REPEATABILITY OF UPPER TRAPEZIUS EMG IN VDU OPERATORS WITH NECK-SHOULDER COMPLAINTS

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Introduction: The between-day reliability of the surface electromyography (sEMG) of upper trapezius muscles during performing maximum voluntary isometric contraction (MVIC) in symptomatic VDU operators is usually not repeatable. However, this protocol is important in sEMG study.

Aim: To assess the between-day MVIC of upper trapezius of VDU operators with neck-shoulder complaints.

Methods: 10 VDU operators with neck-shoulder complaints participated in two testing sessions separated by three to seven days. sEMG was recorded on right upper trapezius muscle during the performance three MVIC. Reliability indices calculated were: the standard error of measurement (SEM) and intra-class correlation coefficients (ICC).

Results: Data were analyzed by way of intraclass correlation coefficients (ICC). The peak rms EMG ICC (95%CI) was 0.93 (0.75, 0.98). The median frequency ICC (95%CI) was 0.94 (0.79, 0.99).

Conclusion: sEMG from MVIC can be measured with sufficient reliability for the assessment of upper trapezius muscle in symptomatic VDU operators.

Discussion: The limitation of this study is inherent that the resistive force was obtained from a securely immovable object i.e. a strap fixed to a stationary machine for upper trapezius. However, we did enhance the subjects to reach maximal effort by giving them strong verbal encouragement and visual feedback during the MVIC normalization. The acceptable repeatability of the EMG of UT using MVIC method in symptomatic VDU operators shows the usefulness in clinical setting. Thus, the
between-day reliability can be used to compare the effect of training and ergonomic intervention giving to the symptomatic VDU operators.

Keywords: symptomatic VDU operators, upper trapezius, EMG

References:
Impact of rest-break interventions on neck and shoulder posture of symptomatic VDU operators during prolonged computer terminal work

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Abstract

Introduction: Visual display units (VDU) have become widespread for routine use in work places (1). Epidemiology study reported that neck and shoulder symptoms in VDU operators were associated with long period of computer use. The maintenance of static posture for prolong period of time is considered to be risk factors of development of MSDs for VDU operators. Rest breaks have been proposed as a means in order to reduce static loads on the musculoskeletal system associated with prolonged computer work. However, there is still limited clinical trial research that addresses on the effects of different types of activity during rest-break interventions for VDU operators in term of change in neck and shoulder postures.

Objective: To examined the effect of rest-break interventions on neck and shoulder posture of symptomatic VDU operators over 1-hour computer typing task

Methods: Thirty symptomatic VDU operators were randommized assigned to active breaks with stretching, active breaks with dynamic movement, and passive breaks as a reference group. Subjects performed typing task for 60 minutes and received 3-minute breaks of each 20-minute work. The craniovertebral and forward shoulder angles were derived from the data at the 0th, 20th, 23rd, 43rd, 46th, and 66th minute of the typing task for a 60-s duration of each. The kinematics data were obtained from the 3D motion analysis system.

Result: There were no significant differences of any types of rest breaks on the craniovertebral and forward shoulder angle of symptomatic VDU operators performing the typing task for 60 minutes.

Conclusions: Three types of rest-break interventions were positive effect on neck and shoulder posture during prolonged computer terminal work.

Discussion: In the present study, there were no significant differences of group effect on the CV angle. However, the stretching and dynamic contraction groups revealed an increased in CV angle after the typing task for 60 min compared to that of reference group. We found that the FS angle was reduced after typing for 20 minutes (from 23th minute-43th minute) in the reference group. This means that even though the subjects had a passive rest-break before each typing, it is not enough to prevent forward shoulder posture among them. Furthermore, the FS angle of the stretching and dynamic groups were increased after having rest-break interventions in the present study. The effects of rest break interventions on neck and shoulder posture reported here were for symptomatic female VDU operators average aged 26-31 years. Further work should also investigate whether the variation found in this group similar to that found in healthy or older operators.
**Key words:** symptomatic VDU operators, rest breaks, neck and shoulder postures, 3D motion analysis

**References:**