# YOUR HEALTH

Newsletter January 2021

Duradiamond
Building Healthy Business

- WINTER WELLBEING
- COLD WEATHER WORKING
- HAND ARM VIBRATION SYNDROME (HAVS)

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# Happy New Year!

For many, winter is a time for **big jumpers and cosy nights in**. For others, with Christmas over and short days ahead, winter can seem a difficult time of year.

However, it doesn't have to be that way. January can be a great time to reset habits, take care of yourself and move forward to a healthier future.

**Let's look at some ways we can keep well inside and out (copy links to browser if necessary):**

- **Get a flu vaccination** if you have not already got one. As well as helping to ward off the influenza virus, you can let your body's immune system be at its best to fight other illnesses, such as COVID-19.

- And speaking of **COVID-19,** make sure you continue to maintain recommended hygiene and social distancing.

- **If you feel unwell** (and it's not an emergency), ring 111 or look at 111.nhs.uk/ You may also be able to get medicines delivered. Find out more www.nhs.uk/using-the-nhs/nhs-services/the-nhs-app/

- If you need to contact your GP but are not up to attending face to face, check your surgery's website. They may be able to undertake **video/telephone consultations.**

- **Keep yourself warm:** wrap up when you go out and try to keep your home at around 18C if possible.

- **Keep moving:** adults should do some type of physical activity every day. Any type of activity is good for you and the more you do the better, so try to get out for a walk each day – even if it is only for 15 minutes.

- At this time of year a little bit of **natural light** can make all the difference, particularly for those who suffer from Seasonal Affective Disorder (covered in our next bulletin). And if it is too miserable, there are lots of online exercise/dance classes you can follow. Try the 10-minute living room workout www.youtube.com/watch?v=O5YX5xg8Seg&feature=youtu.be or exercises when you are stuck at home www.bhf.org.uk/informationsupport/heart-matters-magazine/activity/7-exercises-you-can-do-when-stuck-at-home - check with your doctor before starting any exercise programme.

- Winter can see one's **mood** dip like no other time of year and, in the time of COVID-19, there are lots of other reasons we may worry. There are some great meditation/calming apps out there to try, e.g. www.headspace.com/ or, if you need to speak to someone, try your EAP (if you have one) or the Samaritans on 116 123 or www.samaritans.org/ They also have a self-help app on the same site, where you can track how you are feeling. If you don't feel better after a couple of weeks, speak to your GP.

- **Keep hydrated:** evidence suggests it can help mood, concentration and physical performance, so aim for six to eight glasses of water and other liquids each day to replace normal water loss – around 1.2 to 1.5 litres. Water, lower fat milk and sugar-free drinks, including tea and coffee, all count.

- **Eat right:** weight gain at this time of year is a reality for many. Take a look at www.nhs.uk/live-well/eat-well/the-eatwell-guide/ to find out what a healthy plate looks like.

- Try to **plan meals ahead:** check out www.bhf.org.uk/informationsupport/support/healthy-living/healthy-eating/recipe-finder for some healthy recipes.

- **Reach out:** keep in touch with family/friends via social media/telephone/in person where possible. If not, there may be volunteering opportunities where you can help someone less fortunate than yourself, which can also help lift your mood. Check out www.gov.uk/government/get-involved/take-part/volunteer

Sources: NHS, BHF, Eatwell, www.gov.uk, Swedish, Defence Research Institute, HSE

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# It's cold outside...

Many of us work in indoors, in environments where the air temperature is ambient and comfortable. Many, however, work outside or in artificially cold environments and may need to cope with cold and/or extreme working conditions.

Lots of us also like to undertake leisure activities outside during the winter months. Conditions where an individual is exposed to cold, even for short periods, can have harmful effects on health.

Humans are essentially a tropical (or subtropical) animal and the human body is better adapted to hot conditions rather than cold ones. The body's mechanisms for removing unwanted heat are well developed; however, the body's methods for conserving heat are less so. **We therefore have to rely more upon modifications to behaviour and ambient conditions to achieve comfort, or, in climatic extremes, safety and survival.**

The UK has a changeable climate, often with rapid fluctuations of temperature. Naturally occurring cold environments are obviously outdoors and are commonly experienced by workers in construction, agriculture and fishing.

Exposure to cold underwater is more unusual, although there are many workers who could, for example, accidentally suffer from immersion by falling into rivers or docks. The most common example of an artificial cold environment is the cold store.

