affected by the different activities performed.

The results imply that dynamic office seats offer a potential advantage over fixed seats, which can be explained rather by an improved back support than by increased trunk motion. Another conclusion is that the effects of the type of activity on the variability in trunk movements and in back muscle activation, are much more pronounced than the effects of seat type.

Grieco, A. 1986. Sitting posture: an old problem and a new one. *Ergonomics* 29: 345-362.

SPEECH RECOGNITION AND REDUCTION OF RSI IN PRACTICE

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Introduction

As a result of advances in computer hardware and speech recognition software, speech recognition has become available for a wider range of users. In this study the effects of speech recognition on working postures, productivity, usability and health were investigated with subjects in their normal work situation.

Aim

An experiment was designed to determine whether speech recognition is a valuable method to reduce RSI risk factors and to reintegrate people with RSI complaints into their work.

Methods

Eight subjects with RSI complaints and seven healthy subjects participated in this study. They were employed by a governmental organisation. Initially, measurements were taken with subjects performing a standardised task with keyboard and mouse. After six weeks in which subjects were trained in the use of speech recognition and practised in their normal work, measurements were repeated while subjects used speech recognition. Comparisons were made between the measurements. Working postures were measured by video observations. Productivity was established by counting correctly entered words per unit of time. Usability and health were investigated with a questionnaire and user meetings.

Results

When using speech recognition working postures were closer to neutral. For most subjects productivity was lower when using speech recognition, but subjects were still learning. Usability depends on compatibility of speech recognition software with system software and the received technical support. Speech recognition worked best for text input tasks, and worse for database and computational tasks. Less health complaints were reported.

Conclusion

Speech recognition is a valuable method for prevention of RSI and reintegration under certain conditions.