



Orthostatic Hypotension



Figure 1: Young man using a tilt table for the management of orthostatic hypotension.

Q: What is orthostatic hypotension?

Orthostatic hypotension is a drop in blood pressure that occurs when moving from a laying down (supine) position to a standing (upright) position or from laying down to sitting up. The word "orthostasis" means to stand up, so the condition is defined as low blood pressure (hypotension) that occurs upon standing. It is also called postural hypotension.

Orthostatic hypotension is present if your blood pressure drops more than 20 millimeters of mercury in systolic pressure or 10 millimeters of mercury in diastolic pressure within three minutes of standing up.

Q: Why is orthostatic hypotension prevalent in individuals with spinal cord injuries?

People living with spinal cord injury at the cervical or high thoracic level often experience orthostatic hypotension (OH). Individuals who are newly spinal cord injured may have OH when they first start sitting up as part of the recovery process. Some of the secondary conditions common with spinal cord injuries (pressure injuries and urinary tract infections) may also cause prolonged bed rest which can be a cause of OH.

Although OH can happen to anyone, it is common following a spinal cord injury. SCIs cause a loss of nervous system control which keeps the blood pressure stable. SCI also causes loss of muscle tone which helps blood return to the heart. Individuals with high level spinal cord injuries are more prone to OH because their level of injury impacts their autonomic system.

Neurogenic shock is an important complication of SCI. It results in autonomic dysfunction and disturbance in the cardiovascular system. Hypotension, bradycardia, respiratory rate dysregulation, hypothermia, and peripheral vasodilation can be caused by severe autonomic dysfunction involving injuries from T6 or higher. Patients who develop cardiac abnormalities after their SCI usually only experience temporary problems and the cardiac abnormalities resolve 6-8 weeks after injury. Some individuals with paralysis may have chronic OH for a long period of time and may need medications.

Q: How does orthostatic hypotension differ from autonomic dysreflexia (AD) and hypertension?

AD is a life-threatening disorder which may also affect one's blood pressure. It is usually a response to discomfort in a person with spinal cord injury (SCI) at the T6 or higher level who can't feel the cause of the pain because it is below their injury level. One of the symptoms of AD can be a spike in blood pressure. It is important to find the cause as soon as possible and remove the cause which, for example, could be an overfull bladder that needs to be catheterized.

Hypertension is commonly known as high blood pressure. The condition occurs when the force of a person's blood pushing against the walls of the blood vessels is too high. It can be a chronic condition which needs attention as it may eventually lead to heart attack or stroke.

In all three conditions, it is important for people living with SCI to know their baseline blood pressure so that changes can be ascertained. People living with SCI may have a lower baseline blood pressure than those who don't live with SCI.

Q: What are the symptoms of orthostatic hypotension?

Orthostatic hypotension signs and symptoms include:

- Lightheadedness or dizziness upon standing or sitting up
- Blurry vision
- Weakness
- Fainting
- Confusion
- Pain in neck, shoulders or chest

The most common symptom is dizziness or lightheadedness after standing or sitting up.

Q: What causes orthostatic hypotension?

- Dehydration
- Heart problems which may include extremely low heart rate (bradycardia), heart valve problems, heart attack and heart failure.
- Endocrine problems which may include diabetes, thyroid issues, low blood sugar, and adrenal insufficiency
- Nervous system disorders which may include Parkinson's disease, multiple system atrophy, Lewy body dementia, pure autonomic failure, and amyloidosis
- Eating large meals
- Medications including alpha blockers, diuretics, tricyclic antidepressants, possibly SSRIs, and atypical antipsychotics
- Prolonged bed rest

Q: How is orthostatic hypotension diagnosed and treated?

Orthostatic hypotension is often diagnosed by using one or more of the following procedures or tests:

- Blood pressure monitoring
- Blood tests
- Electrocardiograms
- Echocardiograms
- Stress tests
- Tilt table tests
- Valsalva maneuvers

Treatments may involve lifestyle changes (i.e., eating smaller meals if eating large meals is causing the OH) or drugs may be needed. Drugs that are used to treat OH may include midodrine (Orvaten), droxidopa (Northera), fludrocortisone or pyridostigmine (Mestinon, Regonol).

OH is an often overlooked and underdiagnosed disorder with many possible causes. It can be challenging to manage and its management typically involves a multidisciplinary team and person-centered approach as each individual may need a unique pharmacological and/or non-pharmacological treatment plan. More clinical trials and research are needed in this field as there is a lack of robust long-term data regarding drug therapy benefits and uncertainties of synergism between nonpharmacological and drug interventions.

Q: What complications may occur due to orthostatic hypotension?

- Falls
- Stroke
- Cardiovascular diseases

Q: How common is orthostatic hypotension?

