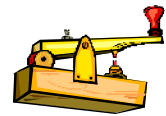




# The Ergonomic Wire



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## Quick Ergo Tips:

### 👂 The Perfect Sleep Environment:

1. Comfortable bed and pillow that supports your body and head.
2. Keep the room cool.
3. Keep the room dark. Even LED lights can make your body think it's time to get up.
4. Keep it quiet - use ear plugs if you have to.
5. Keep the room reserved for sleeping (no studying, eating, or watching TV).

## Gloves at work can contribute to higher risk of Musculoskeletal Injury

By Kirsten Willms, AE, Ergonomic Consultant, EWI Works

Upper-extremity work-related musculoskeletal disorders (WMSDs) have a considerable prevalence in the workplace. Such disorders cause pain and discomfort to workers, and have been shown to be highly associated with high repetition and forcefulness of manual work. Many workplaces require the use of gloves for protective purposes, but did you know that the gloves themselves may be contributing to the onset of injury?

Most people can tell you that wearing gloves can be awkward, especially if they don't fit properly. Usually the protective benefits of gloves overrides any concerns with the extra effort or clumsiness associated with wearing them. Some types of gloves can even actually help

with your task by providing extra friction – for example, the textured surface of dish gloves helps hold on to those slippery dishes better.

However, even a glove as thin as a dish glove can cause a 10% reduction in maximal grip strength. Reduction in strength has been widely recognized as one of the most common consequences of wearing gloves, with declines in grip strength reported ranging from 5% to 30% for maximal efforts. There is less known about the increased effort required during sub-maximal gripping tasks, however there is evidence that the gloves increase the amount of muscular effort required when performing manual tasks.

To understand why wearing a



glove increases effort and reduces force output, we can look at some of their characteristics. Thickness, material, and fit are three of the main attributes which affect this the most.

The effort required to bend the glove itself adds to the effort actually required to perform a task while wearing gloves. A thick glove, or one made with a more inflexible material, makes your fingers work harder to

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## Kirsten Willms joins EWI Works Calgary.

By Lorel Hammerstad, Communications Specialist, EWI Works

This spring, EWI's Calgary office gained an additional team member, Kirsten Willms. Kirsten completed her undergraduate degree at Simon Fraser University in Kinesiology, specializing in ergonomics and human factors and working for five coop terms. Her Master's degree was undertaken at the University of Waterloo, specializing in ergonomics and occupational biomechanics. During this time, she also worked in the field as both a researcher and practitioner in environments such as metal manufacturing to call centers.

One of her research studies covered the use of gloves in the workplace, which you can read about in this newsletter.

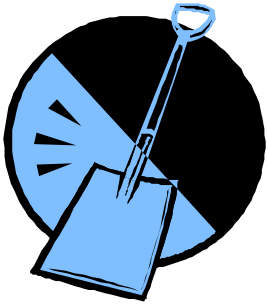
Kirsten's personality was a perfect match to EWI Works. In addition to being extremely personable, she's innovative and enthusiastic, keeping abreast of new standards as well as technology. Her enthusiasm and yearn for knowledge will make her a great value for both EWI and its clients. Furthermore, having her on board in Calgary will make turn around times for assessments and training faster for our clients across the province and nationally.

You can read more about Kirsten on our staff bio page at [www.ewiworks.com](http://www.ewiworks.com).



## Educate workers on safe shovelling practices

By Lorel Hammerstad, Communications Specialist, EWI Works



### Choose the right shovel.

The blade shape and handle length all depends on the task at hand and the materials to be dug.



Never bend over at the waist and use your back to lift!

Always keep your feet apart, knees bent and lift the load with the legs.

Chris is a general labourer with a foundation repair company. The majority of the repair work is done on the outside of the building, utilizing shovels and other hand tools rather than machines. The type of soil varies, depending on the location and what time of year the work is being done. Chris has seen everything from sloppy, water saturated mud to hard clay. On one occasion, he saw another labourer hit a hard surface three feet below the ground.

Chris doesn't consider himself someone with a lot of experience digging but he has used a shovel to help a few buddies over the last few summers so he figured this job would be easy pay. "Really," he said, "it isn't rocket science - at least that's what I thought until I hurt my back."

It was a Friday afternoon and Chris' crew wanted to hurry up and finish the job so they could get back to get their paycheques. Chris bent over from his back, scooped up a big load of packed, wet clay and stood straight up with the load, twisting his back to toss it on the heap behind him. The end result was lost time in work and a WCB claim for his company.