In cold environments, the body can lose heat by any or all of the four channels of **convection, radiation, evaporation or conduction.**

Vulnerability to the cold is increased by exhaustion, dehydration, hunger, alcohol, impaired consciousness and old age.

**The body's response to the cold:** the human body's initial response to cold is **constriction of the blood vessels** in the skin. This diverts blood from the skin and allows the skin to cool, having the effect of making the body's "shell", the thermal barrier between the environment and the body core, thicker. In diverting blood away from the surface, it also reduces the amount of heat lost from the body. This mechanism is, however, is limited in effectiveness. If this method is inadequate, the body's core temperature continues to fall.

**Non-shivering responses** occur initially (muscle tensing, feeling of stiffness, increased metabolism) to increase heat production. As the body temperature falls further, **shivering** occurs: an effective method of increasing heat production. Maximum shivering produces heat at a rate comparable to strenuous exercise but it is not entirely effective in warming the core.

Adaptation and behavioural changes such as **changes in posture,** e.g. huddling to reduce the exposed body surface area and **getting more active,** e.g. swinging arms and stamping feet to generate internal body heat, are two examples of changes in behaviour of people exposed to cold. People often put on **additional clothing** where possible.

A reduction in body temperature results in **increased clumsiness and muscle stiffness.** Ultimately, there may be reduced consciousness with confusion, reduced sensory performance, e.g. blurred vision and, ultimately, unconsciousness at a core temperature of about 30° C.

**Cold injury and illness**: cold injury can occur particularly to the hands, feet, and face. The longer one is exposed to cold conditions, the greater the likelihood of injury. Typical injuries include **frostbite (and frost nip), immersion foot (also called trench foot)** and less severe injuries such as **cracked skin, chilblains, and non-freezing cold injuries.**

Frostbite occurs when tissue fluid freezes, while immersion foot occurs where reduced blood flow, after exposure to low temperatures, causes damage to nerves. Non-freezing cold injuries, such as chilblains, are the result of painful inflammation of small blood vessels in response to exposure to cold, but not freezing, air.

**Hypothermia**: the accepted clinical definition of hypothermia is a core temperature of 35° C or below (normal body temperature range is 36.1-37.2° C).

This produces the common symptom of **muscular weakness** - walkers may become unsteady and may fall, and their pace slackens.

Hypothermia is a specific hazard for **divers** because of the heat capacity of water, so heat can be very rapidly lost from the body. Survival time is related to the temperature of the water. Another factor is the amount of **subcutaneous fat** the person has, as this is a poor conductor of heat.

**A change in behaviour** is a significant and potentially dangerous feature of even quite mild degrees of hypothermia. This may at first be apparent only to those who know the person well and, who themselves, are in full possession of their faculties. It may be seen at first as inertia and withdrawal or, occasionally, by an unusual amount of self-confidence. As the condition progresses, there may be bizarre behaviour, perhaps overt aggression, or at the other extreme, total remoteness.

**Performance in cold conditions:** cold undoubtedly affects activities and, depending on the activity, may affect **performance and productivity**. The effect of the cold on performance will depend on the tasks being undertaken. The effects are primarily in terms of reduced manual performance.

Constriction of the blood vessels and lowering of the tissue temperatures causes numbness, and a decrease in sensitivity, manual dexterity, and strength. Optimal temperatures for manual dexterity performance are between **20 to 32° C.** Research indicates that work capacity can drop by 40%, even in moderately cold weather.

**Protective measures**: to **eliminate/reduce** the effects of cold in the working environment can be:

- Worker-related
- Acclimatisation
- Clothing
- Training and education
- Work organisation.

**Workers:** employees who are regularly exposed cold conditions should have a medical fitness assessment. Generally, the individual must not only be fit to do the job in temperate conditions, they must also have sufficient reserves of physical and psychological ability to cope with the cold; the longer and more severe the exposure, the greater those reserves need to be. Medical factors need to be considered, as some may stop an individual from being considered fit to work in a cold environment.

**Acclimatisation:** unlike heat acclimatisation, there is little evidence of the body effectively adapting to the cold.

**Clothing:**

- Wear protective (insulating) clothing to preserve body heat or at least to reduce heat loss to acceptable levels
- If it is windy, an outer windproof layer is essential
- If it is rainy, wear an outer waterproof layer
- Sweat can damage the insulating power of clothing, so clothing must allow for sweat to evaporate.

Thermal comfort depends on a balance between clothing, working conditions and work rate. In a constant environment, any increase in physical work rate produces more metabolic heat. This must be balanced by a reduction in insulating clothing to avoid overheating, otherwise a high sweat response will reduce insulation and lead to excessive cooling when the work rate slows/ ceases. Individuals will often clothe themselves for comfort while inactive and then start hard labour without adjusting what they are wearing.

