

Soy/milk protein dietary supplements linked to lower blood pressure

American Heart Association Rapid Access Journal Report

Study Highlights:

- Soy and milk protein dietary supplements lowered systolic blood pressure compared to refined (simple) carbohydrate supplements.
- Researchers suggest that replacing dietary refined carbohydrates with foods or drinks high in soy or milk protein might help prevent or treat high blood pressure.

DALLAS, July 18, 2011 — Milk and soy protein supplements were associated with lower systolic blood pressure compared to refined carbohydrate dietary supplements, in a study reported in *Circulation: Journal of the American Heart Association*.

The study's results suggest that partly replacing refined carbohydrates with foods or drinks high in soy or milk protein may help prevent and treat high blood pressure, said Jiang He, M.D., Ph.D., lead researcher of the study.

The randomized, controlled clinical trial is the first to document that milk protein lowers blood pressure for people with pre-hypertension and stage-1 high blood pressure.

Study participants who took a milk protein supplement had a 2.3 millimeters of mercury (mmHg) lower systolic blood pressure, compared to when they took a refined carbohydrate supplement. Participants who took a soy protein supplement had a 2.0 mmHg lower systolic blood pressure when compared to the refined carbohydrate supplement.

Systolic blood pressure is the top number in a blood pressure reading and gauges the pressure when the heart contracts. Refined carbohydrate supplements were not linked to a change in systolic blood pressure.

The 352 adults in the study were at increased risk of high blood pressure or had mild cases of the condition.

Previous studies have shown that a diet rich in low-fat dairy products reduces blood pressure. Almost 75 million Americans have high blood pressure, a "silent killer" that can cause heart attacks, heart failure, strokes, kidney damage and other potentially fatal events.

"Some previous observational research on eating carbohydrates inconsistently suggested that a high carbohydrate diet might help reduce blood pressure," said He, an epidemiologist at Tulane University School of Public Health and Tropical Medicine in New Orleans, La. "In contrast, our clinical trial directly compares soy protein with milk protein on blood pressure, and shows they both lower blood pressure better than carbohydrates."

Participants were age 22 or older, with systolic blood pressure ranging from 120 to 159 mmHg and diastolic blood pressure from 80 to 95 mmHg. Each was randomly assigned to take 40 grams of soy protein, milk protein or a refined carbohydrate supplement every day, for eight weeks each. The supplements used were formulated in a way that allowed researchers to compare the effects of soy protein, milk protein, and refined complex carbohydrate on blood pressure without changing sodium, potassium, and calcium.

Each eight-week phase was followed by a three-week washout period when study participants did not take supplements. They took the three supplements as identical powder supplements dissolved in liquid.

Blood pressure readings were taken three times at each of two clinical visits before and two clinical visits after each eight-week phase, yielding a net blood pressure change for each supplement period. The study results showed no decrease in diastolic blood pressure.

“The systolic blood pressure differences we found are small for the individual, but they are important at the population level,” He said.

Based on previous research, a 2 mmHg decrease in systolic blood pressure could lead to 6 percent fewer stroke-related deaths, a 4 percent lower rate of heart disease deaths and a 3 percent reduction in overall deaths among Americans.

Long-term studies would be needed to make specific recommendations for dietary changes, He said.

Co-authors are: Marion R. Wofford, M.D.; Kristi Reynolds, Ph.D., M.P.H.; Jing Chen, M.D., M.Sc.; Chung-Shiuan Chen, M.S.; Leann Myers, Ph.D.; Deborah L. Minor, Pharm.D.; Patricia J. Elmer, Ph.D.; Daniel W. Jones, M.D.; and Paul K. Whelton, M.D., M.Sc. Individual author disclosures are on the manuscript.

The National Heart, Lung, and Blood Institute funded the study.

###

Statements and conclusions of study authors published in American Heart Association scientific journals are solely those of the study authors and do not necessarily reflect the association’s policy or position. The association makes no representation or guarantee as to their accuracy or reliability. The association receives funding primarily from individuals; foundations and corporations (including pharmaceutical, device manufacturers and other companies) also make donations and fund specific association programs and events. The association has strict policies to prevent these relationships from influencing the science content. Revenues from pharmaceutical and device corporations are available at www.americanheart.org/corporatefunding.

NR11 – 1099 (Circ/He)

Additional Resources:

- More information on blood pressure can be found at www.heart.org/highbloodpressure
- Downloadable stock footage, animation and our image gallery are located at www.heart.org/news under **Multimedia**.