The Benefits of Using a Standing Frame

When a person is lying down and then stands up, a large amount of blood goes down into the legs immediately. In healthy individuals, this causes a sudden drop in blood pressure to the upper body, causing a brief moment of light headedness. There are nerves in the chest that recognize this drop in blood pressure and that, in turn, send signals down to the blood vessels telling them to tighten up. This instantly pushes the pooled blood in the legs back up to the heart and brain, increasing the blood pressure back to normal. For those with leg paralysis due to spinal cord injury, these nerve signals don’t reach the blood vessels in the legs. When a person with paralysis due to spinal cord injury stands up, the blood stays pooled in the legs. The result is a persistent drop in blood pressure and in blood flow to the brain. This is why many people with spinal cord injury experience dizziness, nausea, a blacking out of vision or even fainting, when they go from lying down to sitting or standing. This phenomenon is known as orthostatic hypotension.

People with severe orthostatic hypotension cannot tolerate a standing exercise program as their blood pressures will drop low enough to cause severe symptoms, like the ones listed above, including fainting. There are prescription medications that can lessen the drop in blood pressure for these individuals if they choose to use them. For people with spinal cord injury who do not have symptoms from a severe drop in blood pressure when they stand up, or for those whose symptoms are successfully controlled with medications like Midodrine or Fludrocortisone, a standing program is a safe treatment option to consider.

Research has proven there are many therapeutic benefits by standing using a standing frame for 30 minutes a day for those with leg paralysis due to spinal cord injury. A standing frame is a device which holds the person with paralyzed legs safely upright in a standing position using a strap behind the buttocks and in front of the knees. These pads or straps keep the legs from bending and keep the person standing upright. There are also electric wheelchairs on the market which can stand a patient up, letting him/her roll forward in the wheelchair in either a standing or sitting position. These very costly standing wheelchairs are not covered by most insurance companies. In contrast, most insurers (even Medicaid and Medicare) will usually pay for a stationary hydraulic standing frame device if a letter of medical necessity submitted by the prescribing doctor or physical therapist is completed. It helps to get insurance approval if this research is mentioned in that letter.
Upper Extremity Preservation Following Spinal Cord Injury

Penny Reid, MA, PT

If you’re in a wheelchair, you know how much you use your arms each and every day – not only to propel your wheelchair, but to reach for and lift objects, transfer yourself, and perform pressure releases. The risk of pain and disabling injuries is great. According to one source, half of all wheelchair users will at some time experience pain in their hands, wrists, elbows or shoulders. Developing good habits that minimize injury is the key to protecting and preserving mobility and function. Think about what you do and how you do it in three major areas: Equipment, Environment and Fitness.

Equipment: The first and most obvious question is manual versus power wheelchair. Even if your injury is lower level, a power chair might be a better option for you if you are at high risk for an arm injury. Time in chair, age, weight, prior injury, and environmental factors all contribute to an increase in the possibility of arm or shoulder injury.

With a manual wheelchair, the lighter the chair that fits your needs, the better. Over time, you push those wheels hundreds of thousands of times. Even a few pounds of extra weight add up to place more stress on your hands, wrists, elbows and shoulders. In addition to weight, you need a chair that fits your body and is set up correctly, including axle location and seat height. Your therapist or seating specialist can help you with these adjustments, but the most important factor is how the chair feels to you, based on your unique body and ways of moving.

Power assist devices can convert a manual chair to a partially or fully powered wheelchair. They typically cost less and are lighter than power wheelchairs, but also make the manual chair heavier and harder to transport.

There are many options available with power wheelchairs, including tilt-back for pressure relief and seat elevation to allow you to reach higher objects. If you are using a power chair, work with your seating specialist to determine optimum seating configuration for trunk and arm support, and optimum equipment. Do not try to order or configure a power wheelchair without consulting a specialist, and be sure and do your research first.

Other equipment can help to decrease the wear and tear on your arms: transfer boards, especially for car transfers; gloves for improved traction and grip; tub chairs/ benches; projection hand rims; and power lifts if transfers are too difficult.

Environment: Wouldn’t it be wonderful if every path was level, every door was wide, and everything you needed was within easy reach? Obviously the real world is not like that, but you can look for ways to make your own home environment more accessible. Thick carpets and rugs make pushing much more difficult, as do uneven thresholds. Ramps are essential. Kitchen appliances and storage can be arranged to help avoid over head reaching and lifting. It’s worth it to spend the time rearranging your space to avoid over head lifting and overreaching, and to allow ease of transfers and smooth wheelchair mobility.

Your body is the heaviest thing you have to lift. Set up your transfers correctly, keeping your arms as close to your body as possible. And remember, the best transfer is NO transfer. Don’t transfer unnecessarily – plan your daily routine to be as efficient with your energy and transfers as possible.

Fitness: Exercise to promote strength and flexibility can help preserve your arms and particularly your shoulders. The key to a successful exercise program is regularity, routine and having the right exercises in the first place. If possible, work with a therapist to help establish the appropriate exercise program for you – and then stick with it!

