Title	Takeaway	Abstract	Journal	Journal S	DOI	Consensus Link
Soy protein versus soy phytoestrogens in the prevention of diet-induced coronary artery atherosclerosis of male cynomolgus monkeys.	Soy protein with phytoestrogens, rather than just the protein itself, has greater prevention of coronary atherosclerosis in male cynomolgus macaques.	Soy protein, long recognized as having cardiovascular benefits, is a rich source of phytoestrogens (isoflavones). To distinguish the relative contributions of the protein moiety versus the alcohol-extractable phytoestrogens for cardiovascular protection, we studied young male cynomolgus macaques fed a moderately atherogenic diet and randomly assigned to three groups. The groups differed only in the source of dietary protein, which was either casein/lactalbumin (casein, n = 27), soy protein with the phytoestrogens intact (soy+, n = 27), or soy protein with the phytoestrogens mostly extracted (soy-, n = 28). The diets were fed for 14 months. Animals fed soy+ had significantly lower total and LDL plus VLDL cholesterol concentrations compared with the other two groups. They soy+ animals had the highest HDL cholesterol concentrations, the casein group had the lowest, and the soy- group was intermediate. A subset was necropsied for atherosclerosis evaluations (n = 11 per group). Morphometric and angiochemical measures were done to quantify atherosclerosis. Coronary artery atherosclerotic lesions were smallest in the soy+ group (90% less coronary atherosclerosis than the casein group and 50% less than the soy- group), largest in the casein group, and intermediate in the soy- group. The effects of the diets on lesion size and arterial lipid measures of the peripheral arteries were similar to those in the coronary arteries, with greatest prevention of atherogenesis with soy+ and intermediate benefit with soy- relative to casein. We could not determine whether the beneficial effects seen in the soy- group relate to the protein itself or to the remaining traces of phytoestrogens. The beneficial effects of soy protein on atherosclerosis appear to be mediated primarily by the phytoestrogen component. Testicular weights were unaffected by the phytoestrogens.	Arteriosclerosis, thrombosis, and vascular biology	1	10.1161/01	https://consensus.app/papers/protein-versus-phytoestrogens-prevention-dietinduced-anthony/100be4b1c6115051982ea4f6423351c0/
Effects of soy protein and soybean isoflavones on thyroid function in healthy adults and hypothyroid patients: a review of the relevant literature.	Soy foods and isoflavones show little evidence of adversely affecting thyroid function in healthy adults, but may increase thyroid hormone doses for hypothyroid patients.	Soy foods are a traditional staple of Asian diets but because of their purported health benefits they have become popular in recent years among non-Asians, especially postmenopausal women. There are many bioactive soybean components that may contribute to the hypothesized health benefits of soy but most attention has focused on the isoflavones, which have both hormonal and nonhormonal properties. However, despite the possible benefits concerns have been expressed that soy may be contraindicated for some subsets of the population. One concern is that soy may adversely affect thyroid function and interfere with the absorption of synthetic thyroid hormone. Thus, the purpose of this review is to evaluate the relevant literature and provide the clinician guidance for advising their patients about the effects of soy on thyroid function. In total, 14 trials (thyroid function was not the primary health outcome in any trial) were identified in which the effects of soy foods or isoflavones on at least one measure of thyroid function was assessed in presumably healthy subjects; eight involved women only, four involved men, and two both men and women. With only one exception, either no effects or only very modest changes were noted in these trials. Thus, collectively the findings provide little evidence that in euthyroid, iodine-replete individuals, soy foods, or isoflavones adversely affect thyroid function. In contrast, some evidence suggests that soy foods, by inhibiting absorption, may increase the dose of thyroid hormone required by hypothyroid patients. However, hypothyroid adults need not avoid soy foods. In addition, there remains a theoretical concern based on in vitro and animal data that in individuals with compromised thyroid function and/or whose iodine intake is marginal soy foods may increase risk of developing clinical hypothyroidism. Therefore, it is important for soy food consumers to make sure their intake of iodine is adequate.	Thyroid : official journal of the American Thyroid Association	1	10.1089/TH	https://consensus.app/papers/effects-protein-isoflavones-function-adults-patients-messina/026e0f1f183d5e42b1d4ecb40689cdb1/
