Weight Shifting For Pressure Relief

Even if an individual with a spinal cord injury consistently practices ideal sitting posture, uses a wheelchair with proper dimensions and fit and utilizes the ideal cushion for his/her needs – pressure relief in the form of periodic weight shifting must be done to prevent skin breakdown.

What is the purpose of weight shifting?

- Periodic weight shifting serves to restore blood flow to areas of the skin that have been bearing weight and to provide relief on areas of skin overlying bony prominences. When sitting in a chair or wheelchair, the area that requires this relief is the ischial tuberosities (the “sitting bones”) of the buttocks.

Options for Weight Shifting:

The technique(s) used for weight shifting and/or pressure relief depends on the individual and factors such as his/her level of injury, functional abilities, type of wheelchair, etc. Below are the most common methods for weight shifting. Each technique should be performed for at least 60 seconds.

- Lateral trunk shift/lean

  - In this technique, the individual hooks his/her upper extremity over the back or side of the wheelchair and leans to one side, un-weighting one ischial tuberosity (“sitting bone”) at a time. The individual should hold each lean for approximately one minute.
This method is relatively easy to perform and requires less trunk control than a forward leaning weight shift (see below).
This method is most typically utilized by individuals with a level of injury of C4, C5 or C6.

- Forward trunk lean

  - In this technique, the individual ensures that his/her buttock is all the way back in the wheelchair seat, then walks his/her hands down the legs and reaches down for the floor. The individual then leans forward so the buttocks completely clears the wheelchair seat.

    ![Image 1]

    ![Image 2]

  - If this method is too difficult, the individual may lean forward by holding on to the arm or backrest of the wheelchair in a similar fashion as the lateral weight shift method.
  - This method is more difficult to perform than a lateral weight shift; however, it is advantageous because the individual is able to un-weight both “sitting bones” simultaneously.
  - This method is most typically utilized by individuals with a level of injury of C6 and below.

- Shoulder depression or “wheelchair push-up”

  - This technique is the most difficult to perform, but it is also the quickest and most effective means of pressure relief because the buttock is lifted completely off the wheelchair seat. To perform this technique, the individual must have adequate strength to lift his/her body weight.
In this technique, the individual places his/her hands on either the wheels or armrests of the wheelchair and pushes downward, lifting the buttocks off the seat.

This method is most typically utilized by individuals with a level of injury of C6 and below.

- Tilt and/or recline in wheelchair

  In addition to the methods described above, manual or power wheelchairs themselves have features to assist with weight shifting for pressure relief.

  Manual Wheelchair:

  **TILT-IN-SPACE**: Tilting backward in a manual wheelchair to shift weight off the buttock can be performed with help from a caregiver or by the wheelchair user performing a “wheelie” and maintaining the backward tilt. Maintaining a wheelie is a very advanced wheelchair skill and may not be an option for many individuals.
- **RECLINE:** A reclining backrest on a manual wheelchair can also be utilized to shift weight. Be sure to raise the chair’s leg rests when reclining the chair to maximize the amount of pressure that is off-loaded.

- For these techniques, the user may need assistance of one person or a spotter to ensure the individual will not tip backwards.
Power Wheelchair:

- The use of power tilt and/or recline as a function of an individual’s power wheelchair is often a realistic option for individuals with a higher level of injury (C4 or above), or individuals who have difficulty controlling the trunk when sitting and shifting manually.

Each individual varies in how frequently he/she needs to perform weight shifts to relieve pressure. During early rehabilitation, discovering the individual’s requirements for weight shifting and developing a regular schedule is critical.

*When out of bed activities are initiated, a good rule is to perform weight shifts for pressure relief every 15-20 minutes,* using one or more of the methods described above. Time in sitting should be limited at first and skin should be examined daily for areas of redness and/or signs of abnormal pressure on the skin.

Weight shifting techniques/positioning when in bed:

- Decrease pressure by shifting the body weight. Change positions when in bed every two hours.
If using a hospital bed, avoid raising the head of the bed greater than 30 degrees to prevent shearing of the skin. If the head of the bed must be up, limit the amount of time in this position- no longer than 30 minutes at a time, due to increased pressure on the sacrum/tailbone. If a pressure sore has developed, avoid lying directly on the area. When lying on your side, try to keep pressure off your trochanter (hip bone). Try to keep any bony areas, like the ankles and knees, from touching each other with the use of pillows. Use a device that keeps pressure off the heels- usually a support surface to keep the heels off the bed.

Resources for Patients and Families:

- SCI Info Pages: Skin & Pressure Sore Care, Treatment, and Prevention After Spinal Cord Injury:  
  http://www.sci-info-pages.com/skin_pres2.html
- The Shepherd Center Learning Connections: Weight Shifts
  https://www.myvitalconnections.org/webmanualspreview.nsf/ae05066a27d4960485256af00069d063/3dc521b4b9b58cc185256b5800665d8e!OpenDocument
- Spinal Cord Injury Skin Management at Spinal Cord Injury Information Pages:
  http://www.sci-info-pages.com/skin_pres2.html

Weight Shifting Additional Research/Resources:
