



## Editorial comment

## Computer work can cause deep tissue hyperalgesia: Implications for prevention and treatment

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In this issue of the *Scandinavian Journal of Pain* Vegard Strøm and his co-workers publish a study of neck and shoulder pain induced by computer-work under stressful conditions [1]. Persons with chronic neck and shoulder pain were compared with healthy persons without chronic pain. The subjects did computer work with keyboard and mouse for 90 min with a stress load from time pressure and high precision demands. With a pressure algometer they measured pressure pain thresholds (PPTs) before, 15, and 30 min after the computer work period. They measured PPT on the sternum and bilaterally on shoulder and forearm (upper trapezius and extensor carpi lateralis muscles). After the 90 min of stressful computer work, lower thresholds for pain provoked by pressure on the muscles was observed in chronic pain persons as well as pain free persons. This occurred in the upper shoulder muscles on the active side (handling the computer mouse) and the inactive side, as well as the forearm of the active side, in both groups. However, in the persons with chronic neck and shoulder pain, the pressure pain threshold was lowered *also* in the forearm of the inactive side, i.e. in the resting forearm not taking part in the computer work.

The latter observation is interpreted as an indication that central sensitization for painful stimuli was present in the spinal cord dorsal horn of patients with chronic pain before the 90 min of stressful computer work. A central sensitization for incoming pain impulses could be present at other, higher CNS-sites.

The implications of these findings are that even as short a stressful work period as 90 min is enough to cause pain in muscles being used actively during computer office work. Persons who already have chronic painful conditions in structures near the muscles needed to do the computer work will have a significant risk of aggravating the intensity of their pain condition by stressful office work.

Clearly 90 min of intense computer work with a high stress load from time- and precision-requirements is enough to cause local pain in the active shoulder and forearm muscles, even in persons who do not have any preexisting musculoskeletal pain conditions. The authors recommend that office workers take frequent, short resting breaks during periods with stressful computer work.

What advice should be given to persons who already have musculoskeletal pain conditions and have working situations in which they have to go through periods of stressful work? Frequent rest periods may be useful, but maybe not always realistic?

It is possible that strengthening muscle exercises, of appropriate muscle groups, may be useful for office workers who cannot avoid such stressful periods in their work situations.

Even more important would be to let persons who already have a musculoskeletal pain condition do eccentric muscle training in appropriate muscle groups. This may improve their pain condition and decrease risk of aggravating their pain and prevent spreading of their muscle pains. This principle is now widely recognized as helpful in musculoskeletal pain conditions like "tennis elbow" [2,3].

This is a hypothesis that can be tested in a clinical trial.

## References

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