Back to Basics on HAVS – Part 1: Breach of Duty

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The risks associated with exposure to vibration from hand-held tools in the workplace have been increasingly well publicised over the last half-century and have resulted in specialist regulation in an effort to reduce injury. Despite that, employees suffering injury as a result of vibration exposure is not a thing of the past.

The most recent Health and Safety Executive (HSE) statistics issued in November 2022 show that cases of hand-arm vibration syndrome (HAVS) are on the rise. The data (taken from IIDB reported cases in 2021) shows that there were 300 new cases of HAVS in addition to 165 new cases of Carpal Tunnel Syndrome and 255 new cases of Dupuytren's Contracture. It is notable that the number of cases may well be skewed by COVID-19, the HSE's increasing response to investigating companies where vibration is an issue and increasing reporting through RIDDOR, but the data demonstrated a significant increase on previous years.

HSE prosecutions do not appear to be slowing down either: Philip Turton reviewed the case of a woodwork company being fined £150,000 for a failure to control vibration exposure last year (his blog post can be found here) and as recently as March 2023 an automotive manufacturer on the Isle of Wight was fined £120,000 for similar failings (the HSE press release can be found here).

All that necessarily means that HAVS litigation continues too. In a two-part series of blogs, Jack McCracken and I provide an overview of the current state of the law in civil claims arising out of HAVS in the workplace. In this blog, I set out the position on breach of duty. Jack's blog, which can be read here, then deals with questions of causation.

Breach at Common Law

The general common law duty of an employer to employees is to take reasonable care for their safety. The often cited formulation of the relevant standard of care is that of Swanwick J in *Stokes v Guest, Keen and Nettlefold (Bolts and Nuts) Ltd* [1968] 1 WLR 1776 (at 1783):

"… the overall test is still the conduct of the reasonable and prudent employer, taking positive thought for the safety of his workers in the light of what he knows or ought to know …"

That has, over time, been approved and expanded upon in the disease context, most notably in *Thompson v Smiths Shiprepairers (North Shields) Ltd* [1984] 2 WLR 522 and *Baker v Quantum Clothing Group Ltd* [2011] 1 WLR 1003.

What an employer "*knows or ought to know*" necessarily depends upon the development and dissemination of knowledge and guidance on the risk of injury in the relevant industry as well as the evolution of safety standards over time. The most significant development of industry guidance concerning HAVS began in the 1970s. A detailed consideration of all such development is beyond the scope of this blog, but the most pertinent guidance for considering the common law duty of care is set out below.

In 1975, the British Standards Institution (BSI) published a Draft for Development Guide entitled '*Guide to the evaluation of exposure of the human hand-arm system to vibration*' (DD43). It was expressly draft in nature because the state of knowledge at the time was insufficient for definitive conclusions to be reached about appropriate levels of vibration from hand-held tools. But, with an accumulation of further knowledge and following on from DD43, the BSI issued a British Standard Guide entitled '*Measurement and evaluation of human exposure to vibration transmitted to the hand*' (BS 6842) in 1987.

The stated purpose of BS 6842 was to provide a uniform method of measuring and reporting hand-transmitted vibration in order to develop the knowledge of dose-effect relationships. The state of knowledge at the time in respect of dose-effect relationships was presented in a table, Table 5, which has been replicated below:

Table 5. Frequency weighted vibration acceleration magnitude (m*s r.m.s.) which may be expected to produce finger blanching in 10% of persons exposed

Daily exposure	Life-time exposure					
	6 months	1 year	2 years	4 years	8 years	16 years
8h	44.8	22.4	11.2	5.6	2.8	1.4
4hr	64.0	32.0	16.0	8.0	4.0	2.0
2hr	89.6	44.8	22.4	11.2	5.6	2.8
1hr	128.0	64.0	32.0	16.0	8.0	4.0
30 min	179.2	89.6	44.8	22.4	11.2	5.6
15 min	256	128.0	64.0	32.0	16.0	8.0

In terms of dose, the data was based on daily exposure and, in order to facilitate comparisons between different tools and durations of exposure, it was normalised as an assumed 8 hour working day, known as A(8). A note preceding the table highlights that the values are "*based on exposures which are regularly repeated on a daily basis*" – they do not, therefore, concern transitionary exposure.

In terms of effect, the data deals only with finger blanching and provides the vibration levels which are sufficient to cause 10% of individuals to develop symptoms. For example, where individuals are exposed to a vibration magnitude of 2.8 m/s^2 A(8), 10% of them are likely to suffer symptoms within 8 years of exposure. Where the vibration magnitude is halved, to 1.4 m/s^2 A(8), then the period of daily exposure required to cause symptoms is doubled to 16 years.

It is notable that BS 6842 does not concern itself with a 'safe' level of vibration exposure: firstly, that was not its intended purpose, but, secondly, vibration exposure leading to injury in 10% of employees could not in any event be considered safe.

