

# Orthostatic hypertension

**Orthostatic hypertension**, or **postural hypertension**, is a medical condition consisting of a sudden increase in blood pressure when a person stands up.[1] Orthostatic hypertension is diagnosed by a rise in **systolic** blood pressure of 20 mmHg or more when standing. *Orthostatic diastolic hypertension* is a condition in which the **diastolic** raises to 98 mmHg or over in response to standing;[2][3] however, this definition currently lacks clear medical consensus and is thus subject to change. Orthostatic hypertension involving the systolic is known as *systolic orthostatic hypertension*.

If affecting an individual's ability to remain upright, orthostatic hypertension is viewed as a form of **orthostatic intolerance**. The body's inability to regulate the blood pressure can be a type of **dysautonomia**.

Baroreflex and autonomic pathways normally ensure that blood pressure is maintained despite various stimuli including postural change. The precise mechanism of orthostatic hypertension remains unclear, but it is thought that alpha-adrenergic activity may be the predominant pathophysiologic mechanism of orthostatic hypertension in elderly hypertensive patients.[4] Other mechanisms are proposed for other different groups of individuals with this disorder.[1]

A prevalence of 1.1% was found in a large population study.[5] The risk of orthostatic hypertension has been found to increase with age, with it being found in 16.3% of older hypertensive patients.[6]

# Symptoms

- Mild or moderate orthostatic hypertension may present without any symptoms other than the orthostatic hypertension BP findings. More severe orthostatic hypertension may present with the typical symptoms of hypertension.
- Orthostatic venous pooling is common with orthostatic diastolic hypertension. This occurs in the legs while standing.[7][8]
- [Hypovolemia](#) (decreased blood volume)

# Connections to other disorders

- [Essential hypertension](#)
- Other kinds of dysautonomia may coexist, e.g. [postural orthostatic tachycardia syndrome](#) is common with this condition, [orthostatic hypotension](#) with the BP going both high and low at times due to autonomic dysfunction
- [Type 2 diabetes](#)[1]
- Vascular adrenergic hypersensitivity: Orthostatic hypertension can be secondary to this[9]
- [Hypovolemia](#) can cause orthostatic hypertension
- Renal arterial [stenosis](#) (narrowing of the kidney arteries) with [nephroptosis](#) (kidney drops on standing) have been known to cause orthostatic hypertension.[10]
- [Aortitis](#) (inflammation of the aorta) with nephroptosis: "This orthostatic hypertension largely may be due to an activation of the renin system caused by nephroptosis and partly due to a reduced baroreflex sensitivity caused by aortitis"[11]
- [Pheochromocytoma](#)[12]

# Treatments

There is not any official recommended treatments currently for orthostatic hypertension as the condition is still little known and can be due to different causes, hence treatment for those with this disorder is still trial and error experimental treatment. Some treatments which have been successfully used for this condition are medications [doxazosin](#),<sup>[13]</sup> [carvedilol](#),<sup>[14]</sup> [captopril](#), and [propranolol hydrochloride](#). Treatment of coexisting conditions e.g. [hypovolemia](#). Some specialists in severe cases give saline IVs for the hypovolemia which then if that is the cause, brings the orthostatic hypertension down to a safe level. Pressure garments over the pelvis and the lower extremities may be used as part of treatment, due to the blood pooling issue happening in many with the disorder.<sup>[15]</sup>

# Risks

- Blood pressure variability is associated with progression of target organ damage and cardiovascular risk.<sup>[16]</sup>
- Orthostatic hypertension was positively associated with [peripheral arterial disease](#).<sup>[6]</sup>
- Increased occurrence of silent cerebrovascular ischemia<sup>[1][4]</sup>
- Systolic orthostatic hypertension increases stroke risk.<sup>[17]</sup>

# References

Fessel, J.; Robertson, D. (2006). "Orthostatic hypertension: When pressor reflexes overcompensate". *Nature Clinical*

*Practice Nephrology* 2 (8): 424–431. doi:[10.1038/ncpneph0228](https://doi.org/10.1038/ncpneph0228). PMID 16932477.

