

Rehab TIP SHEET #6

Walking following Brain Injury

The ability to walk involves 5 simultaneous tasks:

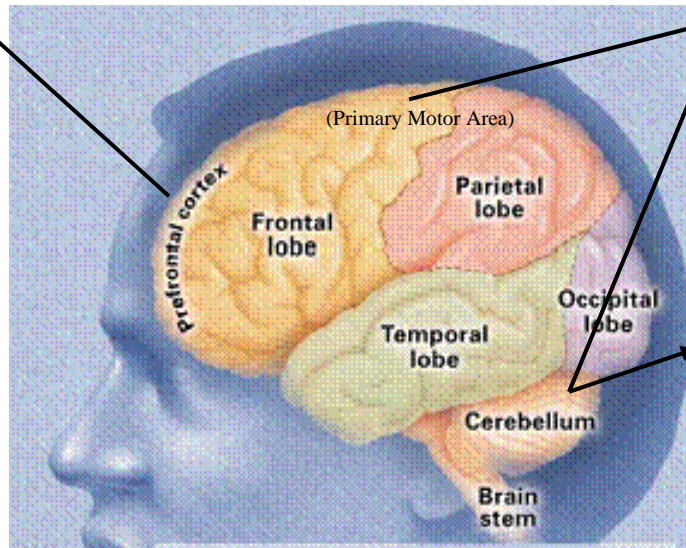
1. balance (the body's ability to remain upright without falling);
2. reciprocal stepping (the coordinated placement of the feet in a symmetrical pattern);
3. adaptation to changing environments (adjust to surface changes such as from tiled to carpeted floors, avoiding obstacles such as traffic, furniture and people);
4. endurance (the ability to continue an activity without growing tired); and
5. attention (the ability to remaining engaged in the activity at hand).

What happens after a brain injury?

Damage to the brain may be focal, affecting only one of these tasks, or diffuse, affecting multiple or all of these tasks. Listed below each task are examples of what walking might look like if this area of the brain were damaged. Because the brain is complex you may see one, all, or none of these problems when your loved one walks.

Attention/Adaptation

- ◆ Come to a sudden stop
- ◆ Run into doorways/obstacles
- ◆ Try to sit down while walking
- ◆ Reach down to pick up an object
- ◆ Wandering
- ◆ Will not follow directions to walk



Reciprocal Movement

- ◆ Legs may cross over
- ◆ One step may be shorter
- ◆ Unable to take a step with one leg

Balance

- ◆ Trip over their feet
- ◆ Lean backwards
- ◆ Lean forwards
- ◆ Lean to the side

How do we retrain the body to walk?

Walking is an automatic task meaning it may be an easier task for individuals to perform rather than an exercise which may require more instructions or is less-automatic. Research indicates that the best way to retrain the body to walk is to walk. You may be familiar with the tools commonly used to assist a patient to walk referred to as assistive devices. These include walkers, canes, or crutches. After a brain injury, therapists commonly do not use assistive devices with patients who have sustained a brain injury because the assistive device will complicate the task of walking and when added make the task less automatic. Instead you may see two individuals or more helping your loved one walk.

Walking provides many benefits to the body including:

- preventing depression;
- preventing constipation;
- lowering stress levels;
- strengthening muscles, bones, and joints;
- improving sleep; and
- elevating overall mood and sense of well-being.

What can you do?

With the approval of your loved one's physician and after receiving the proper training by the physical therapist, you can assist your loved one with standing and walking. Never begin a standing/walking program without prior approval.

Here are some simple steps you can take.



1. Create a safe environment

Keep a chair close by, always use a gait belt, and choose an area free of obstacles. Often a good place to practice standing or walking is at the kitchen counter where they can use the countertop to help them balance. When practicing walking, again clear the area of obstacles and place a chair at the end of the walkway so there is a place to sit.



2. Be prepared for unexpected movements/responses

Remember, individuals with brain injury may forget what they are doing and suddenly sit or stand before you are ready to help them. To help avoid problems, avoid giving instructions to do something to individuals with brain injury before you are ready to help them.



3. Monitor your loved one's heart rate

Count the number of beats in a 30 second time frame, then double that number to determine the number of beats per minute. Normal resting heart rate is 60-100 beats per minute. You can expect the heart rate to increase at least 20 beats per minute with exercise.

Another simple way to determine if your loved one is exercising at a reasonable level is by performing the "Talk Test". If your loved one can talk to you during the exercise, then they are exercising at an appropriate level.

As with any type of exercise, have your loved one stop if they feel faint, their heart is racing, or they have trouble breathing. After a traumatic brain injury, patients may often feel dizzy, commonly due to low blood pressure. You should have your loved one sit down until the dizziness resolves, then try standing again. If the problem persists you should contact your loved one's physician before continuing the standing/walking portion of their Home Exercise Program.