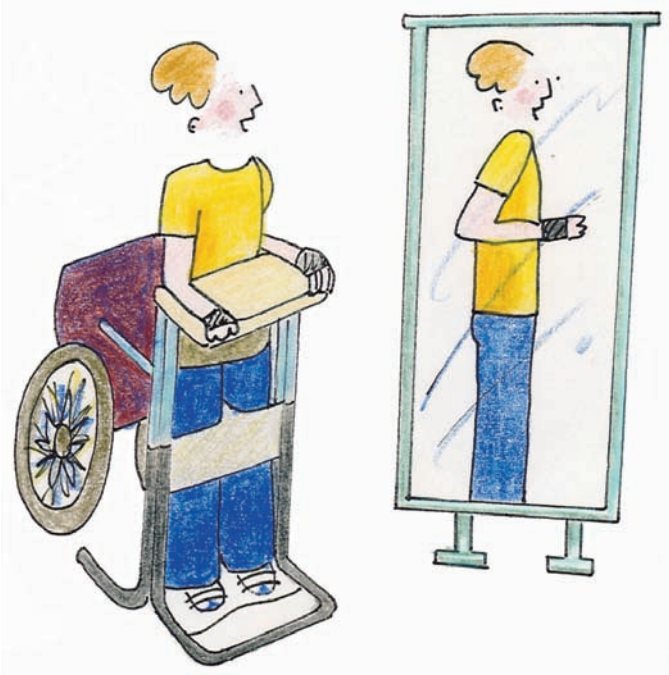


Standing





After a spinal cord injury (SCI), many people wonder if they will ever stand or walk again.

For many, standing is a critical part of healthy living.

This booklet will help you understand:

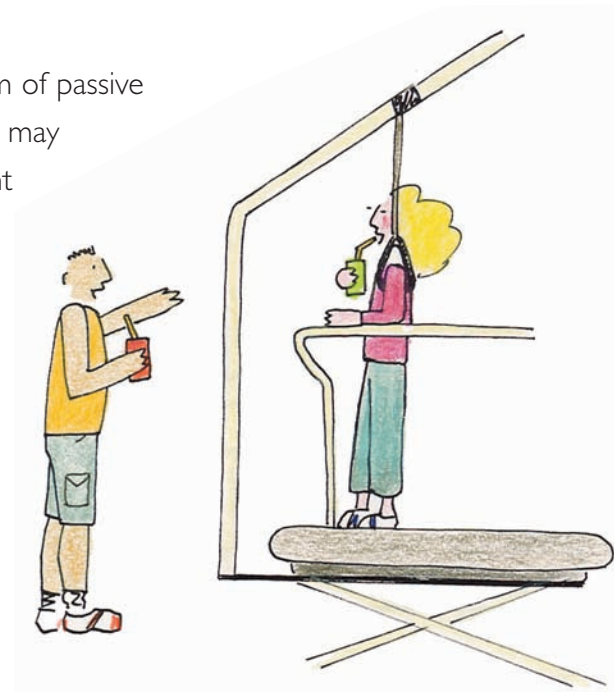
- why standing is important after SCI;
- the physical and psychological benefits of standing;
- safe use of a standing device;
- the potential side effects of standing; and
- if the use of a standing device is appropriate for you.

Why is standing important?

Standing is a routine part of daily living that allows us not only to talk and socialize with others, but also to perform many regular and important activities including cooking, washing the dishes, grooming or using the bathroom.

For people with a spinal cord injury (SCI), standing with the help of a mobility or standing device helps to increase functional independence and improves an individual's physical and psychological well-being. Standing is also an important part of the spinal cord rehabilitation process and is required before participating in some other therapies such as FES (functional electrical stimulation), body weight support treadmill training or brace walking.

A regular program of passive or active standing may potentially prevent or reverse some of the secondary complications associated with immobility that most people with SCI experience.



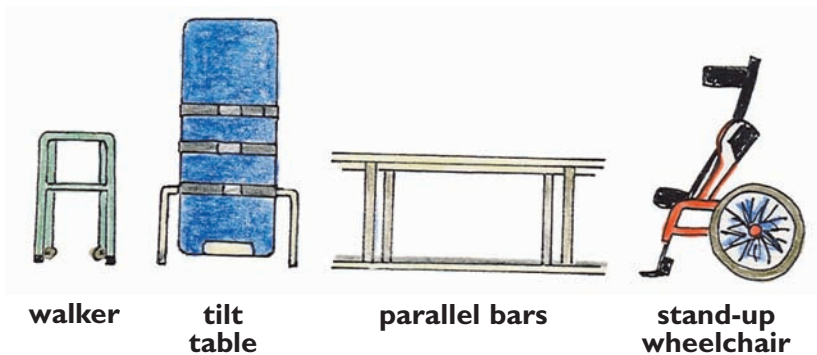
body weight support treadmill

Complications may include: pressure sores, urinary tract infections (UTI) or bladder infections, constipation, contractures and spasticity.

In a standing frame study conducted at Toronto Rehab, participants reported an increased sense of well-being, self-satisfaction and improvements in their health.

How do I stand?

