

Cardiovascular Nutrition: Strategies and Tools for Disease Management and Prevention in South Asian Cultures (Summary)

Wahida Karmally, Dr.PH., RD, CDE
Columbia University Medical Center, NY

Epidemiologic studies have suggested that individuals of South-Asian cultures have a significantly higher prevalence of coronary heart disease (CHD) and several-fold higher rates than other ethnic groups known to have an increased prevalence of CHD.

Prevalence of cardiovascular disease (CVD) risk factors such as dyslipidemia, diabetes and insulin resistance, increased abdominal fat have been documented in South Asians. In addition emerging risk factors such as elevated C-reactive protein levels and homocysteinemia are prevalent in South Asians.

a. Lipids and lipoproteins

High plasma triglycerides and low HDL-C levels have been documented in South Asians. The frequency of small, dense LDL particles could be an additional coronary risk factor in South Asian. Elevation of Lp(a) shown to be a strong risk factor is also present in this population. The presence of these abnormalities is significantly higher in South Asians compared to European Americans. In addition the South Asians may have a higher risk for coronary heart disease due to a cluster of clinical conditions (metabolic syndrome): glucose intolerance, abdominal hypertension and dyslipidemia with hyperinsulinemia and insulin resistance.

b. Diabetes, Impaired Glucose Tolerance and Hyperinsulinemia

The prevalence of diabetes is 4-fold compared to Caucasians, thereby increasing the risk for CHD. Healthy, normal weight South Asians are insulin resistant and hyperinsulinemic, compared to age- and BMI-matched (23-24 kg/m²) Caucasians.

c. BMI and Body Fat

Abdominal obesity characterized by an increased waist-hip ratio is prevalent in South Asians. When compared to Caucasians, South Asians have significantly greater abdominal fat and visceral fat at normal BMIs. South Asians have a lower BMI and a higher percentage of body fat than whites. South Asians could be classified as the normal weight “metabolically obese” individuals who are prone to diabetes, hypertension, hypertriglyceridemia and hyperinsulinemia. Other studies have also shown a correlation between insulin resistance and central adiposity in South Asians. Therefore lowering the cut-points for BMI in these groups may be helpful in primary prevention of CVD and associated risk factors such as diabetes and hypertension. A routine measurement of waist-hip ratio in these groups should be recommended.

d. Homocysteinemia

Plasma homocysteine is an independent risk factor for South Asians and may contribute to their increased CHD risk. South Asians were found to have lower vitamin B₁₂ and folate blood levels.

Dietary Recommendations for South Asians

Nutritional care strategies for the prevention and management of chronic disease have to be compatible with individuals' cultural values and beliefs. Cultural competence is an important consideration in providing nutrition counseling.

A low fat, high carbohydrate may not benefit Asian Indians because it may accentuate the metabolic abnormalities- high plasma triglycerides, low HDL-C and the presence of insulin resistance. Medical nutrition therapy should focus on weight management (reducing abdominal fat), decreasing carbohydrate intake, increasing intake of omega-3 fatty acids, in addition to decreasing intake of saturated fat, trans fat and cholesterol. Physical activity should be an important component of the lifestyle changes regimen

The National Cholesterol Program's Adult Treatment Panel (ATP) III guidelines apply to South Asians. Beyond lowering LDL cholesterol levels, metabolic syndrome is a secondary target of therapy in the ATP III guidelines. Prevention of the metabolic syndrome is an important step in reducing CVD among South Asians. Nutritional therapy should focus on the following:

- Addressing weight management (reducing abdominal fat) with physical activity and calorie control
- Decreasing intakes of refined carbohydrates
- Increasing intake of omega-fatty acids
- Decreasing intake of saturated and trans fatty acids and cholesterol
- Increasing intake of fruits and vegetables
- Decreasing intake of sodium

- Decreasing carbohydrate intake particularly refined carbohydrates
 1. Whole grain flour (millet (bajra), whole wheat to make breads like chappatis and naan)
 2. Brown rice to prepare pilaf and other rice dishes.
 3. Oat and whole wheat breakfast cereals to prepare savory snacks.

- Increasing intake of omega-3 fatty acids,
 1. Flax seed powder in curries like sambar or dhal (lentil soup), vegetables, chappatis,
 2. Fenugreek leaves (methi) as a vegetable
 3. Fatty fish like salmon if religion permits
 4. Canola oil and walnuts in food preparation

- Decreasing intake of saturated fat, trans fatty acids and cholesterol
 1. Canola oil, extra light olive oil in place of butter, ghee, vanaspati

(hydrogenated fat) and margarine.

2. Almond paste and or non fat yoghurt in place of cream and butter for the buttery “makhani” curries; almonds as snacks in place of “bhel”.
 3. Low fat milk (1% fat) to prepare yogurt cheese “panir”.
 4. Egg white substitutions for egg yolks in omelettes and desserts.
- Optimizing protein intake
 1. Soybeans- fresh or frozen prepared as savory snacks (“chole”, “chat”, “sundal”) and in combination with vegetables like spinach, zucchini.
 2. Tofu with tomatoes, spinach, onions or with non-fat yogurt as “raitha”
 - Increasing intake of fruits and vegetables
 1. Fruits as snacks
 2. Green leafy vegetables in place of potatoes with legumes.
 - Decreasing intake of salt
 1. Herbs such as cilantro and mint can decrease need for salt.
 2. Spices such as cumin, black pepper, cardamom and cinnamon will enhance food flavors.