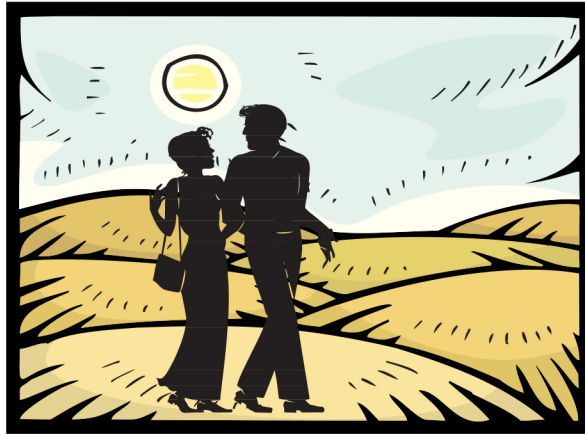
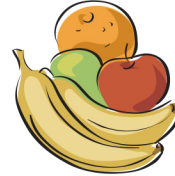
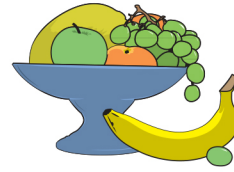


HIGH BLOOD PRESSURE

- cut down on added salt and avoid high-sodium foods such as chips, processed meats, fast food and Chinese cuisine
- limit your daily cholesterol and caloric intake to not more than 100 mg per 1000 calories of food (use a diet chart and maintain a daily intake diary)
- restrict saturated fat



High blood pressure is preventable and treatable. Be sure to have your blood pressure checked regularly to avoid complications and live a healthy long life.

For further information, please contact:

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High Blood Pressure (A Silent Killer)

It is estimated that one in four adults (approximately 10 million) in Pakistan have high blood pressure (hypertension), and more than 30 per cent of them are unaware of this fact. Since people with high blood pressure may not exhibit any symptoms, their high BP often goes undiagnosed until complications occur. Regular blood pressure screening can facilitate early diagnosis and treatment and reduce the risk of complications associated with high blood pressure like heart attack, stroke and kidney failure.

What is Blood Pressure?

Blood pressure is the force exerted against artery walls as blood is carried through the circulatory system. The measurement of force is made in relation to the pumping activity of the heart, and is measured in millimeters of mercury (mmHg). The top number or systolic pressure is the measurement of pressure that occurs when the heart contracts or beats. The bottom number or diastolic pressure is the measurement recorded between beats while the heart is relaxed. The systolic number is placed over the diastolic number and is always the higher of the two numbers; for example, 110/70 (read as 110 over 70).



What are Elevated Levels?

High blood pressure (hypertension) indicates that the force required for blood flow is greater than normal. A blood pressure measurement of less than 120/80 is considered normal and 120 to 139 (systolic) and 80 to 89 (diastolic) is defined as pre-hypertension. For pre-hypertension patients, lifestyle modification is recommended. In case they suffer from conditions such as diabetes mellitus or renal failure, or if lifestyle modification does not bring blood pressure into the normal range, then drug therapy is indicated.

Blood pressure is elevated when repeated measurement are greater than 149/90 (either the systolic, diastolic or both measurement may be abnormal). **A diagnosis of high blood pressure is made when a person has had two or more elevated readings on different days.**

Medication and treatment

Regular medication therapy is necessary to control high blood pressure. There are many types of medication used in the treatment of high blood pressure, the most common of which are:

- diuretics
- beta blockers
- ACE inhibitors
- angiotensin receptor blockers
- calcium channel blockers
- peripheral and central vasodilators

Your doctor will determine which medication is best for you. The nature and severity of your medical condition, the presence of coexisting cardiovascular risk factors or other health problems, and other medications you are using will influence the ultimate choice of your anti-hypertensive regimen.

It is imperative to follow the instructions of your physician in taking your blood pressure medication. Take medications daily as prescribed and never stop medication suddenly unless instructed by your health care provider. If you feel any ill effects with the medication, inform your physician so that he/she can make appropriate adjustment.

Tips for Lowering Blood Pressures

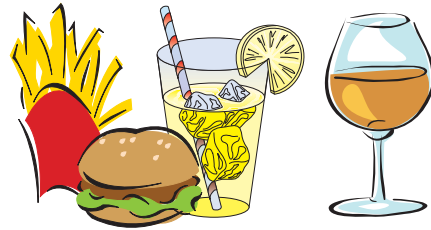
Most people can adopt simple lifestyle changes to prevent high blood pressure through the following tips:

- have your blood pressure checked regularly
- eat nutritious foods, including whole grains, fresh fruits, vegetables and low-fat dairy products
- take medications as prescribed by your doctor
- maintain your ideal body weight
- exercise regularly
- stop smoking
- manage stress through relaxation techniques exercise and development of a positive attitude



What are the Risk Factors?

There are several factors that put people at risk for high blood pressure. Increasing age, gender, heredity and race are factors that cannot be controlled. Elderly individuals are especially encouraged to undergo regular screening for hypertension because the condition is highly prevalent in Pakistani population and is treatable once identified. Men are generally at greater risk than woman. As women age, however, their risk increases with the onset of menopause. Later in life, their risk exceeds that of men. If one or more parents are diagnosed with high blood pressure, the risk increases.



Controllable risk factors are lifestyle-related, e.g. obesity, diet, lack of exercise, stress, use of certain medications, smoking and excessive alcohol consumption.

What are the Symptoms?

For many people high blood pressure has no symptoms and the condition often remains undiagnosed as blood pressure is not frequently checked in these people. However, some people may experience one or more symptoms of high blood pressure such as headache, dizziness, irregular or rapid heartbeat, nosebleeds, fatigue and blurred vision.