According to the Canadian Health Resource Center, the average back injury claim costs an organization \$18,365. Knowing this, ask yourself, how many employees do you have that could be at risk of a back injury? If you think the odds are pretty good that they won't hurt their back, remember this: Back injuries are the second leading cause of absenteeism next to colds and flu - translating into 100 million lost days of work.

Back to the topic of shovelling, this art isn't something that automatically comes naturally. Even the most "seasoned" worker can still be oblivious to proper techniques to prevent back injury. As an owner or operator of an organization that involves workers using shovels as part of the job, you can leave it up to the employee to be responsible for understanding how to protect themselves. However, it would be in your best interest to also provide proper training or some type of guidelines to new employees - even offer reminders during safety meetings. If supplied, the shovels should be the right ones for the job and the worker should be made aware of the type of materials he/she will be digging - or at least it should be emphasised that the worker should find this information out at the site before starting the work.

There are many great sites on the Internet where you can find information to develop a tip sheet to hand out at your next safety meeting or put together a brown bag session to educate your workers or supervisors in safe shovelling. Important points include:

1. Good shovel design.
  - ◆ A lighter shovel will reduce the muscular effort required to dig
2. Choosing the right shovel type relating to the task and materials that need to be dug.
  - ◆ A longer handle eases the strain on the back, reducing bending, and is usually required when requiring a spade to dig holes.
  - ◆ Square blades with shorter handles work
3. Proper shovelling technique
  - ◆ Keep throw height less than 4 feet (1.3 meters).
  - ◆ Warm up your joints and muscles before getting into the dig through light exercises.
  - ◆ Keep your stance wide and place one foot forward near the shovel, placing your weight on that foot to push the shovel forward.
  - ◆ Keep your knees flexed and bent slightly - remember to lift with the legs, not the back.
  - ◆ Do not overload your blade - be mindful of the weight of the load.
  - ◆ Shift your weight to the back foot and keep the load close to the body.
  - ◆ Turn your feet in the direction of where you want to throw the load. Do not twist your back or toss the load over your shoulder!
4. Other tips:
  - ◆ Dress appropriately for the weather - layers work so you don't overheat.
  - ◆ Stay hydrated.
  - ◆ Don't rush the job - that's usually when the accident will occur.
  - ◆ Take breaks.
  - ◆ Know what's under the materials you are digging - call before you dig if you are concerned about underground cables.
  - ◆ A note on back belts - a NIOSH study proved that back belts do not prevent injuries so

well for digging course gravel or coal.

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## Work gloves and MSDs continued

(Continued from page 1)

move the glove as you grasp an object. The thicker or more inflexible the glove, the more muscular activity will be needed.

Thickness or bulky material can also change the geometry of the hand and fingers by forcing your fingers to be farther apart, or not allowing your hand to be in the best position. As grip strength is affected by posture, deviating your fingers away from a neutral posture changes muscle lengths, reducing your capacity to exert a maximal effort. The awkward posture also places additional strain on your muscles and tendons as your muscles have to work harder to exert the same force.

Dexterity is also affected by how well the glove fits the hand. The looser the glove, the more effort is required to perform a task. Think about how well you think you could pick up a quar-



**Gloves are often part of standard PPE but they can be linked to MSD injuries**

ter off the floor while wearing typical work gloves. Not so easy!

Wearing gloves interferes with your sense of touch. There are nerve receptors in your skin and muscles that give you information about the object in your hand – what it feels like, how heavy it is, its shape, and its temperature. Gloves decrease this feedback, and the thicker or looser they are, the less feedback you get. As a result, we often will grip an object more firmly, increasing our muscular effort. This decreased sensation is also one of the reasons why

dexterity and manual performance suffers.

Though gloves are often a necessary protective piece of equipment, they can cause increased muscular effort as they place additional strain on the fingers, wrists, hands and arms. As manual work becomes more forceful, the risk of injury increases.

To reduce the risk of injury associated with wearing gloves, try the following tips:

1. Ensure the glove is properly fitted.
2. Wear the thinnest glove possible appropriate for the job.
3. Look for gloves with the greatest flexibility in material.
4. For manual handling, choose a glove which offers increased friction on the gripping surface.

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## Proper shoveling continued

(Continued from page 2)

don't think you are 100% safe if you use one.