1. Bell, David S. (May 2000). "[Orthostatic Intolerance \(OI\) Test Results](#)". *Lyndonville News* **2** (3).
2. Streeten, D.H.P. (1987). *Orthostatic Disorders of the Circulation*. New York: Plenum Medical. p. 116.
3. Kario, K.; Eguchi, K.; Hoshide, S.; Hoshide, Y.; Umeda, Y.; Mitsuhashi, T.; Shimada, K. (2002). "U-curve relationship between orthostatic blood pressure change and silent cerebrovascular disease in elderly hypertensives: Orthostatic hypertension as a new cardiovascular risk factor". *Journal of the American College of Cardiology* **40** (1): 133–141. doi:[10.1016/S0735-1097\(02\)01923-X](#). PMID [12103267](#). Wu, J. S.; Yang, Y. C.; Lu, F. H.; Wu, C. H.; Chang, C. J. (2008). "Population-Based Study on the Prevalence and Correlates of Orthostatic Hypotension/Hypertension and Orthostatic Dizziness". *Hypertension Research* **31** (5): 897–904. doi:[10.1291/hyres.31.897](#). PMID [18712045](#). Fan, X. H.; Sun, K.; Zhou, X. L.; Zhang, H. M.; Wu, H. Y.; Hui, R. T. (2011). "Association of orthostatic hypertension and hypotension with target organ damage in middle and old-aged hypertensive patients". *Zhonghua yi xue za zhi* **91** (4): 220–224. PMID [21418863](#).
4. Streeten, D. H.; Auchincloss Jr, J. H.; Anderson Jr, G. H.; Richardson, R. L.; Thomas, F. D.; Miller, J. W. (1985). "Orthostatic hypertension. Pathogenetic studies". *Hypertension* **7** (2): 196–203. PMID [3980066](#). Streeten, D. H.; Anderson Jr, G. H.; Richardson, R.; Thomas, F. D. (1988). "Abnormal orthostatic changes in blood pressure and heart rate in subjects with intact sympathetic nervous function: Evidence for excessive venous pooling". *The Journal of laboratory and clinical medicine* **111** (3): 326–335. PMID [3343547](#) Benowitz, N. L.; Zevin, S.; Carlsen, S.; Wright, J.; Schambelan, M.; Cheitlin, M. (1996). "Orthostatic hypertension due to vascular adrenergic hypersensitivity". *Hypertension* **28** (1): 42–46. PMID [8675262](#).
5. Tsukamoto, Y.; Komuro, Y.; Akutsu, F.; Fujii, K.; Marumo, F.; Kusano, S.; Kikawada, R. (1988). "Orthostatic hypertension due to coexistence of renal fibromuscular dysplasia and nephroptosis". *Japanese circulation journal* **52** (12): 1408–1414. PMID [2977192](#) Takada, Y.; Shimizu, H.; Kazatani, Y.; Azechi, H.; Hiwada, K.; Kokubu, T. (1984). "Orthostatic hypertension with nephroptosis and aortitis disease". *Archives of Internal Medicine* **144** (1): 152–154. PMID [6362595](#).
6. Template:Cite pmid 3094542
7. Hoshide, S.; Parati, G.; Matsui, Y.; Shibasaki, S.; Eguchi, K.; Kario, K. (2011). "Orthostatic hypertension: Home blood pressure monitoring for detection and assessment of treatment with doxazosin". *Hypertension Research* **35** (1). doi:[10.1038/hr.2011.156](#). PMID [21918522](#).
8. Moriguchi, A.; Nakagami, H.; Kotani, N.; Higaki, J.; Ogihara, T. (2000). "Contribution of cardiovascular hypersensitivity

- to orthostatic hypertension and the extreme dipper phenomenon". *Hypertension research : official journal of the Japanese Society of Hypertension* **23** (2): 119–123. PMID 10770258. Streeten, D. H.; Auchincloss Jr, J. H.; Anderson Jr, G. H.; Richardson, R. L.; Thomas, F. D.; Miller, J. W. (1985). "Orthostatic hypertension. Pathogenetic studies". *Hypertension* **7** (2): 196–203. PMID 3980066. Kario, K. (2009). "Orthostatic hypertension: A measure of blood pressure variation for predicting cardiovascular risk". *Circulation journal : official journal of the Japanese Circulation Society* **73** (6): 1002–1007. PMID 19430163.
9. Yatsuya, H.; Folsom, A. R.; Alonso, A.; Gottesman, R. F.; Rose, K. M.; Aric Study, I. (2011). "Postural changes in blood pressure and incidence of ischemic stroke subtypes: The ARIC study". *Hypertension* **57** (2): 167–173. doi:10.1161/HYPERTENSIONAHA.110.161844. PMC 3214760. PMID 21199999.