Is soy protein effective in reducing cholesterol and improving bone health?	Soy protein supplementation may improve bone metabolism and body composition, while having little effect on lipid profiles and inflammation markers.	Hyperlipidemia associated with cardiovascular health, and bone loss with regard to osteoporosis contribute to increased morbidity and mortality and are influenced by diet. Soy protein has been shown to reduce cholesterol levels, and its isoflavones may improve bone health. The objective of this study was to determine the effects of soy protein on lipid profiles and biomarkers of bone metabolism and inflammation. Ninety men and women (aged 27-87) were randomly assigned to consume 40 g of soy or casein protein daily for three months. Both soy and casein consumption significantly reduced bone alkaline phosphatase (P = 0.011) and body fat % (P < 0.001), tended to decrease tartrate-resistant acid phosphatase (P = 0.066), and significantly increased serum insulin-like growth factor-I (IGF-1) (P < 0.001), yet soy increased IGF-1 to a greater extent (P = 0.01) than casein. Neither treatment affected total cholesterol, HDL cholesterol, LDL cholesterol, or C-reactive protein. These results demonstrate that daily supplementation of soy and casein protein may have positive effects on indices of bone metabolism and body composition, with soy protein being more effective at increasing IGF-1, an anabolic factor, which may be due to soy isoflavones' role in upregulating Runx2 gene expression, while having little effect on lipid profiles and markers of inflammation.	Food & function	1	10.1039/c9	https://consensus.app/papers/protein-reducing-cholesterol-improving-bone-health-george/4a81e3384989547cabf0cb976d208568/

Cardiovascular and renal benefits of dry bean and soybean intake.	Dry bean and soybean intake can lower cholesterol, improve vascular health, and aid in weight control, while also providing potential health benefits for menopause, osteoporosis, and kidney function.	Dry beans and soybeans are nutrient-dense, fiber-rich, and are high-quality sources of protein. Protective and therapeutic effects of both dry bean and soybean intake have been documented. Studies show that dry bean intake has the potential to decrease serum cholesterol concentrations, improve many aspects of the diabetic state, and provide metabolic benefits that aid in weight control. Soybeans are a unique source of the isoflavones genistein and diadzein, which have numerous biological functions. Soybeans and soyfoods potentially have multifaceted health-promoting effects, including cholesterol reduction, improved vascular health, preserved bone mineral density, and reduction of menopausal symptoms. Soy appears to have salutary effects on renal function, although these effects are not well understood. Whereas populations consuming high intakes of soy have lower prevalences of certain cancers, definitive experimental data are insufficient to clarify a protective role of soy. The availability of legume products and resources is increasing, incorporating dry beans and soyfoods into the diet can be practical and enjoyable. With the shift toward a more plant-based diet, dry beans and soy will be potent tools in the treatment and prevention of chronic disease.	The American journal of clinical nutrition	1	10.1093/aj	https://consensus.app/papers/benefits-soybean-intake-anderson/2cbea9168408569795c56f7313611fd5/
Soy for breast cancer survivors: a critical review of the literature.	Soybean consumption does not significantly affect the risk of developing breast cancer or reducing breast cancer survival, making it a reasonable choice for breast cancer survivors.	A variety of health benefits, including protection against breast cancer, have been attributed to soy food consumption, primarily because of the soybean isoflavones (genistein, daidzein, glycitein). Isoflavones are considered to be possible selective estrogen receptor modulators but possess nonhormonal properties that also may contribute to their effects. Concern has arisen over a possible detrimental effect of soy in breast cancer patients because of the estrogen-like effects of isoflavones. Genistein exhibits a biphasic effect on the growth of MCF-7 cells in vitro, stimulating proliferation at low concentrations but inhibiting it at high concentrations. In ovariectomized athymic mice implanted with MCF-7 cells, both genistein and soy protein stimulate tumor growth in a dose-dependent manner. In contrast, in intact mice fed estrogen, genistein inhibits tumor growth. Although two studies in premenopausal women suggested that soy exerts estrogenic-like effects on breast tissue, recently conducted year-long studies