People with SCI who are unable to stand by themselves use a variety of devices to achieve a standing position. These devices can enable a person with SCI to perform active standing and/or passive standing.



Active standing requires voluntary muscle contraction to come to, and stay in, an erect standing posture. It is not dependent on a standing device to achieve mobility. Active standing devices include: forearm crutches, leg braces, stationary or wheeled walkers and parallel bars.

Passive standing is dependent upon a device to bring a person to a standing position and then to hold him/her in that upright position. Passive standing devices include: standing frames, strap standers, tilt tables and stand-up wheelchairs.

What are the benefits of standing?

People with a SCI who regularly perform active or passive standing report a number of benefits. They include:

Physiological benefits:

Bladder function

- Prevents bladder infections due to increased blood flow to the kidneys
- Increases urinary output
- Reduces bacteria in the urine
- Reduces urinary calcium output (early after injury)



Bowel function

- Increases stool transit time in the colon
- Decreases constipation
- Decreases hemorrhoid problems

Lung function

- Prevents collapse of the lower lobes of the lungs
- May reduce your risk of developing pneumonia

Less pain and decrease in spasticity

- Less neuropathic pain
- Less need for pain medication
- Short-term decrease in spasticity

Bone Health

- Standing is a weight-bearing activity and may prevent bone loss

Psychological benefits:

- Fewer symptoms of depression
- Better sense of well-being and self-satisfaction

How often do I need to stand?

Toronto Rehab's practice for standing is based on prior research in our Spinal Cord Rehab Program. Research has shown that standing three times a week for 45 minutes results in health benefits. If you are starting a new standing program you will need to build up to this frequency and duration of standing. (If you have been standing for a long time you may exceed this goal.) Our recommendation is standing from 20-45 minutes three times a week.

What precautions are necessary before standing?

Proper care and preparation are necessary for safe, and ultimately successful, standing.

There are a number of steps that will help you prepare for a safe standing session.

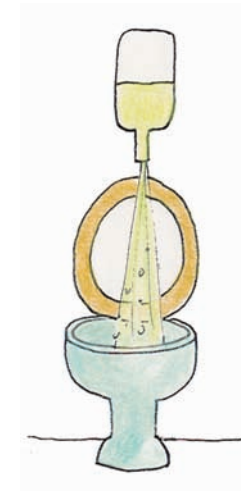


1. Eat one to two hours before standing.

2. Make time to stretch both before and after standing.



3. Empty your bladder or leg bag 15 to 20 minutes before standing.



4. Have juice or water handy to drink while standing.

5. Put on pressure stockings to help with blood pressure regulation and to reduce ankle swelling.



6. Put on proper footwear with good tread and support; avoid sandals and heels. Some people

will need to wear shoes that are half a size larger than usual because of leg or ankle swelling.

7. People with quadriplegia or very low blood pressure should use an abdominal binder the first few times they stand.

8. Put on loose clothing – avoid snaps or zippers as they may cause pressure. After standing, always check the skin of your heels, toes, knees, hips and buttock area for pressure areas.

What are the potential side effects of standing?

As with any rehab intervention, care should be taken when participating in a standing program as potential side effects may occur. Most side effects are short lived and will not interfere with your ability to stand in the long term.



Common side effects are:

- **Orthostatic Hypotension (OH)**, a 30 mmHg drop in blood pressure with standing. **Symptoms include:**
 - nausea
 - lightheadedness
 - headache

You may also experience a drop in blood pressure without any symptoms.

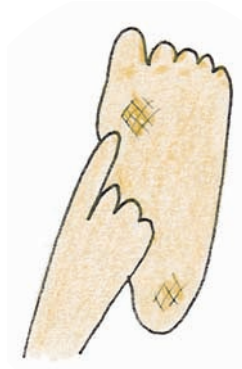
- **Syncope or fainting.** Syncope is often the result of untreated OH. Common warning signs include:
 - blurry vision
 - ringing in the ears
 - nausea

Those with levels of injury above T6 are more likely to experience OH.

When people with SCI above T6 move from lying or sitting to standing, they experience interruptions in blood pressure control pathways that can result in an impaired ability of the circulatory system to adapt to these changes in posture.

Other potential side effects are the result of body positioning when using standing devices. These side effects can include:

- pressure sores
- pain
- breathing difficulties
- spasticity



Once your standing position is adjusted to work best for you, the side effects associated with standing are often eliminated.

Speak to a member of your health care team to ensure that you understand how to use standing devices properly and safely.

What could prevent me from standing?

If you have or are experiencing any of the following, you should talk to your rehab doctor or physiotherapist before you stand:

- low bone density
- prior fractures of your legs
- an uneven pelvis or “pelvic obliquity”
- scoliosis or spinal curvature
- hip and knee flexion contractures
- one leg shorter than the other
- swelling of the feet or ankles
- severe leg spasticity
- low blood pressure

Where can I get more information?

If you would like to start standing or make changes to your standing program, please consult a member of your rehab health care team. Your team will help you to make choices that fit your needs.

If you would like to purchase a standing device, please talk to your rehab team about your needs and the many resources that could be available to you.



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