In addition, pay attention to your posture. Sitting in a chair promotes a forward slump, which leads to tightening of your stomach and chest muscles. This affects the range of motion of your shoulders, which ultimately leads to pushing or transferring incorrectly. Daily stretching, proper seating and positioning, and postural awareness can all help to avoid loss of motion and subsequent injury.

This article cannot address all of the issues related to preservation of function of your upper extremities. For additional information, go to the website for Paralyzed Veterans of America, at www.pva.org. This website has excellent free resources for people with spinal cord injury and their families and professional caregivers. Resources and links are also available on the Christopher Reeve Foundation website, www.christopherreeve.org.
Questions for a recent St. Luke’s Rehabilitation graduate

Trisha Stone, age 28, mother of 3 beautiful girls

Interviewed by Candice Belcourt, RT

When and how were you injured?

A trip with good friends for some relaxation and outdoors was what was called for during Memorial Weekend of 2010 on Lake Roosevelt. On May 29th, a ride on a Ranger four-wheeler changed my life forever. With 3 friends on board, the ranger rolled, and I was ejected. I sustained a C7 complete spinal cord injury and lacerated liver. My friends onboard were only mildly injured.

How long were in the hospital?

I was in ICU from May 29th to June 9th. I wasn’t able to breath on my own for 7 of those days, so I was kept intubated. I had my anterior neck surgery done urgently, and my posterior done June 2nd. Doctors couldn’t put me on my stomach because of my liver laceration. I was on the neuro floor for a few days once my blood pressure was under control. Later, I was admitted to St Luke’s.

How long were you in St. Luke’s? How was your rehabilitation?

July- September 2010, my rehabilitation was amazing. I was lucky enough to have a team of therapists, nurses, and doctors who meshed well with my personality, and they were able to push me beyond what I thought capable. They gave me the foundation I needed to begin building my new life. I had to learn all the basic things over again...how to feed myself, brush my teeth, put on makeup, transfer from one surface to another, propel my wheelchair, get in and out of a car, etc. I was determined though and surprised many with what I was able to do before I left!

Did you have any complications?

If there was a complication, I experienced it! Blood clots, infections, neck hardware causing pain (partial removal in May 2011), low blood pressure/fainting, and autonomic dysreflexia to name a few!

Did you have any experience with someone with a spinal cord injury before your accident?

My older brother was killed in a motorcycle accident on July 17, 1988 from a severe spinal cord injury.

What recommendations do you have for someone newly injured?

Patience! Everything you took for granted before suddenly becomes Mt. Everest! While daunting, it is certainly not insurmountable. It takes time and hard work, but each victory, however small, is cause for celebration. I have also learned to laugh at myself. The situations I find myself in leave me no choice. Its either laugh or cry, and laughter feels so much better! Appreciate the life you’ve been given. although different, it’s still your life. Don’t take a single moment for granted!

How is life now?

This last year has been the most challenging time in my life with divorce, a custody battle, and a spinal cord injury! Now...finally, life is great! My 3 girls are now living with me in my parents’ wheelchair-accessible home. I am looking forward to increasing my independence with living and getting my own home, my own car, going back to college, continuing my outpatient therapy, and getting back to my life!!

With all the circumstances this year, medically and emotionally, I would have to say I have never seen anyone with the ability to maintain the positive attitude and fantastic sense of humor like Trisha! She absolutely was a pleasure to work with and has been a wonderful mentor to newly-injured individuals! - Candice Belcourt, Recreation Therapist
The low down on low blood pressure after spinal cord injury.

By Jean Ripley, RN, BSN, CRRN

After spinal cord injury, individuals encounter numerous challenges. One of these challenges is unstable blood pressure. The dramatic changes in blood pressure can severely affect quality of life but can be managed utilizing various techniques.

In people without spinal cord injuries, the heart rate and blood pressure are controlled by the autonomic nervous system in the brain. This system adjusts automatically according to the demands of the body to raise or lower blood pressure. After a spinal cord injury, this system fails to regulate the blood pressure causing a pooling of blood in lower trunk and legs.

Orthostatic hypotension is a decrease in the systolic (top number) blood pressure of > 20mmHg or a decrease in the diastolic blood pressure (bottom number) of >10mmHg when the person changes position regardless of whether signs and symptoms are present.

Signs and symptoms of orthostatic hypotension include; dizziness, nausea, lightheadedness, faintness, pallor, sweating, loss of consciousness, headache, and tiredness.

The disruption of blood pressure is more pronounced after a higher cord injury so it is more common in persons with tetraplegia as opposed to paraplegia. The incidence of hypotension is also more common with a traumatic injury to the spinal cord such as vehicle accidents, and falls than with a non-traumatic injury such as cancer, infection, or disk degeneration. Young people are more prone to hypotension than the elderly although the exact cause of this is unknown.

Treatment for orthostatic hypotension can be through physical mechanism or medications. Non-medicinal measures include the avoidance of fluid depleting substances such as alcohol and caffeine. Compression stockings and/or bandages can be sued to prevent blood pooling in the lower legs and an abdominal binder will help prevent pooling in the trunk. These stockings and bandages usually start from toes to mid-thigh and then as the body learns to compensate, these can be weaned to toes to knee, and then potentially no stockings or bandages at all.