indicated that isoflavone supplements do not affect breast tissue density in premenopausal women and may decrease density in postmenopausal women. These latter effects are opposite to those of hormone replacement therapy (HRT). Importantly, substantial data suggest that the progestogen, not the estrogen, component of HRT increases risk of developing breast cancer. Furthermore, recently conducted studies have failed to find that even HRT reduces survival in breast cancer patients. Overall, the data are not impressive that the adult consumption of soy affects the risk of developing breast cancer or that soy consumption affects the survival of breast cancer patients. Consequently, if breast cancer patients enjoy soy products, it seems reasonable for them to continue to use them.	The Journal of nutrition	1	10.1093/jn	https://consensus.app/papers/breast-cancer-survivors-review-literature-messina/d320cbef0c1b50da9c86a4e98c0bc8f7/
Health effects of soy protein and isoflavones in humans.	Soy protein and isoflavones may have slightly decreased LDL cholesterol but had no effect on HDL, triglycerides, lipoprotein(a), or blood pressure, with inconsistent data supporting most health benefits.	Epidemiological investigations suggest that soy consumption may be associated with a lower incidence of certain chronic diseases. Clinical studies also show that ingestion of soy proteins reduces the risk factors for cardiovascular disease. This led to the approval of the food-labeling health claim for soy proteins in the prevention of coronary heart disease by the U.S. FDA in 1999. Similar health petitions for soy proteins have also been approved thereafter in the United Kingdom, Brazil, South Africa, the Philippines, Indonesia, Korea, and Malaysia. However, the purported health benefits are quite variable in different studies. The Nutrition Committee of the American Heart Association has assessed 22 randomized trials conducted since 1999 and found that isolated soy protein with isoflavones (ISF) slightly decreased LDL cholesterol but had no effect on HDL cholesterol, triglycerides, lipoprotein(a), or blood pressure. The other effects of soy consumption were not evident. Although the contributing factors to these discrepancies are not fully understood, the source of soybeans and processing procedures of the protein or ISF are believed to be important because of their effects on the content and intactness of certain bioactive protein subunits. Some studies have documented potential safety concerns on increased consumption of soy products. Impacts of soy products on thyroid and reproductive functions as well as on certain types of carcinogenesis require further study in this context. Overall, existing data are inconsistent or inadequate in supporting most of the suggested health benefits of consuming soy protein or ISF.	The Journal of nutrition	1	10.1093/JN	https://consensus.app/papers/health-effects-protein-isoflavones-humans-xiao/9676872ad14a5c27872def5fd2afb8a0/

Soy and Health Update: Evaluation of the Clinical and Epidemiologic Literature	Soyfoods reduce the risk of chronic diseases, alleviate hot flashes, and may improve renal function, depressive symptoms, and skin health, while maintaining safety and benefits.	Soyfoods have long been recognized as sources of high-quality protein and healthful fat, but over the past 25 years these foods have been rigorously investigated for their role in chronic disease prevention and treatment. There is evidence, for example, that they reduce risk of coronary heart disease and breast and prostate cancer. In addition, soy alleviates hot flashes and may favorably affect renal function, alleviate depressive symptoms and improve skin health. Much of the focus on soyfoods is because they are uniquely-rich sources of isoflavones. Isoflavones are classified as both phytoestrogens and selective estrogen receptor modulators. Despite the many proposed benefits, the presence of isoflavones has led to concerns that soy may exert untoward effects in some individuals. However, these concerns are based primarily on animal studies, whereas the human research supports the safety and benefits of soyfoods. In support of safety is the recent conclusion of the European Food Safety Authority that isoflavones do not adversely affect the breast, thyroid or uterus of postmenopausal women. This review covers each of the major research areas involving soy focusing primarily on the clinical and epidemiologic research. Background information on Asian soy intake, isoflavones, and nutrient content is also provided.	Nutrients	1	10.3390/nu	https://consensus.app/papers/health-update-evaluation-clinical-epidemiologic-messina/360d8aa5cd8b569599c4eb747b9fdbef/
