

# 47<sup>th</sup> Global Nursing & Healthcare Conference

March 01-03, 2018 | London, UK

## Using shoulder straps decreases heart rate variability and salivary cortisol concentration in Swedish ambulance personnel

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**Background:** Previous research has shown that paramedics are exposed to risks in the form of injuries to the musculoskeletal system and they are over-represented in terms of cardiovascular disease, cancer and psychiatric diseases, partly explained by exposure to stress.

**Aim:** The aim of this study was to see whether the use of shoulder straps decreases physical effort in the form of decreased heart rate and cortisol concentration.

**Methods:** A stretcher with a dummy was carried by 20 participants 400 meters on two occasions, one with and one without shoulder straps and cortisol samples were taken at intervals of 0, 15, 30, 45 and 60 minutes and heart rate was monitored continuously. Each participant was on her or his own control.

**Results:** A significant decrease in both heart rate and cortisol concentration was seen when shoulder straps were used. Median for women at 0 minutes 85/23.3 (heart rate/cortisol concentration), 15 minutes 92/20.8, and 60 minutes 70/18.4 and without shoulder straps at 0 minutes 84/32.4, 15 minutes 100/32.5, and 60 minutes 75/25.2. For men, the results were 78/21.1, 85/16.9, 76/15.7 and 78/21.9, 93/21.9, 73/20.5, respectively.

**Conclusions:** The use of shoulder straps decreases measurable physical stress and should therefore be implemented when heavy equipment or a stretcher needs to be carried. To ensure this, shoulder straps should be personal or alternatively be sewn into alarm jackets.

### Biography

Kåre Karlsson completed his MSc in 2009 from Borås University, and has worked in the ambulance service in Skaraborg hospital, Sweden for 33 years. He is a specialist nurse in the prehospital field. He is also a PhD student at half-time at Jönköping University. He has published 2 papers in reputed journals.

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