Head, hands, and feet create special problems: the head can account for more than 20% of heat loss from the body, and eyes and ears are particularly vulnerable sites for cold injury. The hands are especially at risk from cold injury and although all enveloping mittens are the best protection, they reduce dexterity. The feet require good insulation from the ground - they are the one part of the body where conductive heat loss may be prominent.

**Training and education:** a programme for workers and management should detail the general and specific hazards of working in a cold climate, including the proper use/maintenance of protective clothing/equipment. It should also include education in the early recognition/ detection of cold-induced conditions and the immediate actions to be taken.

**Work organisation:** working times can be limited for cold environments. If workers are paired in a buddy system, each can watch the other for signs/symptoms of hypothermia and can, if necessary, initiate immediate remedial measures; likewise, for remote/virtual supervision. Cold chambers/stores should have exit doors that can be opened from the inside and are properly maintained, with panic buttons to generate sound and visual warnings outside the chamber. There is a close association between the rate of accidents at work in unfavourable climates - cold or hot.

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## HAND ARM VIBRATION SYNDROME (HAVS)

HAVS is a condition that can develop in the fingers, hands, and forearms of some individuals following exposure to hand transmitted vibration, usually from working with hand-held vibrating tools.

It is a common occupational disease, affecting workers in multiple industries/occupations where vibrating tools are used. The risks increase the higher the intensity and duration of the exposure. A national survey estimated 4.9 million workers are exposed in the UK.

HAVS has a high prevalence in certain industries, e.g. foundry, construction, metal, mining and forestry work. It became a prescribed industrial disease in 1985 and is one of the most common claims for Industrial Injuries Disablement Benefit. HAVS is described as having **three components:**

- Vascular (previously known as vibration white finger)
- Sensory (also known as sensorineural)
- Musculoskeletal.

**Vascular symptoms** include characteristic episodic well-demarcated finger blanching/ whiteness, caused by vasospasm (the sudden contraction of the muscular walls of the blood vessels). Exposure to vibration causes the condition; however it does not precipitate/ cause an attack. The main trigger for an attack of vascular symptoms is exposure to cold/ damp conditions. The sufferer may complain of numbness, pain, cold and reduced manual dexterity.

**Sensory symptoms** include numbness/tingling in the fingers and a reduced sense of touch and temperature. The sensory symptoms are less obvious than the vascular symptoms; however sensory loss leads to a deficit of the hands as a sense organ (inability to feel things through the hands), and this leads to reduced manipulative dexterity (ability to use the hands properly), which can affect both work and social life.

**Musculoskeletal symptoms** include loss of grip strength, bone cysts and upper limb osteoarthritis. Several other common upper limb conditions have been linked with the use of vibrating tools, e.g. carpal and cubital tunnel syndromes (a type of nerve entrapment at the wrist and the elbow respectively) and contractures of the tissue of the palm, a condition called Dupuytrens contracture.

Diagnosis of HAVS is one of exclusion, i.e. identifying through discounting other conditions. It requires **three criteria** to be satisfied:

- Presence of appropriate symptoms
- Vibration exposure of sufficient severity and duration
- Exclusion of other conditions.

For all individuals working with hand-transmitted vibration exposure, this should be reduced to as low as is reasonably practical in line with the nature of their work. Legal limits should not exceeded, with a focus on the daily "Exposure Action Value" (EAV) rather than the daily "Exposure Limit Value" (ELV).

EAV = 2.5m/s² A(8), ELV = 5 m/s² A(8), where A(8) is the average vibration over a working day of eight hours. HSE exposure calculator: www.hse.gov.uk/vibration/hav/vibrationcalc.htm

In addition, and in connection with reducing and controlling vibration exposure, the **following measures can help to minimise risk:**

- Reduce exposure, i.e. reduce trigger time, rotate tasks and allow for breaks.
- Ensure tools and working practices are appropriate.
- Ensure vibration levels are consistent with HSE recommended levels.
- Ensure maintenance levels are consistent with HSE recommended levels.
- Encourage employees to keep their body and hands warm and dry and to minimise smoking.
- Encourage employees to report any additional symptoms to management.
- Ensure employees have suitable and sufficient training with regards to HAVS.

A **guide** for employees using hand arm vibratory tools can be downloaded at www.hse.gov.uk/pubns/indg296.htm