Soybean Bioactive Peptides and Their Functional Properties	Soybean bioactive peptides show potential health benefits in reducing chronic diseases like obesity, cardiovascular disease, insulin-resistance, type II diabetes, cancers, and immune disorders.	Soy consumption has been associated with many potential health benefits in reducing chronic diseases such as obesity, cardiovascular disease, insulin-resistance/type II diabetes, certain type of cancers, and immune disorders. These physiological functions have been attributed to soy proteins either as intact soy protein or more commonly as functional or bioactive peptides derived from soybean processing. These findings have led to the approval of a health claim in the USA regarding the ability of soy proteins in reducing the risk for coronary heart disease and the acceptance of a health claim in Canada that soy protein can help lower cholesterol levels. Using different approaches, many soy bioactive peptides that have a variety of physiological functions such as hypolipidemic, anti-hypertensive, and anti-cancer properties, and anti-inflammatory, antioxidant, and immunomodulatory effects have been identified. Some soy peptides like lunasin and soymorphins possess more than one of these properties and play a role in the prevention of multiple chronic diseases. Overall, progress has been made in understanding the functional and bioactive components of soy. However, more studies are required to further identify their target organs, and elucidate their biological mechanisms of action in order to be potentially used as functional foods or even therapeutics for the prevention or treatment of chronic diseases.	Nutrients	1	10.3390/nu	https://consensus.app/papers/soybean-bioactive-peptides-their-functional-properties-chatterjee/5383e74979875f41b5ecdcd7e33a87ea/
Soy, soy phytoestrogens and cardiovascular disease.	Soy protein has beneficial effects on cardiovascular health, with LDL cholesterol reduction and HDL cholesterol increases, but its isoflavones' role in these benefits remains unclear.	Dietary soy protein has been shown to have several beneficial effects on cardiovascular health. The best-documented effect is on plasma lipid and lipoprotein concentrations, with reductions of approximately 10% in LDL cholesterol concentrations (somewhat greater for individuals with high pretreatment LDL cholesterol concentrations) and small increases in HDL cholesterol concentrations. Dietary soy protein improves flow-mediated arterial dilation of postmenopausal women but worsens that of men. Soy isoflavone extracts improve systemic arterial compliance, an indicator of atherosclerosis extent. Complete soy protein but not alcohol-washed soy protein reduces atherosclerosis of postmenopausal monkeys. No definite experimental evidence exists currently to establish that the cardiovascular benefits of soy protein are accounted for by its isoflavones.	The Journal of nutrition	1	10.1093/JN	https://consensus.app/papers/phytoestrogens-disease-clarkson/f8c8010f2eb558e083553640fd4fb45f/
Beyond the Cholesterol-Lowering Effect of Soy Protein: A Review of the Effects of Dietary Soy and Its Constituents on Risk Factors for Cardiovascular Disease	Non-protein soy components, such as isoflavones, lecithins, saponins, and fiber, may also improve cardiovascular health beyond cholesterol lowering.	The hypocholesterolemic effect of soy is well-documented and this has led to the regulatory approval of a health claim relating soy protein to a reduced risk of cardiovascular disease (CVD). However, soybeans contain additional components, such as isoflavones, lecithins, saponins and fiber that may improve cardiovascular health through independent mechanisms. This review summarizes the evidence on the cardiovascular benefits of non-protein soy components in relation to known CVD risk factors such as hypertension, hyperglycemia, inflammation, and obesity beyond cholesterol lowering. Overall, the available evidence suggests non-protein soy constituents improve markers of cardiovascular health; however, additional carefully designed studies are required to independently elucidate these effects. Further, work is also needed to clarify the role of isoflavone-metabolizing phenotype and gut microbiota composition on biological effect.	Nutrients	1	10.3390/nu	https://consensus.app/papers/beyond-cholesterollowering-effect-protein-review-ramdath/d6ffab738da25cfc88cd3aaa7d628c65/
