ALTERATION IN HEAD AND NECK POSTURE WITH TYPING UNDER SUPERIMPOSED STRESS IN FEMALE OFFICE WORKERS

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1. Introduction

There is evidence that computer users with neck pain tend to drift towards a more forward head posture during typing tasks (Szeto et al., 2005; Szeto et al., 2002). Other studies have shown altered cervical muscle activity (electromyography) in workers with neck pain when typing with a superimposed stressor, but no studies have investigated the effect of such a task on head and neck posture (Johnston et al., 2008). The present study investigated any change in head and neck posture during a standard typing task with and without a superimposed stressor in computer workers with and without neck symptoms.

2. Method

Female computer workers with (N = 34, mean age 43.5 years) and without (N = 31, means age 43.1 years) work-related neck pain were recruited. Those with neck pain which they related to their work and scored greater than 8% on the Neck Disability Index on the day of testing were defined as the neck pain group (N=51) (Vernon et al., 1991). All participants performed two five-minute typing tasks (standard and stress-induced) separated by five minutes rest. The sagittal displacement of the head was documented with a digital camera mounted on a tripod situated 80 cm away. Photographs taken at the beginning and end of each typing task were used in the analysis. Adhesive markers positioned on the lateral canthus of the eye, tragus of the ear and spinous process of C7 enabled accurate calculation of the cranial and cervical angles with an image analysis tool, ImageJ (Rasband, 1997-2007). To identify between-group differences in the degree of change in the cranial and cervical angles, independent t-test was used. Paired t-test was used to determine within-group differences in change values from standard to stressful typing.

3. Results

At baseline, there were no significant differences between workers with and without neck pain in either cranial \( t(63) = -1.89, p = 0.06 \) or cervical \( t(63) = 0.10, p = 0.92 \) angles. Following a typing task with superimposed stress, office workers with neck pain adopted greater cranial extension than asymptomatic workers \( t(63) = -2.14, p = 0.04 \). Both groups adopted more cervical flexion with typing. There was no significant difference in within-group change values after standard or stressful typing for both angles \( p > 0.42 \).

4. Discussion

The addition of stress during typing induced greater cranial extension in workers with neck pain. The postural response to typing suggests that workers with neck pain hold their head and neck more rigidly supporting the recommendation to take regular breaks during prolonged computer work.

References