

QSSB Health and Nutrition Outreach

February 2023 Content

Article

Add Soyfoods to Your “Recipe” for a Heart Healthy Diet

By: Karen Collins, MS, RDN, CDN, FAND

Creating a heart-healthy dietary pattern is a lot like creating a recipe for a dish you love. In the recipe for your favorite dish, ingredients come together, each enhancing the others. That’s how to build a diet for heart health, too— Daily food choices are the key ingredients, and emerging research shows several ways soyfoods contribute to that “recipe.”

Blood Lipid Levels

Studies have long demonstrated the importance of an optimal LDL-cholesterol level of less than 100 mg/dL.(1) Research shows that soy protein can help lower LDL-cholesterol.(2,3) And limited studies suggest that soy protein can also lower levels of ApoB,(4) a protein found in all lipoprotein particles that promote atherosclerosis, a disease associated with plaque accumulation on arterial walls. ApoB is another important indicator of cardiovascular risk.(1)

Soy protein has effects on blood lipids that promote atherosclerosis.(2) Additionally, most of the fat in soy is *unsaturated fat*, which helps lower LDL-cholesterol levels. In studies that reflect the influence of soy protein as replacements for meats and dairy, the effects on atherosclerosis-promoting lipids are evident.(5)

Healthy Blood Vessels

There’s more to heart health than keeping blood cholesterol low. As people age, arteries tend to get stiffer and less able to dilate as they should.(6) This paves the way for high blood pressure, a major risk factor for heart disease found in nearly half of U.S. adults today.(7)

Fortunately, research shows that these changes in blood vessel walls can be slowed down(8), and emerging research suggests that soy may play a part here, too. In some laboratory studies, soy isoflavones trigger a cascade of reactions that support blood vessels’ ability to relax and allow proper blood flow, reduce oxidative stress and related inflammation in cells that line blood vessels, and reduce arterial stiffness. (9,10)

In other studies, equol, a compound that gut bacteria produce from daidzein (one of the isoflavones found in soy), shows even stronger protective effects on artery walls.(10) Some people produce more equol from isoflavones than others, and this could mean that they are likely to benefit in this way from soyfoods.

Much more research is needed to understand how soyfoods may help support healthy blood vessels.

Soyfoods as a Win-Win for Heart Health

The benefits of eating soyfoods are magnified when they aren't simply added to an unhealthy diet but used as swaps to help reduce consumption of foods that heart health recommendations advise limiting. (11)

Here are just a few ideas:

- Substitute tempeh or chunks of tofu for higher saturated fat protein sources in chili, tacos, and pasta dishes.
- If you enjoy smoothies, skip the high-sugar mixes and simply blenderize fruit with soy milk and soft or silken tofu.
- Instead of snacking on chips, crackers, or sweets: choose edamame or soy nuts.

References

- (1) Borén J, Chapman MJ, Krauss RM, Packard CJ, Bentzon JF, et al. Low-density lipoproteins cause atherosclerotic cardiovascular disease: pathophysiological, genetic, and therapeutic insights: a consensus statement from the European Atherosclerosis Society Consensus Panel. *Eur Heart J*. 2020 Jun 21;41(24):2313-2330. doi: 10.1093/eurheartj/ehz962.
<https://pubmed.ncbi.nlm.nih.gov/32052833/>
- (2) Blanco Mejia S, Messina M, Li SS, Viguiliouk E, Chiavaroli L, et al. A Meta-Analysis of 46 Studies Identified by the FDA Demonstrates that Soy Protein Decreases Circulating LDL and Total Cholesterol Concentrations in Adults. *J Nutr*. 2019 Jun 1;149(6):968-981. doi: 10.1093/jn/nxz020.
<https://pubmed.ncbi.nlm.nih.gov/31006811/>
- (3) Schoeneck M, Iggman D. The effects of foods on LDL cholesterol levels: A systematic review of the accumulated evidence from systematic reviews and meta-analyses of randomized controlled trials. *Nutr Metab Cardiovasc Dis*. 2021 May 6;31(5):1325-1338. doi: 10.1016/j.numecd.2020.12.032.
<https://pubmed.ncbi.nlm.nih.gov/33762150/>
- (4) Ruscica M, Pavanello C, Gandini S, Gomaraschi M, Vitali C, et al. Effect of soy on metabolic syndrome and cardiovascular risk factors: a randomized controlled trial. *Eur J Nutr*. 2018 Mar;57(2):499-511. doi: 10.1007/s00394-016-1333-7.
<https://pubmed.ncbi.nlm.nih.gov/27757595/>
- (5) Jenkins DJ, Mirrahimi A, Srichaikul K, Berryman CE, Wang L, et al. Soy protein reduces serum cholesterol by both intrinsic and food displacement mechanisms. *J Nutr*. 2010 Dec;140(12):2302S-2311S. doi: 10.3945/jn.110.124958.
<https://pubmed.ncbi.nlm.nih.gov/20943954/>
- (6) Nowak KL, Rossman MJ, Chonchol M, Seals DR. Strategies for Achieving Healthy Vascular Aging. *Hypertension*. 2018;71(3):389-402.
<https://pubmed.ncbi.nlm.nih.gov/29311256/>
- (7) Centers for Disease Control and Prevention (CDC). Facts about Hypertension. Web page last reviewed January 5, 2023. Accessed January 8, 2023. <https://www.cdc.gov/bloodpressure/facts.htm>
- (8) Johnson SA, Litwin NS, Seals DR. Age-Related Vascular Dysfunction: What Registered Dietitian Nutritionists Need to Know. *J Acad Nutr Diet*. 2019;119(11):1785-1796.
<https://pubmed.ncbi.nlm.nih.gov/31171467/>
- (9) Sekikawa A, Ihara M, Lopez O, Kakuta C, Lopresti B, et al. Effect of S-equol and Soy Isoflavones on Heart and Brain. *Curr Cardiol Rev*. 2019;15(2):114-135. doi: 10.2174/1573403X15666181205104717.
<https://pubmed.ncbi.nlm.nih.gov/30516108/>
- (10) Man B, Cui C, Zhang X, Sugiyama D, Barinas-Mitchell E, Sekikawa A. The effect of soy isoflavones on arterial stiffness: a systematic review and meta-analysis of randomized controlled trials. *Eur J Nutr*. 2021 Mar;60(2):603-614. doi: 10.1007/s00394-020-02300-6.
<https://pubmed.ncbi.nlm.nih.gov/32529287/>
- (11) [https://www.heart.org/en/healthy-living/healthy-eating/eat-smart/nutrition-basics/meat-poultry-and-fish-picking-healthy-proteins#:~:text=In%20general%2C%20red%20meats%20\(such,skinless%20poultry%2C%20and%20unprocessed%20forms.](https://www.heart.org/en/healthy-living/healthy-eating/eat-smart/nutrition-basics/meat-poultry-and-fish-picking-healthy-proteins#:~:text=In%20general%2C%20red%20meats%20(such,skinless%20poultry%2C%20and%20unprocessed%20forms.)

AUTHOR BIO

Karen Collins

Registered Dietitian

Karen Collins, MS, RDN, CDN, FAND, is known for translating nutrition research on heart health, cancer prevention and survivorship, and their intersection. She's written multiple book chapters and research reviews for health professionals and over 2,000 articles for the public. Find out more at [KarenCollinsNutrition.com](https://www.KarenCollinsNutrition.com)



Article Images:

