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EFFECT OF WRIST ORTHOSES ON COMPUTER WORK

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Introduction: With the advent of information technology, health problems related to the excessive use of the computer have appeared, mainly in what it refers to musculoskeletal overuse of the cervical region and upper limbs. The upper trapezius (trapezius), the *extensor carpi ulnaris*, and the *flexor digitorum superficialis* are the muscles most at risk for injury *when specific repetitive motor tasks such as typing and using the mouse are performed.* The most common treatments for these disorders involve temporary immobilization with orthoses.

Objective: To examine the effect of wrist orthoses on the electromyography activities of the *extensor carpi ulnaris, flexor digitorum superficialis*, and *fibers of the upper trapezius* muscles during computer work.

Methods: Twenty-three healthy university students performed standardized tasks, randomized, such as typing and using the mouse while wearing one of two types of wrist orthoses or without orthosis. Surface electromyography was used considering 100% the maximum voluntary contraction to represent the amplitude of electromyographic activity.

Results: We observed a significant increase in the electromyographic activity of the trapezius ($P<.05$) with the use of orthoses. No significant difference was observed in the activities of the *flexor digitorum superficialis* or *extensor carpi ulnaris whether or not orthoses were used in participants who typed*. However, upon mouse use, the extensor carpi ulnaris activities was increased with both orthoses, and the same pattern was observed in the flexor digitorum superficialis when the volunteers used the custom-made orthosis.

Conclusions: Wrist orthoses affected the muscle activities in the upper limbs of healthy adults who were using a computer.

Contribution to the practice/evidence base of occupational therapy: This study suggests a need to monitor patients receiving prescription for orthoses. Subjects who present with musculoskeletal injuries related to computer use should be evaluated with proper criteria when selecting for the appropriate functional wrist orthosis. Furthermore, we believe that further research under controlled experimental conditions is necessary.