



1

Hypertension is a major risk factor for cardiovascular disease (stroke, angina, myocardial infarction, renal disease and other diseases.)

2

Presently 1.13 billion people worldwide have Hypertension, and is predicted to increase to 1.5 billion by the year 2025.

3

3 in 10 deaths are caused by CVD and 50% of all CVD deaths are caused by Hypertension*

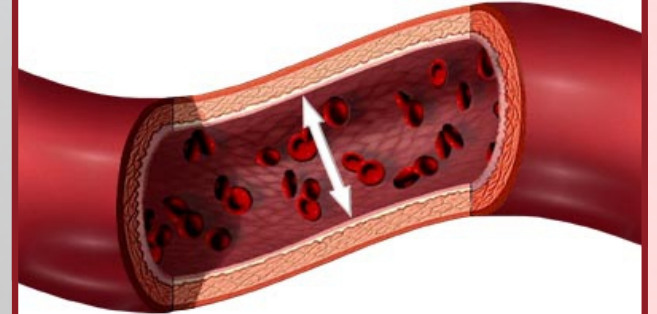
GLOBAL BURDEN OF HYPERTENSION 2025 PROJECTION

Year 2000

Year 2025

- **26.4%** of world adult population had hypertension
- Total of **972 million** adults
- Highest prevalence is in **established market economies** (eg. North America, Europe)
- **29.2%** of world adult population had hypertension
- Total of **1.56 billion** adults **20%** in developed nations. **80%** in developing nations.
- Highest prevalence will be in **developing continents** (eg. Asia. Africa) will account for 75% Of world's hypertensive patients

Blood pressure is the measurement of force applied to artery walls



HYPERTENSION IS A SILENT KILLER

A Hypertension Definitions

2018 ESC / ESH > 140/90 mm of Hg

2017 ACC/AHA > 130/80 mm of Hg

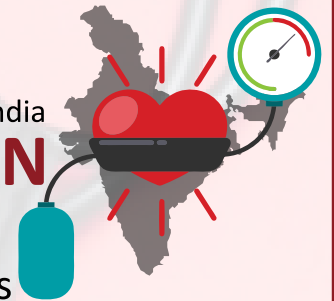
BP Treatment Goal is the Same

< 130/80 mm of Hg

According to the World Health Organization, in India

HYPERTENSION

Affects **1** in **4** adults



TYPES OF HYPERTENSION

Primary Hypertension (Essential Hypertension)

- Unknown cause
- Combination of
- Genetics
- Diet
- Lifestyle & Age

Secondary hypertension (Identifiable & Potentially Reversible)

- Narrowing of the arteries
- Side effects of some medications
- Obstructive sleep apnea
- Hormone abnormalities
- Pregnancy

- Primary or essential hypertension accounts for 90-95% of adult cases, and secondary hypertension accounts for 2-10% of cases

CLASSIFICATION OF HYPERTENSION

Systolic, Diastolic Blood Pressure (mm of Hg)	JNC7	2017 ACC / AHA
<120 and <80	Normal BP	Normal BP
120–129 and <80	Prehypertension	Elevated BP
130–139 or 80–89	Prehypertension	Stage 1 hypertension
140–159 or 90–99	Stage 1 hypertension	Stage 2 hypertension
> 160 or >100 / 180 or 120	Stage 2 hypertension	Stage 2 hypertension / HTN Crisis

