

Case study: Tackling hand arm vibration

Summary

Hand-arm vibration (HAVS) is a well-documented condition that is known to develop as a result of repeated use of hand-held power tools. Once HAVS manifests itself it can cause significant ill-health, painful and disabling disorders of the blood vessels, nerves and joints.

As a responsible leader in the field of construction and engineering, J. Murphy & Sons Limited made a decision to invest in prevention, and has become an early adopter and proponent of products to help prevent this debilitating condition.

Problem statement

As an industry, we know that HAVS is preventable; once the damage is done it is not reversible. According to the HSE nearly 2 million people are at risk.

HAVS can lead to the inability to do work, while exposure to cold weather conditions can trigger painful attacks of finger blanching.

HAVS can impact operational productivity across the construction industry, employee confidence, compensation claims for Industrial Disease, as well as business productivity.

Solution / what you did

- With over 3,500 employees, Murphy had built-up a hugely positive reputation for its occupational health standards and wanted to make a concerted effort to effectively tackle HAVS.
- As it was, the safety, health, environment, sustainability and quality department (SHESQ) at Murphy had long-established strict protocols to safeguard and monitor employees at risk at HAVS, in-line with the guidelines from HSE.
- While our protocols were in-line with the industry, we knew there must be a better way of controlling the risk posed by vibration, going beyond paper based

monitoring, audits and health surveillance which are traditionally used across the industry.

- Murphy investigated the options. The desire was to introduce a system that allowed for personalisation, online reporting to facilitate data storage and more effectively monitor vibration risks, in real-time.

Initial Solution

- The initial solution proved to be investing in the Reactec HAVmeter. Murphy went from introducing this on one site, to using it on a joint venture project across 24 sites.
- The ease of use of the wearable monitor was met with a hugely positive response from employees and the regulator.
- On reviewing paper-based recording versus HAVmeter tool usage, it became clear there was an over evaluation of usage up to approximately 60%, versus the actual usage. The HAVmeter provides more accurately reports. This means we have been able to apply resources and measures more effectively to address our vibration risk.

Long-term Solution

- We made a decision in 2016 to now roll-out the next generation model to the HAVmeter - the HAVWEAR. The HAVWEAR is worn on the wrist and more easily personalised.



Figure 1 Reactec wearable HAVS monitor

- HAVWEAR informs the wearer of their exposure by calculating and displaying in real-time their vibration exposure. Sound and vibration alerts inform the wearer if their personalised exposure thresholds have been exceeded, as the wrist meter is synchronised to a special tag on J.Murphy & Sons Limited equipment.
- A Docking station downloads and transmits exposure and tool data online so reports can be viewed online or by email. We can use the data to drive our working methods, tool selection and procurement, cross check with our health surveillance data and ultimately reduce the risks to health associated with vibration.

Key challenges faced

- The default position was to undertake health surveillance yet the data captured was unverifiable.
- Tracking HAVS in the traditional way involved regular paperwork, with storage on site an issue, plus the additional complexity of storing records when a project has finished and moved off-site.
- The primary challenge was finding a solution that would deliver on ease-of-use and tracking. Murphy believe this can now be met by introducing wrist-worn HAVS monitors and allow employees see the benefit of it - it is also more efficient in terms of eliminating paper records.
- Management buy-in was secured based on the clear return, in terms of enhanced long-term safety for employees.
- Initial trials highlighted the benefits of the second-generation system, with its greater ease of use, worn on the wrist making HAVS monitoring easier and employees more engaged.

Outcomes and benefits

- One of the key benefits of introducing a wearable monitor was that it raised awareness of HAVS at source while also providing a good investment in the long-term health of employees
- It is testament to Murphy proactively investing in HAVS technology that Murphy has been given a bursary from its insurance company.
- Ultimately the introduction of HAVS wrist monitoring is an investment in the long-term health of employees. They can react in real time before thresholds are breached



Figure 2: Murphy employees

Measures of success

- Our insurance company has proactively approached us to provide a bursary for £25,000 in recognition of the benefits of this investment by Murphy and in the long-term reduce potential future claims associated with vibration.
- Such is the success of HAVS monitoring and its long-term implications that Murphy has now committed to rolling-out this technology across other in-house sectors.

Lessons learnt

- Murphy has shown that adoption of the latest technology can help raise awareness in the first instance and have a long-term effect, reduce health risks that may otherwise only appear in decades to come.
- Murphy worked collaboratively with teams internally, getting their buy-in by running trials and once adopted rolling it out further.
- This level of health surveillance helps protect the business and its employees from insurable risk claims.

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