The content and data from BS 6842 led to, and formed the evidential basis for, the Health and Safety Executive (HSE) issuing a Guidance Note entitled '*Hand-Arm Vibration*' (HS(G)88) in 1994. HS(G)88 was part of a series of documents with the purpose of providing guidance for those who have duties under the Health and Safety at Work etc Act 1974. It

prescribes an 'action level' of 2.8 m/s^2 A(8) and laid down a series of precautionary and preventative measures for employers to take in order to assess, monitor and reduce vibration levels in the workplace. However, given the nature of the data in BS 6842, HS(G)88 itself notes that the action level is not a safe level for the reasons noted above:

"BS6842:1987 indicates that there is some evidence suggesting that exposure at this level (the action level) may cause finger blanching in about 10% of the vibration-exposed population after 8 years. This estimate is subject to considerable uncertainties. The action levels should not therefore be regarded as a completely 'safe' level."

There necessarily remains a risk of injury below the action level. What, then, is the significance of the action level in respect of breach of duty in civil claims?

Through a trio of key decisions in *Armstrong v British Coal Corporation (No. 2)*, 31 July 1998, unreported (CA), *Billington and Burrows v British Rail Engineering Ltd* [2002] EWHC 105 (QB) and *Doherty v Rugby Joinery (UK) Ltd* [2004] EWCA Civ 147, the Courts have reaffirmed Swanwick J's statement of the relevant standard of care of an employer. It has been held that the guidance in DD43, BS 6842 and HS(G)88 serve to determine what a reasonable employer "*knows or ought to know*" about the risk to their employees of vibration exposure. Accordingly, given the absence of a specified safe level of exposure within any such guidance such that there remains a foreseeable risk of injury to employees below the action level, it has been held there is, as a minimum, a duty upon an employer to alert those employees who regularly use hand-held vibratory tools to the potential risk of injury by warning, advising and monitoring. However, once exposure is above the action level, then an employer must take active steps, as set out within the guidance, such as job rotation, the modification of tools and the like.

In terms of how low the minimum duty goes, it is generally accepted that no foreseeable risk of injury arises at exposure levels below 1 m/s^2 A(8) such that an employer owes no duty of care at common law below that level. That was an agreed proposition in the recent Court of Appeal decision in *Bowe v Mersey Rewinds Engineering Ltd and Others* [2018] EWCA Civ 72 (in which it was held that, on the particular facts of the case, infrequent transitory exposure to vibration which occasionally exceeded the daily exposure limits did not give rise to a foreseeable risk of injury on the evidence).

The Control of Vibration at Work Regulations 2005

The Control of Vibration at Work Regulations 2005 came into force on 6 July 2005 and introduced new exposure levels for hand arm vibration, set out in Regulation 4. There are two components to the levels introduced: an Exposure Action Value (EAV) and an Exposure Limit Value (ELV).

The EAV is set at 2.5 m/s^2 A(8). This replaces the previous action level and is, accordingly, the level at which the Regulations stipulate that various actions as part of a planned programme of vibration control should be taken in order to eliminate or otherwise control exposure to vibration in the workplace (per Regulation 6(2) and (3)). The level of 2.5 m/s^2 A(8) may, on its face, seem only a modest reduction from the 2.8 m/s^2 A(8) set out in HS(G)88. However, the method

of measurement has changed from a single dominant axis measurement used at the time of BS 6842 and HS(G)88 to a three-axis, or three dimensional, measurement in the Regulations; a rough equivalent of the new EAV under the old measurement method is 1.8 m/s^2 A(8).

The ELV is set at 5.0 m/s^2 A(8). This is a limit which should not be exceeded (per Regulation 6(4) and (5)). It's 'old-style' rough equivalent is 3.6 m/s^2 A(8).

Aside from setting matters out in regulation and introducing new levels, the Regulations in many ways simply continue the development of knowledge of the risks of exposure to vibration within the workplace; there is nothing particularly novel about them. Accordingly, in a world where breach of the Regulations is no longer actionable *per se* for exposure post-1 October 2013 (pursuant to the amended Section 47 of the Health and Safety at Work Act 1974), it is likely, given the way in which the common law has developed as discussed above, that breach of duty will be established in very much the same way using the new EAV and ELV.

It remains arguable that a duty of care arises at all exposure levels of 1 m/s^2 A(8) or above given the foreseeable risk of injury from that point on, but, at that level, the duty is only the minimum duty to alert until exposure reaches the EAV. It is notable that BS EN ISO 5349-1:2001 (the accepted standard on how properly to measure human exposure to hand-transmitted vibration which was issued shortly before the Regulations and which used the same updated three-axis method of measurement) reaffirms that:

"*Studies suggest that symptoms of the hand-arm vibration syndrome are rare in persons exposed with an 8-h energy-equivalent vibration total value, A(8), at a surface in contact with the hand, of less than 2 m/s^2 and unreported for A(8) values of less than 1 m/s^2.*"

Furthermore, the duty to risk assess and to take action in general within the Regulations is not tied simply to exposure above the EAV (Regulation 5(1) and 6(1)). Indeed, the HSE's current guidance to employers on the Regulations defines risk levels as "*high (above the ELV), medium (above the EAV) or low*" (thus reinforcing the concept of some risk below the EAV) and advises that:

"*Where there are things you can do to reduce risks from vibration, that are reasonably practicable, they should be done. However, where vibration exposures are below the EAV, risks are low and so you would only be expected to take actions, which are relatively inexpensive and simple to carry out.*"

In applying common law principles at least, the duty of care is therefore "*still the conduct of the reasonable and prudent employer, taking positive thought for the safety of his workers in the light of what he knows or ought to knows*" applied to the particular facts of each case.

To read Jack McCracken's blog on causation in HAVS cases, please click here.