RISK FACTORS OF HYPERTENSION

Dynamic & Modifiable Factors

Static & Non-Modifiable Factors

Diet

Bad Eating Habits



Physical activity



Obesity



Alcohol



Sedentary Habits



Risk factors of Hypertension

Smoking



Personality



Stress



Heredity



Age

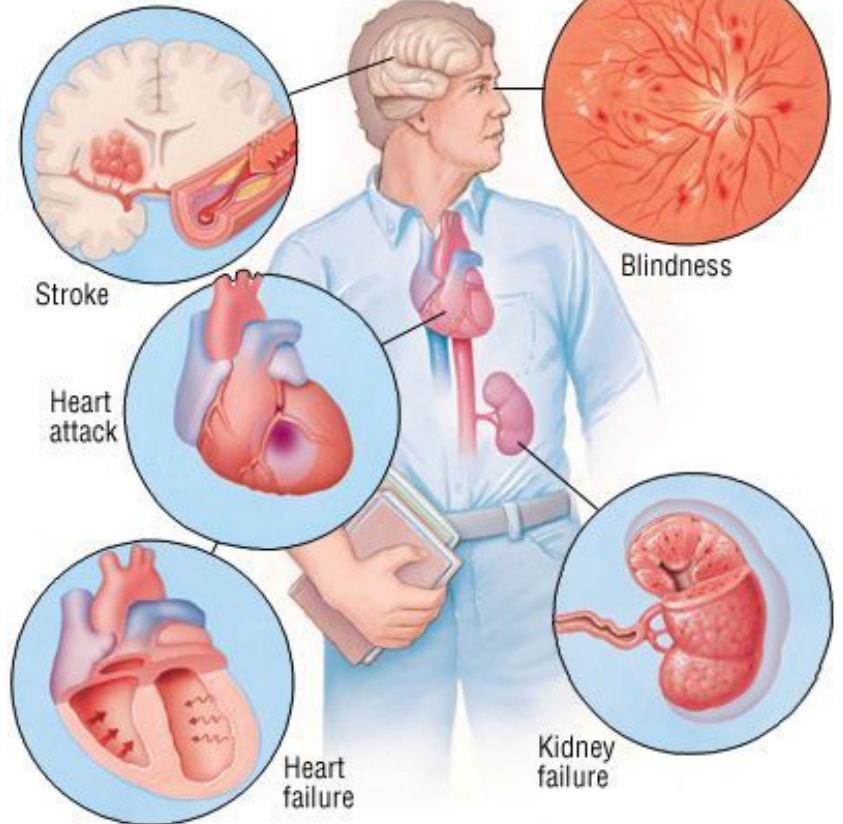


Gender



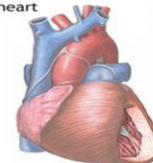
Untreated hypertension may cause death or serious health consequences*

Damage from high blood pressure

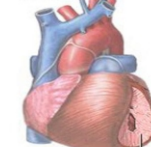


HTN

Normal heart



Hypertensive heart



Thickening in walls of ventricles



TREATMENT OF HYPERTENSION

1 MEDICAL MANAGEMENT -
(ANTIHYPERTENSIVE DRUG THERAPY)

2 LIFESTYLE MODIFICATION

3 STRESS MANAGEMENT



Yoga - exercises are helpful in the management of hypertension, which enhances breathing and posture








Meditation - calms the body and soul

Relaxation exercises also helps to relieve the stress

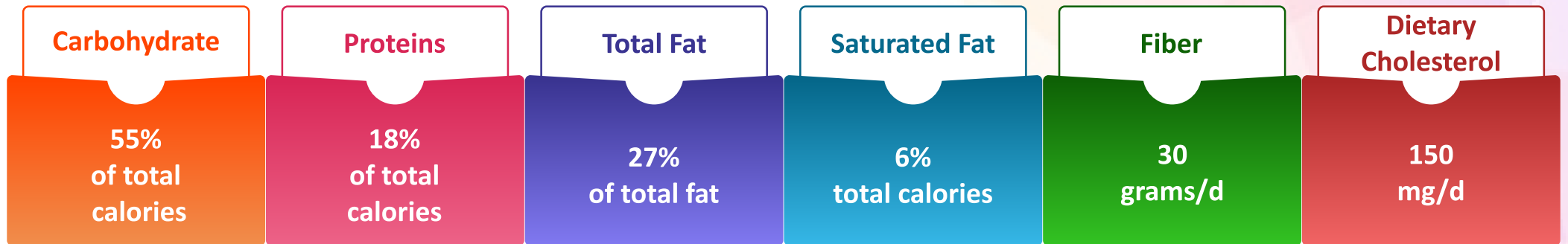


LIFESTYLE MODIFICATION

	MODIFICATION	RECOMMENDATION
	•Weight loss	Maintain normal body weight (body mass index 18.5 - 22.9 kg/m ² . Waist circumference less than 94cm (men) or less than 80cm (women)
	•DASH - type dietary pattern	Consume a diet rich in fruits, vegetables, and low-fat dairy products with a reduced content of saturated and total fat
	•Reduced salt intake	Reduction in sodium intake to less than 2.4 grams per day
	•Physical activity	Regular aerobic physical activity (at least 30 min/day, most days of the week)
	•Moderation of alcohol intake •Quit smoking	Limit consumption of 2 drinks/day in men and 1 drink/day (30ml) in women. Abstinence is preferred.

