Diet in Heart Disease

Abstract: The adverse dietary changes include shifts in the structure of the diet towards a higher energy density diet with a greater role for fat and added sugars in foods, greater saturated fat intake (mostly from animal sources), reduced intakes of complex carbohydrates and dietary fibre, and reduced fruit and vegetable intakes. These dietary changes are compounded by lifestyle changes that reflect reduced physical activity at work and during leisure time.

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Diet-heart hypothesis

According to the classic diet heart hypothesis high intake of saturated fats and cholesterol and low rate intake of poly- unsaturated fats (PUFA) increase the level of serum cholesterol, which leads to development of plaques inside arteries. Accumulation of these plaques results in narrowing of the coronary arteries, reduced blood flow to the heart muscle and finally in the occurrence of myocardial infarction, or heart attack.

u Saturated Fat
u Cholesterol
v Polysaturated Fat
v Serum Cholesterol
Atheromatous Plaque
Coronary Artery Narrowing
Myocardial Infarction

Classic Diet-Heart Hypothesis

- Diet rich in fruits and vegetables provide a wide range of phytochemicals and antioxidants which help in combating free radical in the body and protect the heart from diseases.
- A bowl of fruits and at least two quarter plate of salad should be consumed everyday.
- Green tea and herbal tea are also rich in antioxidants therefore can be taken on a regular basis.
- Refined cereals should be substituted with whole grain cereals and pulses such as oats, whole flour, mixed grains, wheat bread or multigrain bread, sprouts, roasted *chana* etc. It helps in providing fibre which exerts a cholesterol lowering effect.
- Low fat dairy products should be incorporated in the diet.
- Fat and oils should be used in less quantity. Blends of sunflower and safflower oils should be preferred or rice bran oil should be used. Mustard, groundnut or *til* oil can also be used.
- Excessive consumption of sugar and sweets increase the triglyceride levels. Therefore it should be taken in minimal amounts.

Vegetarians

There are different kinds of vegetarians.

- Vegetarians are the ones who eat only plant foods.
- Lacto vegetarians eat plants foods and dairy products.
- Ovo- vegetarian eat plants food and eggs.
- Peso- vegetarians eat plant foods and fish.

Most western vegetarians are lacto-ovo or peso-vegetarians - or some - thing in between such as lacto peso vegetarian. Very few Indian vegetarians however are peso - vegetarians. Since they do not consume fish, Indian vegetarians have to derive their entire omega - 3 fatty acids from almonds, walnuts and peanuts tofu, soyabean and flax seeds. Omega 3 fatty acids help in lowering down LDL cholesterol. This is one more reason of avoiding trans fats (like the hydrogenated oils in biscuits, cakes and cookies or *vanaspati ghee*), since trans fat hamper the omega 3 fatty acid conversion in the body. Red meat and fried chicken should be avoided.

Numerous types of diets have been prescribed for various cardiovascular conditions. Different types of diets for various cardiovascular conditions

Type of Diet	Characteristic Feature	Recommended for
Step 1 diet	Total fat: 30% of total calories SAFA: 8-10% of total calories PUFA: upto 10% of total calories MUFA: upto 15% of total calories CHO: 55% of total calories Proteins: 15% of total calories Cholesterol < 300 mg per day Total calories: To achieve & maintain desirable body weight	For all, above the age of two.
Step 2 diet	SAFA: < 7% of total calories Cholesterol < 200 mg per day Rest is the same	Known heart disease cases
Sodium restricted diet	Sodium range: 2.3 g - 3 g per day Adequate amount of calcium, magnesium and potassium For Congestive Heart Failure: Mild - 2-3 g per day Moderate to severe: 1-2 g per day Fluid restriction	Hypertensive Congestive cardiac failure
MUFA rich diets	Total fat: < 35% of total calories MUFA: 15% of total calories SAFA: < 10% of total calories PUFA: < 10% of total calories	Dyslipidaemia, Insulin resistance, Type 2 Diabetes mellitus.
DASH (Dietary Approaches to Stop Hypertension)	Low fat dairy products Fruits & vegetables: 9 servings' low-fat dairy products, whole grains, poultry, fish and nuts; & reduced fats, red meat, sweets, & sugar-containing beverages.	Prevention and treatment of hypertension
Vegetarian Diets	Total fat: < 30% of the total calories Proteins: Combination of legumes, grains, vegetables and nuts Minerals and vitamins: adequate Whole grains: 50% or more No meat, fish and poultry	Slow the progression of atherosclerosis, blood pressure control, weight reduction, gallstones and kidney diseases.
Very low fat, high carbohydrate diet	CHO: 70% of total calories Proteins: 15% of total calories Fat: 15% of total calories Whole grains: 6 servings Fruits and vegetables: 5 servings Non fat dairy products	Weight reduction, CVDs and high risk patients, Hyperlipidaemia
High fiber diet	Total Fibre: 20 - 30gms Soluble fibre: 25 - 33% Soluble to insoluble fiber ratio: 1:3 Fruits and vegetables: 6 servings Beans: one serving	Weight reduction, Lipid lowering or cholesterol reduction