Hand–Arm Vibration Exposure Trends among the Workforce in Sweden

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Introduction

• Hand-arm vibration (HAV) common among construction, industry, forestry, and manufacturing workers
• HAV could cause vascular, neurological, and musculoskeletal injuries
• 400 000 workers in Sweden exposed to HAV more than 2 hours per day (Swedish Work Environment Authority)
• Understand changes in HAV exposure over time among the workforce in Sweden
Aim

• To study trends of HAV exposure among the Swedish workforce from 1980 to 2010
Materials and Methods

Inclusion

- Worker in Sweden for one year during study period 1980-2010
- Above 18 years old
- An occupation with an occupational code.

- Information on age was gathered from the Register on the Entire Population (Registret över totalbefolkningen) at Statistics Sweden.
- Every occupation in Sweden is classified according to occupational classifications of the National Labour Market Board and based on ISCO-88-code system.
- Information on employment and job was gathered from FOB 1980 and 1990 and SSYK-96.
SWEJEM

- Jenny Selander, Karolinska Institutet; Sweden
- Project to develop a National Job Exposure Matrix (JEM) on common occupational exposures in Sweden
- Includes physical, chemical, psycho-social as well as precarious employment
- Will be publicly available (Karolinska Institutet home page)
SWEJEM

- The JEM on HAV consists of the eight-hour equivalent HAV exposure (5349-1) connected to each occupational code.
- HAV levels from earlier measurements (scientific articles, measurement reports, and vibration data-bases, n = 90).
- Exposure categories for the A(8) value were:
  - low (range: above 0 to <=1 m/s²)
  - moderate (range: above 1 to <2.5 m/s²)
  - and high (range: =>2.5 m/s²).
Results

Graph showing the percentage of exposure to hand-arm vibration over years from 1980 to 2010. The graph indicates a decrease in exposure over time, with different lines representing low, moderate, high, and all categories of exposure.
Discussion

• The proportion of workers exposed to high HAV levels in Sweden declined during the study period.
• During this time, an EU directive was implemented to reduce workers’ exposure to HAV.
• Some machines have better designs to reduce the vibration levels.
• Additionally, there are less workers in occupations in which they use hand-held vibrating tools.
• Manufacturing in Sweden has declined during the study period.