There are medications which can be used to help maintain the blood pressure but must be used cautiously and only under a doctor’s careful supervision.

Even though spinal cord injury presents a number of challenges, many of these can be managed through simple life changes and interventions and allow people to live a full and productive life.

Bibliography


The Benefits of Using a Standing Frame

Continued from page 1

The research-proven benefits of standing for at least 30 minutes a day for those with paralysis due to spinal cord injury are as listed below:

- Quality of life scores (per standardized questionnaires that measure quality of life)
- Fewer pressure sores
- Fewer bladder infections
- More regulated bowel movements (less constipation and less incontinent BMs)
- Improved leg flexibility and range of motion

These benefits were found even if standing did not begin until several years after the spinal cord injury. If a person does not already have a standing program and wants to find out if it can be tolerated using a standing frame without overly low blood pressure, the best way to pursue this is to ask your doctor to refer you to a physical therapist to try out the use of a standing frame. This needs to be at a facility with access to use a standing frame, such as the outpatient therapy department here at St. Luke’s Rehabilitation Institute.
Service Dog Facts

Compiled by: Sarah Gross DPT

What can service dogs do?

Service dogs can be trained to work with people who use power or manual wheelchairs, have balance issues, have various types of autism, need seizure alert or response, need to be alerted to other medical issues like low blood sugar, or have psychiatric disabilities.

Help by retrieving objects that are out of the owner’s reach, pulling wheelchairs, opening and closing doors, turning light switches off and on, barking to indicate help is needed, finding another person and leading the person to the handler, assisting ambulatory persons to walk by providing balance and counterbalance, providing deep pressure, and many other individual tasks as needed by a person with a disability.

How do I get a service dog?

First establish you are disabled. Only persons who are legally disabled qualify for a service dog.

Next, contact an organization that trains service dogs. Service dog central has an article with links to several lists of service dog trainers around the world, or contact assistance dogs international for the name of a member organization nearest you.

Lastly, there are many programs out there that train dogs - either bred specifically by the program, or donated by breeders, or taken from animal shelters.

- The programs all require that an application be filled out, placing the person on a waiting list (which can be anywhere from 6 months for a guide dog to 6 years for a service dog).
- Once you are notified that you have been selected, you visit the program facility and spend anywhere from 2 weeks to a month training with your dog.
- The cost of a program dog can range from $100 to several thousand dollars depending on the program.

Benefits of having a service dog

- 24 hour companion
- Self sufficiency: the disabled individual has less need for asking others to assist with tasks.
- Lessened caregiver costs: there is less need for a human caregiver to assist with chores around the house or to perform tasks such as shopping, etc.
- Personal security: while service dogs are not trained for protection as they need to be well mannered and non-aggressive in public, they do discourage aggressive advances from others and can act as guardians to their partners.
- Delays deterioration: exercise is well known to ward off the effects of aging and degeneration of muscle tissue and bone mass. The daily interaction needed to take care of a dog assists the individual to keep active and involved with staying healthy.
- Physical therapy: dogs provide many opportunities for exercise: grooming them, throwing a ball or Frisbee, playing tug games, etc. All of these help keep their human partner moving and staying limber. In quite a few cases, these special canines are also trained to assist with a structured physical therapy exercise such as lying across legs to give balance for sit-ups or providing a brace for the partner to use while walking or transferring from a wheelchair.
- Psychological benefits: no matter how rotten a day has been, these special dogs provide affection during those hard times and offer unconditional love and support.
- Social benefits: many times individuals with disabilities experience isolation and, in some instances, outright shunning because others feel uncomfortable. Having a service dog helps to bridge that uncomfortable barrier. Where someone would feel unable to ask how a person deals with disability, someone can easily show an interest in how the dog helps his/her partner. This increased social interaction greatly lessens the isolation and feelings of loneliness the disable individual must cope with every day. As one partner once said “My dog makes my wheelchair disappear.”

Where can I get more information?

http://www.servicedogcentral.org
http://www.cci.org
http://www.assistancedogsinternational.org/service.php
http://sdog.danawheels.net/
http://www.lifelinecanines.org
http://www.shoreservicedogs.com

Youtube.com has lots of different videos demonstrating different tasks that service dogs are able to perform for owners as well as different training methods.
Chair Yoga (Wheelchair)

All yoga poses are specially adapted to be done from a sitting position*

- Stretch and strengthen shoulders and arms
- Stretch and strengthen neck and upper back
- Relax and reduce stress through special breathing techniques
- We promote laughter and joyful movement

*Must have some function of arm muscles

Where: Room 200 of St. Luke’s Rehabilitation Institute in the Doctor’s Building
When: Every Tuesday, starting 1st week of March, 2011
         4 - 5 p.m.
Cost: $20 for 4 classes

Pre-registration and payment required.
Charity applications available
Call (509) 473-6714