The relationship between finger skin temperature and McGeoch scores in individuals with hand-arm vibration syndrome

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ABSTRACT

Background: Hand Arm Vibration Syndrome (HAVS) is a painful and potentially disabling condition of the fingers and hands due to vibration. Health surveillance for HAVS has been a legal requirement in the UK for employees exposed to Hand Transmitted Vibration (HTV) with the advent of Control of Vibration at Work Regulations 2005 (CVWR).

HAVS is diagnosed and staged using Tier 5 standardised tests, which are time consuming and expensive. Earlier studies for diagnosing HAVS using Cold Provocation Test (CPT) showed a delay in recovery of Finger Skin Temperature (FST) in individuals with HAVS.

Study: This study aimed to compare the relationship between McGeoch scores and FST to investigate the potential of FST as a simple, reliable screening test for HAVS.

Method: Computer records for 1026 Tier 5 assessments were investigated for a relationship between FST and McGeoch scores. The data were anonymised and included age, date of assessment, sex, FST and results of tests determining McGeoch scores.

They were further dichotomised with season variable defining summer and winter. Linear Regression analysis was performed with McGeoch scores as dependent Y-variable and lowest FST as independent X-variable.

Result: The statistical analysis showed a standard error of the estimate of 5.752. F statistic was 0.025, indicating low variability between FST and McGeoch scores. Along with a low statistical coefficient of variation (Beta) 0.005 and a significance 0.874, showed that the two variables were not related to each other. Summer and winter data analysis showed similar results.

The study failed to reject the Null Hypothesis, i.e. no demonstrable relationship existed between FST and McGeoch scores.

Therefore this study concluded that FST is not likely to be useful as a screening test for HAVS.