As mentioned, there are some great resources for safe shoveling practice. Here are a few:

1. CCOHS - Canadian Center for Occupational Health and Safety  
*Shovelling:* <http://www.ccohs.ca/oshanswers/ergonomics/shovel.html?>
2. CPWR - The Center to Protect Workers' Rights  
[www.cpwr.com](http://www.cpwr.com)
3. NIOSH - National Institute

for Occupational Safety and Health

4. OSHA  
[www.osha.gov](http://www.osha.gov)
5. The City and County of Honolulu - Department of Human Resources - Division of Industrial Safety and Workers' Compensation has a great document called "Safety Tips on Shoveling":  
<http://www.honolulu.gov/HR/safetytipsonshoveling.pdf>

Don't let your organization be a part of the injury statistics as mentioned earlier. Don't assume

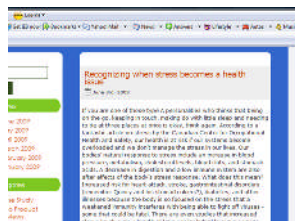
your workers, like Chris, will know the proper techniques of shovelling. If you would like some guidance in putting together a document for your workers or safety meetings or would like assistance in developing a lunch and learn session, give EWI a call at 780-436-0024 or email at [info@ewiworks.com](mailto:info@ewiworks.com).

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Visit the EWI Works website at [www.ewiworks.com](http://www.ewiworks.com) to find out about the products and services offered to assist you with your ergonomic initiatives.



### Did you know we have an ergonomic blog?



**EWI Works now features a blog where you can find out the latest ergonomic tips, example case studies, and updates on safety codes and standards. Keep yourself and your organization informed or use our information for your next safety meetings.**

**[www.ewiworks.com/blog](http://www.ewiworks.com/blog)**



**EWI Works can help your organization develop and implement an action plan to reduce the number of injuries at your job site through ergonomic training.**



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## What's the buzz at EWI Works

### Upcoming events for Ed and Erin

Ed has been busy as usual—a paper was accepted for publication in the American Journal of Industrial Medicine, entitled: *Risk factors for work-related musculoskeletal disorders: a systematic review of recent longitudinal studies*.

He also presented a poster at the 4th Leaders in Rehabilitation Conference in Edmonton in March and in the third week of June, he will be giving a podium presentation at the 2009 Canadian RAI Conference: *Using RAI-MDS data to assess the risk of resident falls in long term care facilities*.

Erin will be presenting a talk on Challenging Work Environments and Innovative Training at the 2009 Health and Safety Conference in October. Given the recent addition to the OHS Code to address manual handling training, this discussion will include important and valuable points for your organization. Oh, and watch for the EWI Works booth at the conference to meet and chat with our other consultants.

### Linda believes in continuing education as key to better improve our services

Linda has been busy herself attending seminars and continuing education courses to further enhance our services. In February of this year, Linda attended an extremely interesting course in the Human Factors Series, put on by the National Transportation Safety Board. The four day course covered topics in cognitive interviewing for accident investigators and investigating human fatigue factors. More recently, she attended a functional capacity course in Saskatoon as



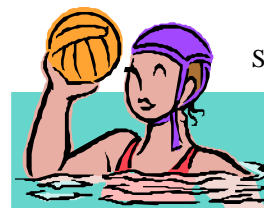
part of her Occupational Therapy continuing education.

### The athletic side of our consultants

It isn't always papers, conferences and studying for our staff. We've mentioned before that all of our consultants have outside interests in travel, cooking and athletics. For Donald, Lorel, and our newest team member, Kirsten, the last few months have been busy. In March, Donald was selected to officiate the 4A Boys Provincial Basketball Championships in Red Deer. There were 24 officials, 6 evaluators, and 56 games played over a course of three days. Donald said it was an honor to be selected to officiate at such an exciting event.



Lorel has finally admitted that she has now taken up triathlon. Her first Sprint distance race was held on a chilly June 7th at Lake Summerside. Despite the weather conditions, she did well—particularly on the open lake swim where she placed 38 out of 80 overall.



Speaking of swimming, EWI Calgary's Kirsten Willms very recently returned from competing with her team at the 2009 Master's National Championships in Irvine, California. The team placed 7th overall out of 13 teams. She said they did exceptionally well considering the majority of their team was plagued by illness! Great job Kirsten!