Ask 9 Questions to Assess Whether Cold Temperatures Increase the Risk of MSIs

October is Occupational or Global Ergonomics Month, a world-wide initiative to increase awareness of ergonomics in the workplace. So it’s the perfect time to assess your workplace for ergonomics-related risk factors that could cause workers to develop musculoskeletal injuries (MSIs).

But when assessing your workplace and operations, one factor you may not consider is the impact of the temperature.

As a guidance sheet from WorkSafeBC explains, exposure to cold causes arteries to narrow and reduces the efficiency of muscle and soft tissue by reducing their flexibility. Workers with cold hands may grasp more forcefully, exposing muscles, soft tissues and joints to increased forces. Cold temperature may also increase the harmful effects of vibration.

Occupations that have exposure to cold air temperature, cold object temperature or discharge of cold gases over an unprotected hand as part of the job may put workers at an increased risk of developing an MSI. Examples of such occupations include:

- Meat cutters
- Grocery clerks who handle frozen foods
- Mechanics
- Warehouse order pickers working in cold storage or freezers
- Lumber graders
- Others working outdoors in the winter.

For tasks that require work with bare hands, dexterity may be compromised when the temperature is less than 16øC. Likewise, the risk of MSI will increase if a worker has cold hands in combination with frequent and/or prolonged exposure to grip force, awkward wrist posture and hand-arm vibration.

Contact with cold metal surfaces or evaporative liquids such as gasoline, alcohol or cleaning liquids may also increase the risk of MSI. And evidence suggests that women lose heat in the extremities more quickly than men.

The WorkSafeBC guidance recommends considering these questions when assessing the risk of MSIs associated with cold exposure. Answering yes to one or more of these questions indicates that cold temperature on its own or in conjunction

with other factors may increase the risk of MSIs for workers:

1. Is the ambient air temperature below 16øC’
2. Are workers’ extremities exposed to drafts’
3. Are workers exposed to cold temperature for prolonged periods without the opportunity to warm up’
4. Are workers dressed inappropriately when working in coolers and freezers’
5. Are workers’ hands exposed to cold water’
6. Are workers using vibrating power tools outside in the cold’
7. Are the tasks highly repetitive or do they require forceful gripping’
8. Are workers fatigued, hungry or dehydrated’
9. How active is the job’ (Workers with low activity levels are at a greater risk.)

Some examples of controls that can be implemented to reduce the risk associated with cold exposure include:

- Reduce drafts by directing air movement away from workers.
- Provide portable heaters for workers. (But make sure they use the heaters safely.)
- Provide access to hot drinks and warming stations for hands.
- Ensure that metal hand tools are stored in a warm place prior to use.
- Provide alternating periods of warm and cold work (rotate the workers).
- Provide rest breaks if rotation isn’t possible.
- Limit exposure to vibrating tools outside or in cold indoor temperature.
- Provide tools that reduce forceful gripping or awkward postures, such as tools with adjustable or bent handles.
- Minimize forceful gripping, bending wrists and exposure to vibrating hand tools.
- Educate workers on the effects of exposure to cold and signs and symptoms of injury.
- Encourage workers to stay well hydrated.
- Ensure workers have well-fitting gloves appropriate for the task.
- Ensure workers wear clothing that keeps them warm without adding too much bulk