Texting on mobile phone and musculoskeletal symptoms. A 5 years cohort study.

Ewa Gustafsson*, Sara Thomée*, Anna Grimby-Ekman*, Mats Hagberg*.

*Occupational and Environmental Medicine, University of Gothenburg, Box 414, SE-405 30, Göteborg, SWEDEN

1. Background
The young adults today have grown up with mobile phones as an evident part of their life. In Sweden in 2012, 80 % of young people aged 15-24 years use the phone for sending text messages (SMS) on an average day (Nordicom 2013). In a study of university students in the USA, text messaging emerged as the most frequent used type of communicative medium (Skierkowski & Wood, 2012). A number of case studies have identified musculoskeletal disorders in the forearm and thumb, e.g. tendonitis, tenosynovitis and first carpometacarpal (CMC) arthritis in relation to excessive mobile phone use with active texting (Menz 2005, Ming 2006, Storr et al., 2007, Williams & Kennedy 2011). Therefore, despite the low physical load associated with the use of mobile phone for texting there are concerns about possible musculoskeletal disorders due to this use.

So far, only little research on the potential physical risks related to texting has been reported. In an experimental study differences in postures, typing style and muscle activity was found between those with and without musculoskeletal symptoms in neck and upper extremities (Gustafsson et al 2010, 2011). Since most studies published are either case, observational or small experimental studies it is important to investigate both short and long term effects of texting in larger populations’ longitudinal studies.

The aim of the present study was to examine whether texting on mobile phone is a risk factor for musculoskeletal disorders of neck and upper extremity in a population of young adults.

2. Methods
The study was a longitudinal population based cohort study with Swedish young adults (20-24 years). Self-reported data was collected via a web-questionnaire at baseline and 2 follow ups (1- and 5-year). At baseline the study group consisted of 7092 (2759 men, 4333 women), at 1-year follow up 4148 (1452 men, 2696 women), and at 5-year follow up 2724 (991 men, 1733 women). The exposure variable was number of reported text messages per day in the past 30 days and the health outcomes were reported ongoing pain in neck and upper extremities, and numbness/tingling in hand/fingers. Analyses were done with logistic regressions.

3. Results
The women reported a slightly higher SMS use than the men.

A majority of the participants rated their general health as good, but 4 % of the men and 5 % of the women at both baseline and 5 year follow-up reported poor health. One third of the men and half of the women had experienced continuous stress for a week or more the past year, at baseline. At the 5-year follow-up the symptom reports were mostly slightly higher.

One third reported regular physical activity, 34 % of the men and 46 % of the women reported light physical activity, and 16 and 6 %, respectively, as vigorous. 17 % and 14 %, respectively, described their leisure time as sedentary.

In general, symptom reports were higher among the women than among the men. At baseline 23 % of the men and 47 % of the women reported ongoing pain in the neck at baseline, and 21 % of the men and 29 % of the women reported ongoing pain in the shoulders or upper extremities.
At baseline, associations were found between text messaging and reported musculoskeletal pain in neck, shoulder and arm, and numbness/tingling in hand/fingers for both men and women. After adjustments for confounders, associations were found between the three highest exposure levels (6-10, 11-20 and >20 sms/day) and pain in shoulder/upper extremities for both men and women (OR 1.3-1.7). For pain in neck/upper back associations were found for the highest category (OR 1.4 for women, OR 2.0 for men). For tingling/numbness in hand/fingers there were associations between the two highest categories (OR 1.5-1.7) for both men and women.

In the group who was symptom-free at baseline there were prospective associations found between exposure to ≥11SMS/day at baseline and 1-year follow up and reported numbness/tingling in hand/fingers (OR 2.0) at the 1-year follow up. At the 5-year follow up no associations were found between text messaging and reported symptoms, though there was a tendency for reporting pain in shoulder/upper extremities (OR 1.4, 0.88;2.40).

In the group with symptoms at baseline associations were found at the 1-year follow up between exposure to ≥11SMS/day at baseline and 1-year follow up and reported pain in neck/upper back (OR 1.8).

4. Conclusion
Prospective associations were found between exposure for text messaging on mobile phone and musculoskeletal disorders. However, the results imply mostly acute effects and to a lesser extent long term effects.

Acknowledgements
The study was financially supported by the Swedish Research Council for Health, Working Life and Welfare. The authors would like to thank Mats Andrén for all work during the data collection.

References