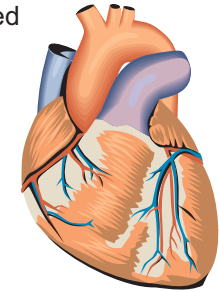
Complications of Blood Pressure

Left untreated, high blood pressure can cause many complications. Artery walls thicken and harden. The elasticity or stretchiness in the arteries decreases as well, requiring the heart to work harder to pump blood through the arteries. As the heart struggles to pump harder, its muscle walls can grow thicker. An enlarged heart can cause the heart to pump improperly, leading to possible fluid back-up in the lungs (a condition known as heart and kidney failure).

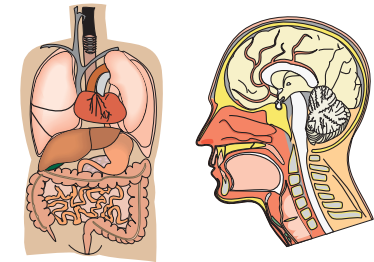
A consistently high blood pressure hastens the formation of plaque or fatty deposits within the blood vessels which causes atherosclerosis (or hardening

of the arteries). Atherosclerosis can lead to an increased risk of heart attack or stroke.

Kidneys, which filter waste from the body, are also vulnerable to damage as a result of high blood pressure. Hypertension can cause the arteries feeding the kidneys to become thickened and constricted. This condition can lead to progressive kidney damage and ultimate kidney failure.

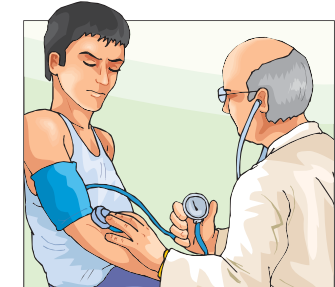


Eyes too can suffer the ill effects of high blood pressure. The retinas may be damaged because of increased pressure in blood vessels in the eyes. Loss of vision may result.



Blood Pressure Check-up/Screening

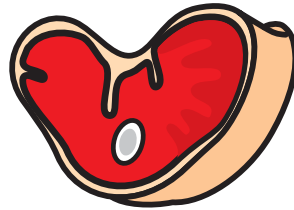
Consistent and accurate monitoring of blood pressure is important in the diagnosis, prevention and treatment of high blood pressure. Blood pressure is measured with a device called a sphygmomanometer. The arm should be bare or clothing should be flat to avoid constriction and artificial blood pressure inflation. The arm should be positioned so the cuff is at the level of the heart. An appropriate-sized cuff is wrapped around the upper arm and inflated. A stethoscope is placed just below the cuff over the antecubital space (opposite to where the elbow bends).



Pressure created by the cuff causes the blood flow to stop briefly in the arm. As air is released from the cuff, blood starts to flow through the artery. The person checking the BP with the stethoscope is listening for sounds made as blood flows through the artery. The first number recorded is the



systolic pressure. This sound measure the pressure generated when the heart beats. The second number recorded is the diastolic, which measures the pressure between heartbeats. This is the last sound heard by the blood pressure recorder.



Blood pressure results may be different in each arm. Environment also can affect blood pressure readings. For example, some people feel anxious when their blood pressure is taken in a doctor's office. Anxiety and stress such as this can cause elevated blood pressure, known as white coat hypertension.

If necessary, your physician may suggest home monitoring. There are many types of blood pressure monitoring devices available for purchase. Ask your health care provider what type is best for you. Be sure to obtain accurate instruction on how to measure and record your own blood pressure.

Treatment and Prevention

Your doctor will decide the course of treatment based on the severity of your high blood pressure, its causes and your other coexisting medical conditions. Lifestyle modification is important in preventing and treating high blood pressure. Here are some key preventive and treatment measures:

- Maintain a healthy body weight. Lose weight if needed. Obesity creates undue strain on the heart.
- Eat a well-balanced diet including fresh fruits and vegetables and low-fat dairy products. Avoid eating high-fat, high-cholesterol foods which can promote atherosclerosis. Reduce common salt in your diet- sodium increases fluid retention and can increase the heart's workload. Be sure to get adequate amounts of potassium, magnesium and calcium in your diet. Fruits, especially citrus fruits, are a good source of potassium.
- Exercise regularly. Be sure that aerobic exercise like walking or swimming is included (walk at least 30-45 minutes five times a week).
- Stop smoking. Smoking causes the blood vessels to constrict, causing an elevation in blood pressure. It is also one of the most potent cardiovascular diseases factors.



Blood Pressure Chart

This chart applies to patients who are 18 years of age and older, who have not already been diagnosed with high blood pressure, are not taking any medication for high blood pressure, and are not seriously ill.

Blood Pressure (BP) Chart

Category	Systolic BP (mmHg)	Diastolic BP (mmHg)
Normal	less than 120	less than 80
Pre-hypertension	120 to 139	80 to 89
Stage 1 Hypertension	140 to 159	90 to 99
Stage 2 Hypertension	greater than 160	greater than 160

Types of High Blood Pressure (Hypertension)

Primary and Secondary

High blood pressure is classified as primary or secondary. Primary or essential high blood pressure has no known cause, however genetic and lifestyle factors such as body weight and salt consumption can contribute to high blood pressure. Eighty to ninety per cent of persons diagnosed with high blood pressure fit into this category. Diagnosis is made when no other cause is found.

Secondary high blood pressure is caused by medical conditions such as kidney related diseases, certain hormone disorders like Cushing's syndrome and chronic alcohol



abuse. Use of drugs such as oral contraceptives, steroids (prednisone), pain killers such as NSAIDs, cyclosporin and several other medications may cause hypertension as a drug related side effect.