Orthostatic hypotension is a common condition that affects about 6 percent of the population. This condition is especially common in older adults, affecting at least 10 to 30 percent of people in this group.

Q: What are the risk factors for orthostatic hypotension?

- Older age
- Certain medications
- Heat exposure—Inability to regulate one's body temperature is seen in people living with SCI
- Certain diseases
- Alcohol usage
- Prolonged bed rest
- Paralysis

Q: Are there any tips for managing orthostatic hypotension that my caregiver and I should know about?

Please make sure to check with your doctor to see if the following tips are reasonable for you:

- Try to limit your time in bed if you are not on bed rest for medical reasons
- Wear an abdominal binder but only when getting out of bed
- Wear compression stockings
- Discuss medications with your doctor.
- Be sure to drink enough fluids to stave off dehydration

Q: Should I see my doctor for orthostatic hypotension?

Yes, you should contact your doctor. If you lose consciousness (even for a short period of time), you should see your healthcare provider. To determine the cause of your OH, you may need to see a neurologist for autonomic testing and a cardiologist.

Sources: American Academy of Physical Medicine and Rehabilitation, American Heart Association, Centers for Disease Control and Prevention, Iran J Pharm Res, Mayo Clinic, Medline Plus, Shirley Ryan AbilityLab, VA San Diego Healthcare System (citations below in Resources)

Need to talk to someone?

Our Information Specialists are available to answer your questions.

Call toll-free 1-800-539-7309 Mon-Fri, 7 am - 8 pm EST.

Or [schedule a call](#) or [ask a question online](#)

Resources

American Academy of Physical Medicine and Rehab: Orthostatic Hypotension

<https://now.aapmr.org/orthostasis/>

American Heart Association: Low Blood Pressure—When Blood Pressure Is Too Low

<https://www.heart.org/en/health-topics/high-blood-pressure/the-facts-about-high-blood-pressure/low-blood-pressure-when-blood-pressure-is-too-low>

American Heart Association: Understanding Blood Pressure Readings

<https://www.heart.org/en/health-topics/high-blood-pressure/understanding-blood-pressure-readings>

American Heart Association: What is High Blood Pressure?

<https://www.heart.org/en/health-topics/high-blood-pressure/the-facts-about-high-blood-pressure>

Centers for Disease Control and Prevention: Postural Hypotension—What It Is and How to Manage It pamphlet

<https://www.cdc.gov/steady/pdf/steady-brochure-postural-hypotension-508.pdf>

Chao, CYL and Chieng GLY. Orthostatic Hypotension for People with Spinal Cord Injuries. Hong Kong Physiotherapy Journal, Vol. 6 No. 1, 2008. Science Direct abstract.

[https://www.sciencedirect.com/science/article/pii/S1013702509700089#:~:text=Orthostatic%20\(postural\)%20hypotension%20\(OH\)%20is%20a%20clinical,the%20arterial%20blood%20pressure%20\(BP\)%20are%20complex](https://www.sciencedirect.com/science/article/pii/S1013702509700089#:~:text=Orthostatic%20(postural)%20hypotension%20(OH)%20is%20a%20clinical,the%20arterial%20blood%20pressure%20(BP)%20are%20complex)

Christopher & Dana Reeve Foundation: Autonomic Dysreflexia Wallet Card

<https://www.ChristopherReeve.org/cards>

Cleveland Clinic: Orthostatic Hypotension

<https://my.clevelandclinic.org/health/diseases/9385-low-blood-pressure-orthostatic-hypotension>

Health Central: What is Orthostatic Hypotension?

<https://www.healthcentral.com/condition/hypertension/orthostatic-hypotension>

Mayo Clinic: Orthostatic Hypotension (Postural Hypotension)

<https://www.mayoclinic.org/diseases-conditions/orthostatic-hypotension/symptoms-causes/syc-20352548>

Medline Plus: Orthostatic Hypotension

<https://medlineplus.gov/genetics/condition/orthostatic-hypotension/>

Mojtahedzadeh M, Taghvaye-Masoumi H., Najafi A., et al. Management of Hypotension and Bradycardia Caused by Spinal Cord Injury. The Usefulness of Midodrine and Methylxanthines. Iran J Pharm Res, 2019. Autumn; 18(4):2131-2135.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC7059064/>

Shirley Ryan AbilityLab: Spinal Cord Injury Complications: Orthostatic Hypotension

<https://www.sralab.org/lifecenter/resources/spinal-cord-injury-complications-orthostatic-hypotension>

University of Alabama at Birmingham: Orthostatic Hypotension Primary Care Provider Resource for Spinal Cord Injury

<https://www.uab.edu/medicine/pcp-sci/pcp-resource-topics/oh>

VA San Diego Healthcare System, Spinal Cord Injury Center. Orthostatic Hypotension. Author Kathy Dunn, RN.

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