MEDICAL NUTRITION THERAPY

BALANCED DIET PLAYS A MAJOR ROLE IN BLOOD PRESSURE CONTROL



Choose the right foods

- Complex carbohydrates (whole grains) and avoid refined foods (Refined grains)
- Plant protein like dals, lentils, peas. Prefer low fat milk and milk products.
- Egg white, fish, lean chicken. Avoid organ and red meats.
- Healthy fats like refined vegetable oils, Rice bran oil, gingerly oil extra virgin cold pressed olive oil as prescribed
- Avoid fried foods, hydrogenated fat, margarine, mayonnaise, processed cheese etc.
- Soluble and insoluble fiber rich foods like oats, whole cereals, beans, and fruits and vegetables should be preferred.

SIMPLE CARBOHYDRATES

Simple carbohydrates are found in foods such as fruits, milk, and vegetables

Cake, candy and other refined sugar products are simple sugars which also provide energy but lack vitamins, minerals, and fiber

COMPLEX CARBOHYDRATES

Complex Carbohydrates provide vitamins, minerals, and fiber

Food such as breads, legumes, rice, pasta, and starchy vegetables contain complex carbohydrates

Protein Sources

FIBER

Food sources of fiber include whole wheat, bran fresh or dried fruits, and vegetables

Fats

LIMIT daily intake of saturated fats (fatty meats, full fat dairy, some plant fats)

REPLACE saturated fats with more unsaturated fats (nuts, seeds, avocados, fatty fish, olive oil)

AVOID replacing saturated fats only with carbohydrates, especially refined and processed carbohydrate foods

AVOID trans-fats (processed foods made with partially hydrogenated oils).

Source: Journal of the American Heart Association

LIMIT SODIUM INTAKE IN YOUR DIET

- The American Heart Association recommends 2,300 milligrams (mgs) a day.
- 1,500 mg / day is an ideal limit for most adults, who have high blood pressure.

FOODS TO AVOID



Packaged, preserved and processed foods like noodles, pappad, cheese and butter



Pickles, salty snacks, soya sauce, ketchup, barbecue sauce and salad dressings



Red meat, organ meats, canned, smoked, cured and processed meats



Bakery foods like bread, biscuits, pizza, pasta, cakes and pastries



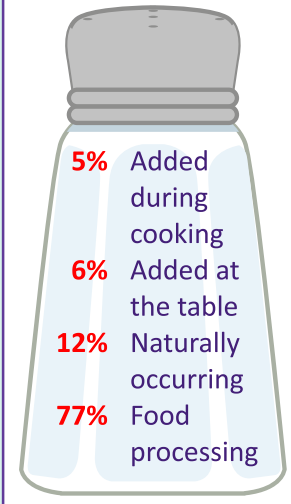
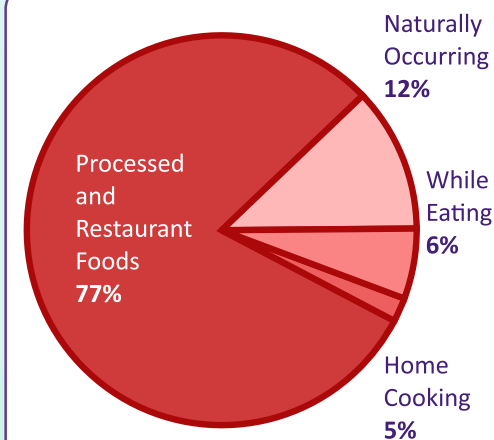
Packed fruit juices and cold drinks



Avoid to add salt to rice, lassi, fruit and vegetable salads

One teaspoon of table salt = 2325 mg of sodium

Most Sodium Comes from Processed and Restaurant Foods



Saturated Fat 3g	15%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 1380mg	60%
Total Carbohydrate 86g	31%
Dietary Fiber 3g	11%
Total Sugars 2g	
Includes 2g Added Sugars	4%

Sodium is a hidden ingredient in many manufactured food stuffs.

