



SUMMER SHOVELING



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BACKGROUND

Shoveling can be physically demanding to the cardiovascular system (heart and lungs) when done at fast rates. Improper shoveling can also cause severe back pain. It is **EXTREMELY** important that stretching exercises are performed prior to shoveling, especially if it is strenuous shoveling (i.e. moving a huge pile of soil or dirt). **NEVER TWIST WHEN SHOVELING.** This is a huge risk factor for injury.

Here are some important points/helpful tips about shoveling:

STRETCHING

After warming up, perform gentle stretches for the back (i.e. knees to chest), arms and shoulders (i.e. body hug), and legs (i.e. forward bends from a seated position). This will ensure that your body is ready for action (Figure 1).

Your back is especially vulnerable when you first wake up. Back muscles stiffen while you sleep. If you attempt to exert yourself shortly after getting out of bed, you increase the risk of injury. If you plan to head outside to shovel after waking up warming up is critical. Therefore, be sure you warm up your lower back first!

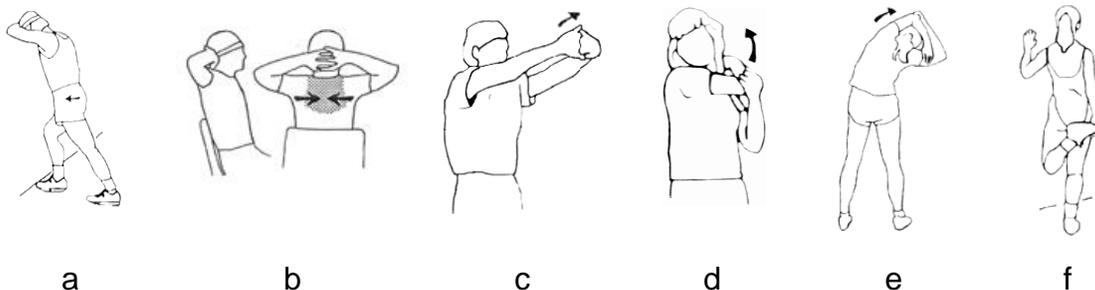


Figure 1(a), (b), (c), (d), (e), & (f): Leg, back, and arm stretches

PICKING THE RIGHT SHOVEL

Shovel Type

- Triangular or round blades with long handles should be used for sand and dry earth
- Square blades with short handles should be used for coarse-grained materials such as gravel
- Use a blade that has a rolled step (lip for pushing) on the top (it can be triangular, round or straight at the bottom) for digging in hard earth. This will allow you to apply foot pressure to push the blade into the earth.

Shovel Weight

- The shovel should weigh no more than 3 lbs. The heavier the shovel, the more unproductive shoveling becomes due to the extra weight.





Shovel Length

- Ideally, the handle should come up to the user's chest (about the height of the breast bone) in order to reduce forward bending that may stress the lower back muscles.
- If the shovel is too tall, it will place extra stress on the shoulders and neck. If the shovel is too short, it will force you to bend awkwardly, thus placing more stress on your back.

SHOVELING VARIABLES

According to the Canadian Centre for Occupational Health and Safety (CCOHS) the following should be followed when shoveling:

- **Rate:** should be no more than 15 scoops per minute (CCOHS, 1999)
- **Length of time:** should last for no longer than 15 minutes followed by a 2-3 minute break (depends on weather as well).
- **Density of material:** the thicker (denser) the material is (i.e. grain, snow, gravel, clay, compacted earth, etc.), the harder it is to shovel. This affects the shoveling rate along with the amount of weight on the shovel.
- **Shovel load:** the load lifted should be adjusted according to the shoveling rate. For a high rate of shoveling (15 scoops/min), the total weight (shovel weight plus load weight) should not exceed 5-7 kg (about 10-15 lbs). For a high rate of shoveling, the load can be increased to a maximum of 11 kg (about 25 lbs).
- **Throwing location:** the more precise the placement of a load, the lighter the load should be.
- **Throw Height:** should not exceed 1.3 meters (approximately 4 feet).
- **Throwing Distance:** optimal distance is around 1 metre (about 3 feet). The load should be reduced if the task requires a longer throw. Avoid throwing material further than 6 feet as this requires increased shoulder muscle activity and people often twist their spines during this motion. Twisting with a weight on a shovel with a high speed throwing motion can cause many injuries.

SHOVELING GUIDELINES

When you are shoveling it is recommended that you NEVER TWIST your back. This is a huge risk factor when continuously repeated it will contribute to lower back pain and disability. Instead lift the load with your legs and keep your back in an upward posture. Follow the guidelines below that were designed by CCOHS (1999).



Keep feet wide apart. Place front foot close to shovel.

Put weight on front foot. Use leg to push shovel.

Shift weight to rear foot. Keep load close to body.

Turn feet in direction of throw.

Figure 2: Proper Shoveling Techniques



Poor Digging Technique



Good Digging Technique

Figure 3: Proper Digging Techniques

USING A WHEELBARROW

Wheelbarrows can be a handy tool around the house and work site for moving large amounts of dirt, gravel and sand. They should be used when the load that is being moved is over 6 feet. When using the wheelbarrow there are some important points to remember.

- Avoid overloading the wheelbarrow (do not try and keep up with other co-workers)
- If possible, use a two-wheeled wheelbarrow.
- Ensure the travel path is clear (and that you know where you are going). If you have to travel a long distance, take a break.
- When lifting the wheelbarrow, stand close to the wheelbarrow, place one leg in front of the other, bend both knees, keep a slight bend in the elbows, tighten the abdominals (core muscles), breathe out when lifting and lift very smoothly.
- When emptying the wheelbarrow, ensure you keep your back straight and lift slowly rather than rushing.



Lifting a wheelbarrow



Emptying a wheelbarrow
(1)



Emptying a wheelbarrow
(2)

Figure 4: Proper Use of a Wheelbarrow
Source: Asher, 2007.

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If you need further assistance, call the Occupational Health Clinic for Ontario Workers Inc. Closest to you.

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