

FEATURE ARTICLE

PREVENTING CARPAL TUNNEL SYNDROME & OTHER UPPER LIMB INJURIES

The muscles that control our fingers are located in the forearm. Tendons connect these forearm muscles to the bones in our fingers and hands. Whenever we move our fingers, the tendons slide back and forth under a band of tissue at the front of our wrist. This band of tissue together with the bones in our wrist forms the carpal tunnel. The carpal tunnel is quite small – about the size of a dime. This can be problematic as it doesn't take much pressure or bend in the wrist to constrict the carpal tunnel.

When tendons slide back and forth through their sheaths, they create a small amount of friction. As with any moving part, with enough friction, wear and tear can occur, causing expansion or swelling. When tendons or their sheaths swell and there is pain or tenderness, it is called "tendonitis". When we bend our wrist or apply pressure to the front of the wrist, the carpal tunnel can constrict. Now the tendons must move back and forth through a smaller opening, thus, creating more friction. With more friction comes more potential for wear and tear and swelling. If there is enough pressure on the carpal tunnel or swelling (of the tendons or sheaths inside the tunnel), the median nerve, which also passes through the tunnel, can be compressed. When this occurs people can experience a "pins and needles" feeling in the hand (often at night), weakness and reduced range of motion in the wrist.

So what can we do to prevent injuries such as these? There are certain hazards that have been found to contribute to these injuries that include:

- ✓ Repetitive hand, wrist or finger movements.
- ✓ High force gripping or finger pressure.
- ✓ Awkward postures of the wrist.
- ✓ Direct pressure at the base of the palm or across the front of the wrist.
- ✓ Exposure to vibrating tools.
- ✓ Exposure to cold.

When more than one of these factors are occurring, or there is a lengthy exposure to a single hazard, there is a greater potential for injury to develop. To prevent these injuries, we need to try to reduce or eliminate the hazards.

Take a meat cutter, for example. These workers grip a knife (often for long periods), they work in the cold, their wrists are often in awkward positions, cutting is a repetitive action, and they may need to apply high force. There are many hazards present that could lead to the development of an injury. Prevention needs to be multifactorial; minimizing each factor to bring down the level of risk for injury.

In any industry, we find hazards of repetition, force and awkward postures. It is important to realize the risk potential they represent. IDENTIFY the hazards that may be contributing to the risk and MINIMIZE or ELIMINATE them!

ERGO Musculoskeletal Disorder (MSD) Prevention

- ☐ Do you have an MSD Prevention Program?
- ☐ Do you know what your MSD hazards are in your workplace and do you know how to minimize their risk?

This framework should help get you started.

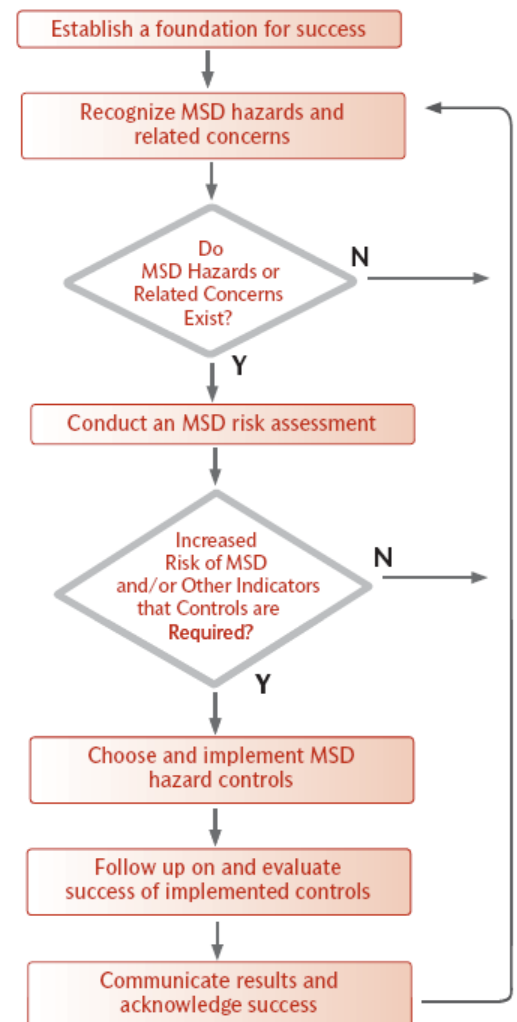


Figure 1. MSD Prevention Framework
(from the MSD Prevention Guideline for Ontario)

ERGONOMIC SOLUTIONS FOR MANUAL MATERIAL HANDLING

- ✦ A height adjustable palletizer allows workers to adjust loads so they are at an appropriate working height.
- ✦ A turntable allows quick and easy rotation of the load so that the worker is always working on the near side; thus, eliminating reaching, stretching and walking around the table.
- ✦ Replace level shelving with gravity activated angled shelving. The height of the shelves can then be set between the average workers' knuckle height and shoulder height.



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