Read labels & look for foods with <-400mg of sodium / serving.



DASH DIET- DIETARY APPROACHES TO STOP HYPERTENSION

DASH DIET

Eating more fruits and vegetables, beans and nuts, fish, poultry, whole grains, and low-fat or nonfat dairy, and less full-fat dairy products, fatty meats, sugar-sweetened drinks, and sweets. Consumption of less salt (sodium) is also encouraged

HIGH IN

- Fruits (Potassium, Magnesium)
- Vegetables (K, Mg, Fiber)
- Low fat Dairy products
- Fish or poultry
- Whole grains
- Nuts, Beans & legumes

HIGH IN

- Red meats
- Fats (Saturated Fat & Cholesterol)
- Sugar sweetened foods & Beverages



CONSUME THESE MINERALS IN YOUR DIET ON A REGULAR BASIS FOR BETTER BLOOD PRESSURE MANAGEMENT

Potassium (4700 mg) Per day

- Lowers blood pressure
- Protects against muscle cramping, and irregular heartbeat
- Relaxes the walls of the blood vessels



Potatoes 720mg	Broccoli 540mg	Bananas 400mg	Tomatoes 360mg
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Magnesium (420 mg) Per Day

- Regulates BP, blood glucose, muscle and nerve function
- Helps for blood vessels relax and energy production



- Pumpkin(pepitas)30g=168mg
- Almonds 30g =80mg
- Cashews 30g =74mg
- ¼ cup Pea nuts=63mg
- ¼ cup Beans=190mg

Calcium (1250 mg) Per Day

- Essential for blood pressure as it helps in tightening
- Relaxing of blood vessels when they need to



- 1 cup of milk =240mg
- Paneer 100g =420mg
- ½ cup of broccoli=230mg
- Almonds 30g=75mg
- 1 cup of spinach= 250mg



Vegetarian Diets Also helps to lower BP

Vegetarian people experience a lower age-related rise in BP

Vegetarian diets high in fibre, and potassium in the diet helps to lower BP

In two trials, one in non-hypertensive individual and another in hypertensive persons - lacto - ovo - vegetarian diets reduced systolic BP by ≈5 mm of Hg but had equivocal effects on diastolic BP

EATING MORE OF THESE MINERALS CAN HELP BALANCE THE EFFECTS OF SODIUM

Reference : The National Heart, Lung and Blood Institute (NHLBI), 2019.

Rouse IL, Beilin LJ, Armstrong BK, Vandongen R. Blood-pressure-lowering effect of a vegetarian diet: controlled trial in normotensive subjects. *Lancet*. 1983; 1: 5-10

(Margetts BM, Beilin LJ, Vandongen R, Armstrong BK. Vegetarian diet in mild hypertension: a randomised controlled trial. *BMJ (Clin Res Ed)*. 1986; 293: 1468-1471)

PREVENTION OF HYPERTENSION



EAT INTELLIGENTLY TO LOWER YOUR BLOOD PRESSURE

1 Include more of salads and cream free soups

2 Prefer to take plain tandoori roti instead of lacchha paratha

3 Choose grilled snacks (tandoori tikka) instead of deep fried snacks

4 Go for plain Lemon water instead of Mohito or carbonated beverages

5 Try to avoid sauce other add-ons to minimize sodium

6 Follow portion size while consuming snacks and desserts



ALWAYS REMEMBER

- Hypertension is a life-long condition. It's important to take your medications and continue to monitor your blood pressure
- BP reduction is required, keep it under control, and reduce the risk of stroke, heart disease, and kidney failure
- Drugs are effective, safe and well tolerated and are required to be taken for life even when the BP is “controlled”
- It is important to screen for and manage other CVD risk factors in hypertension : smoking, diabetes, dyslipidemia, excessive weight, low fitness, unhealthy diet, psycho-social stress, and sleep apnea



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