Soy protein and isoflavones (phytoestrogens) have gained considerable attention for their potential role in improving risk factors for cardiovascular disease. This scientific advisory assesses the more recent work published on soy protein and its component isoflavones.

In the majority of 22 randomized trials, isolated soy protein with isoflavones, as compared with milk or other proteins, decreased LDL cholesterol concentrations; the average effect was approximately 3 percent. This reduction is very small relative to the large amount of soy protein tested in these studies, averaging 50 g, about half the usual total daily protein intake. No significant effects on HDL cholesterol, triglycerides, lipoprotein(a), or blood pressure were evident.

Among 19 studies of soy isoflavones, the average effect on LDL cholesterol and other lipid risk factors was nil. Soy protein and isoflavones have not been shown to lessen vasomotor symptoms of menopause, and results are mixed with regard to soy’s ability to slow postmenopausal bone loss. The efficacy and safety of soy isoflavones for preventing or treating cancer of the breast, endometrium, and prostate are not established; evidence from clinical trials is meager and cautionary with regard to a possible adverse effect. For this reason, use of isoflavone supplements in food or pills is not recommended.

Thus, earlier research indicating that soy protein has clinically important favorable effects as compared with other proteins has not been confirmed. In contrast, many soy products should be beneficial to cardiovascular and overall health because of their high content of polyunsaturated fats, fiber, vitamins and minerals, and low content of saturated fat.

Message: While the analysis of recent studies didn’t show any specific action of soy protein on heart risk factors, using soy protein products such as tofu, soy butter, soy nuts or some soy burgers could be beneficial. The reason is the high content of polyunsaturated fats, fiber, vitamins, minerals and a low content of saturated fat that could replace other high-fat proteins in the diet.

The authors of this study are: Frank M. Sacks, MD; Alice Lichtenstein, DSc; Linda Van Horn, PhD, R.D.; William Harris, PhD; Penny Kris-Etherton, PhD and Mary Winston, EdD. This study was published in Circulation online on Jan. 17, 2006.
Dietary Approaches to Prevent and Treat Hypertension
A Scientific Statement From the American Heart Association

A substantial body of evidence strongly supports the concept that multiple dietary factors affect blood pressure (BP). Well-established dietary modifications that lower BP are reduced salt intake, weight loss, and moderation of alcohol consumption (among those who drink). Over the past decade, increased potassium intake and consumption of dietary patterns based on the “DASH diet” have emerged as effective strategies that also lower BP.

Of substantial public health relevance are findings related to blacks and older individuals. Specifically, blacks are especially sensitive to the BP-lowering effects of reduced salt intake, increased potassium intake, and the DASH diet. Furthermore, it is well documented that older individuals, a group at high risk for BP-related cardiovascular and renal diseases, can make and sustain dietary changes. The risk of cardiovascular disease increases progressively throughout the range of BP, beginning at 115/75 mm Hg. In view of the continuing epidemic of BP-related diseases and the increasing prevalence of hypertension, efforts to reduce BP in both nonhypertensive and hypertensive individuals are warranted. In nonhypertensive individuals, dietary changes can lower BP and prevent hypertension.

In uncomplicated stage I hypertension (systolic BP of 140 to 159 mm Hg or diastolic BP of 90 to 99 mm Hg), dietary changes serve as initial treatment before drug therapy. In hypertensive patients already on drug therapy, lifestyle modifications, particularly a reduced salt intake, can further lower BP. The current challenge to healthcare providers, researchers, government officials, and the general public is developing and implementing effective clinical and public health strategies that lead to sustained dietary changes among individuals and more broadly among whole populations.

The authors call on physicians to give individualized lifestyle advice to patients and refer patients at risk or diagnosed with hypertension to dietitians, health educators or behavioral modification programs. The new statement advises Americans to:

- **Maintain normal weight or lose weight if overweight.** Sixty-five percent of American adults are overweight or obese; more than 30 percent are clinically obese. Clinical trials show that weight loss lowers BP even before desired body weight is reached. Greater weight loss leads to greater BP reduction. A high level of physical activity is a critical factor in sustaining weight loss.
- **Reduce salt intake to about 1.5 grams a day.** Clinical studies have shown that reducing salt intake lowers BP in people with and without hypertension. Reduced salt intake can blunt the rise in BP that occurs with age and reduce the risk of atherosclerotic CVD events and congestive heart failure. The drop in BP from reduced salt intake is greatest in older people and those already diagnosed with hypertension, diabetes or chronic kidney disease. Because more than 75 percent of consumed salt comes from processed foods, the writing committee called on food manufacturers to reduce salts in food by 50 percent over the next 10 years.
- **Increase potassium by eating eight to 10 servings of fruits and vegetables each day.** High potassium intake is associated with reduced BP in people with or without high blood pressure. Potassium intake reduces BP more in blacks than in whites. The recommended potassium intake level is 4.7 grams per day. However, this amount may be too high for people with impaired kidney function or severe congestive heart failure.
- **Moderate the intake of alcohol.** Clinical trials have shown a dose-dependent relationship between alcohol and BP, especially in people drinking more than two drinks a day. A meta-analysis of 15 trials shows that consuming less alcohol reduces both systolic and diastolic BP. However, evidence also supports that a moderate alcohol intake is effective in lowering BP. Alcohol consumption should be limited to no more than two drinks a day in most men and no more than one drink a day in women and lighter-weight persons. One drink is 12 ounces of regular beer, 5 ounces of wine (12 percent alcohol) and 1.5 ounces of 80-proof distilled spirits.
- **Use the DASH (Dietary Approaches to Stop Hypertension) diet.** Clinical studies show it can help people reduce BP. The diet emphasizes fruits, vegetables and low-fat dairy products; includes whole grains, poultry, fish and nuts; and is reduced in fats, red meat, sweets and sugar-containing beverages. Other studies have shown that substituting some carbohydrates with protein, mostly from plant sources, or with monounsaturated fat, further lowers BP. However DASH-type diets that are relatively high in potassium, phosphorus and protein are not recommended for people with advanced kidney disease.

The authors of the study are: Lawrence J. Appel, MD, MPH; Michael W. Brands, PhD; Stephen R. Daniels, MD, PhD; Njeri Karanja, PhD; Patricia J. Elmer, PhD; Frank M. Sacks, MD. This study was published in *Hypertension*. 2006;47:296.