

PERCEIVED MUSCULAR TENSION IS A RISK FACTOR FOR FUTURE NECK-SHOULDER SYMPTOMSHUYSMANS M.A.^{1,2}, BLATTER B.M.^{2,3}, VAN DER BEEK A.J.^{1,2}¹ Department of Public and Occupational Health, EMGO Institute for Health and Care Research, VU University Medical Center, Amsterdam, The Netherlands -² Body@Work, Research Center on Physical Activity, Work and Health TNO-VU/VUmc, The Netherlands -³ TNO Quality of Life, Hoofddorp, The Netherlands**Aims:**

The aim of the study was to investigate if perceived muscular tension is a risk factor for future neck-shoulder symptoms.

Methods:

Data were used from the PROMO study, a prospective cohort study among 1951 office workers with a follow-up duration of two years. Risk factors were assessed with a questionnaire at baseline and after one year of follow-up. Outcome was assessed every three months by means of a questionnaire. Neck-shoulder cases were identified based on the transition of 'no' or 'sometimes' pain to 'regular' or 'prolonged' pain. Following Wahlström et al. (2003) perceived muscular tension was asked as follows: "During the past three months, have you experienced muscular tension (e.g. wrinkled your forehead, grounded your teeth, raised your shoulders)?" Participants were classified into three groups: low tension ('never'), medium tension ('sometimes') and high tension ('several times per week' or 'one or several times per day').

Generalized Estimating Equations (STATA 10.0) were used to estimate Rate Ratios (RRs) for becoming a case. In order to ensure longitudinal analysis, exposure predicted outcome in future follow-ups. Subjects with symptoms at the time that perceived tension and other risk factors were assessed were excluded from the analyses for the following year.

Results:

Table Univariate and multivariate analyses of perceived muscular tension as a risk factor for neck-shoulder symptoms.

	Univariate N=1618 RR (95%CI)	Multivariate* N=1429 RR (95%CI)
Low tension	1	1
Medium tension	3.2 [2.2-4.8]	2.4 [1.5-3.7]
High tension	5.9 [3.9-8.8]	3.2 [2.0-5.1]

*adjusted for confounders: gender, age, neck-shoulder symptoms in year before baseline, cognitive demands, reward, overcommitment, decision authority, task variation, repetition, shoulder flexion, manual materials handling at work. No effect modification was found.

Conclusion:

Perceived muscular tension was a significant risk factor for future neck-shoulder symptoms, even when adjusted for important individual factors, psychosocial stressors and physical workload. Moreover, a dose-response relation was found. This is in line with Wahlström et al. (2003), who were the first, and to our knowledge the only ones, to report on perceived tension as a risk factor for neck pain. Results suggest that in order to prevent neck-shoulder symptoms, interventions could be aimed at lowering perceived muscular tension.

Keywords: Computer work, Personal risk factors for MSD, Pain, chronic pain

References:

Wahlström J, Hagberg M, Toomingas A, Wigaeus Tornqvist E. Perceived muscular tension, job strain, physical exposure, and associations with neck pain among VDU users; a prospective cohort study. *Occup Environ Med.* 2004;61:523-8.

