



RESEARCH ON HYPERTENSION

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Types of Hypertension

There are two main types of high blood pressure: primary and secondary high blood pressure.

- **Primary** or essential, high blood pressure is the most common type of high blood pressure. Most people who get this kind of blood pressure develop over time as you get older.
- **Secondary** high blood pressure is caused by another medical condition or the use of certain medicines. It usually gets better after you treat that condition or stop taking the medications that are causing it. Other causes include airway obstruction during sleep, diseases and tumours of the adrenal glands, hormone abnormalities, thyroid disease, and too much salt or alcohol in the diet.

Additional Hypertension Types:

- Isolated systolic hypertension
- Malignant hypertension
- Resistant hypertension

Hypertension Statistics in South Africa

One in four men and one in five women are diagnosed with hypertension. High blood pressure, or hypertension, is one of the most severe risks factors for death from heart diseases and strokes, responsible for 13% of all deaths globally. In South Africa, more than 1 in 3 adults live with high blood pressure, and it is responsible for 1 in every two strokes and 2 in every five heart attacks. High blood pressure rarely has any symptoms or visible signs to warn that blood pressure is high. That is why more than 50% of people with high blood pressure are unaware of their condition. In some cases, typically with very high blood pressure, symptoms such as headaches, visual disturbances, nose bleeds, nausea, vomiting, facial flushing and sleepiness may be experienced.

A guide to the blood pressure reading:

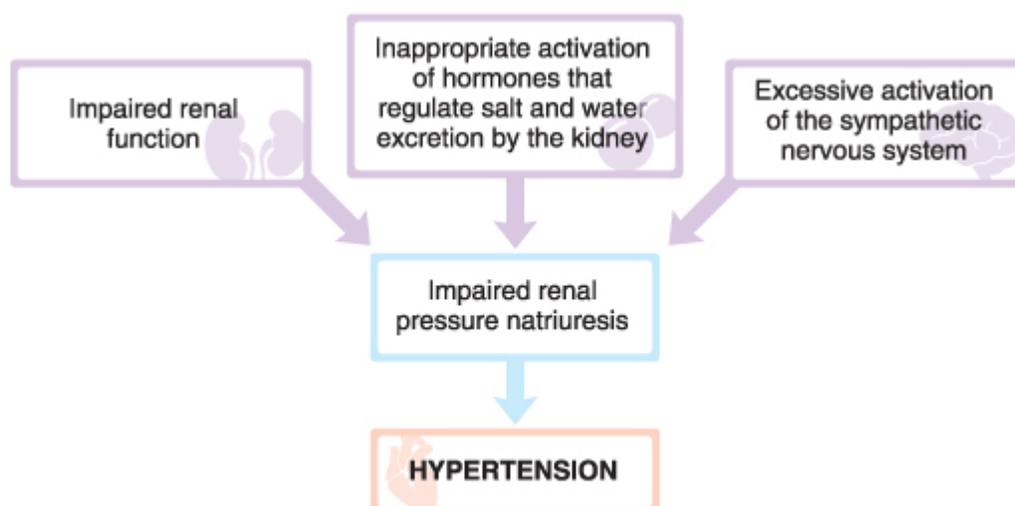
Stage	Systolic BP (mmHg)		Diastolic BP (mmHg)	Action
Normal and optimal	Below 130	and	Below 85	Keep up the good work and stick with heart-healthy habits
High normal	130 - 139	or	85 - 89	Make lifestyle changes to lower blood pressure
Mild hypertension	140 - 159	or	90 - 99	See a doctor or GP as soon as possible
Moderate hypertension	160 - 179	or	100 - 109	See a doctor or GP as soon as possible
Hypertensive emergency	above 180	or	above 110	Requires emergency medical attention. Go to a hospital

Pathophysiology of Hypertension

The pathophysiology of hypertension involves the impairment of renal pressure natriuresis, the feedback system in which high blood pressure induces an increase in sodium and water excretion by the kidney, leading to reduced blood pressure. Pressure natriuresis can result from an impaired renal function, inappropriate activation of hormones that regulate salt and water excretion by the kidney (such as those in the renin-angiotensin-aldosterone system), or excessive activation of the sympathetic nervous system.

In chronic **hypertension**, the lower limit of autoregulation of cerebral blood flow (CBF) is shifted towards high blood pressure with consequent impairment of the tolerance to acute Hypotension.

Cardiac output and peripheral resistance are the two determinants of arterial pressure. Cardiac output is determined by stroke volume and heart rate; stroke volume is related to myocardial contractility and the vascular compartment's size. Peripheral resistance is determined by functional and anatomic changes in small arteries and arterioles.



How is high blood pressure diagnosed?

Blood Pressure Category	Systolic Blood Pressure		Diastolic Blood Pressure
Normal	Less than 120	and	Less than 80
High Blood Pressure (no other heart risk factors)	140 or higher	or	90 or higher
High Blood Pressure (with other heart risk factors, according to some providers)	130 or higher	or	80 or higher
Dangerously high blood pressure - seek medical care right away	180 or higher	and	120 or higher

Complications of Hypertension

Long term hypertension can cause complications through [atherosclerosis](#), where plaque develops on the walls of blood vessels, causing them to narrow.

This narrowing makes hypertension worse, as the heart must pump harder to circulate the blood.

Hypertension-related atherosclerosis can lead to:

- heart failure and heart attacks
- aneurysm, or abnormal bulge in the wall of an artery that can burst
- kidney failure
- stroke
- peripheral vascular disease
- hypertensive retinopathy, which can lead to blindness

Regular blood pressure monitoring can help people avoid these more severe complications.

Treatment Management (Pharmacological vs Non-pharmacological)

- Pharmacological:
 - o Diuretics
 - o Angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARBs)
 - o Beta-blockers
 - o Calcium channel blockers (CCBs)

Some patients will require two or more antihypertensive medications to achieve their BP target.

- Non-pharmacological:
 - o Reducing sodium intake
 - o Increasing exercise
 - o Moderating alcohol consumption
 - o Dietary Approaches to Stop Hypertension (DASH) eating plan
 - o Losing weight

High in:

Fruits and vegetables (four or five servings each per day)

Fibre (seven or eight servings per day)

Low-fat dairy products (two or three servings per day)

Lean meat (two servings per day)

Calcium

Magnesium

Potassium

Low in:

Saturated fat

Cholesterol

Salt*

DASH = dietary approaches to stop hypertension.

*— Low sodium intake was a later addition to the plan.

Hypertension Guidelines in South Africa

- Please see the attached document.