Health Benefits of Soy Isoflavonoids and Strategies for Enhancement: A Review	Soybean consumption is linked to reduced risk of certain cancers and diseases of old age, with isoflavonoids playing a key role in chemoprevention through promoting apoptosis in diseased cells.	Soybean consumption has been linked to a reduced risk for certain cancers and diseases of old age. The health benefits associated with soybean consumption have been linked to the action of isoflavonoids, the major phenolic phytochemicals found in soybean. Isoflavonoids possess numerous biological activities that may support chemoprevention through the promotion of apoptosis in diseased cells. In this study, we discuss the current state of knowledge concerning soybean isoflavonoids, their chemopreventive actions against postmenopausal health problems, cancer, and cardiovascular disease, and also biotechnology approaches toward the enrichment of soybean for isoflavonoid content.	Critical Reviews in Food Science and Nutrition	1	10.1080/10	https://consensus.app/papers/health-benefits-isoflavonoids-strategies-enhancement-mccue/6814de5169965fcd8e58cbd2ddd334ee/

An insight into the health benefits of fermented soy products.	Fermented soy products have lipid-lowering effects, help reduce diabetes, blood pressure, cardiac disorders, and cancer-related issues, and have increased nutritional value compared to non-fermented soy products.	The current review was aimed to summarize the nutritional values and various health benefits of fermented soy products. Several previous researches proved that soy products rich in protein can reduce the serum concentrations of total cholesterol, low-density lipoproteins (LDLs), and triglycerides if consumed instead of animal protein. Apart from these lipid-lowering effects, fermented soy products also proved to be effective in attenuating the effects of diabetes mellitus, blood pressure, cardiac disorders and cancer-related issues. The nutritional value of the fermented soy products gains much attention due to its increased levels compared to the non-fermented ones. The origin, compositions, nutritional values of different fermented soy products and health-promoting benefits of fermented soy products were systematically reviewed. Hence the in-depth analysis of the various research findings on fermented soy products, beneficial activities may help the future researchers to derive a conclusion on its beneficial effects on health.	Food chemistry	1	10.1016/j.f	https://consensus.app/papers/health-benefits-fermented-products-jayachandran/8871db373e315e9c95c394ee90efee28/
Soy foods and supplementation: a review of commonly perceived health benefits and risks.	Moderate consumption of traditionally prepared and minimally processed soy foods may offer modest health benefits while minimizing potential adverse effects.	In recent years, the impact of soy foods and supplements upon human health has become increasingly controversial among the general public. No one has conducted a broad evaluation of the scientific evidence supporting or refuting popular perceptions of the health effects of soy consumption. In this article, the authors have conducted a comprehensive assessment of the literature surrounding the health effects of soy consumption that are of greatest interest. This review has focused on 5 health benefits- relief of menopausal symptoms and prevention of heart disease, breast cancer, prostate cancer, and osteoporosis, and 5 health risks-increased risk of breast cancer, male hormonal and fertility problems, hypothyroidism, antinutrient content, and harmful processing by-products. Systematic reviews of human trials, prospective human trials, observational human studies, animal models, in vitro studies, and laboratory analyses of soy components were included for review. This literature review revealed that soy foods and isoflavones may provide relief from menopausal symptoms and protect against breast cancer and heart disease. Soy does not appear to offer protection against osteoporosis. The evidence on male fertility and reproductive hormones was conflicting; some studies demonstrated a deleterious impact caused by soy consumption and others showed no effect. Soy supplementation also appears to affect thyroid function in an inconsistent manner, as studies have shown both increases and decreases in the same parameters of thyroid activity. Soaking, fermentation, and heating may reduce problematic antinutrients contained in soy. The authors found that consuming moderate amounts of traditionally prepared and minimally processed soy foods may offer modest health benefits while minimizing potential for adverse health effects. However, additional studies are necessary to elucidate the variable thyroid response to soy supplementation, and more rigorous studies are required to assess dose-response relationships, the relationship between intestinal-flora composition and the response to soy, potential fertility issues among males, and the unknown long-term health effects of consuming highly processed modern soy foods.	Alternative therapies in health and medicine	2		https://consensus.app/papers/foods-supplementation-review-commonly-perceived-health-d%E2%80%99adamo/8fab3345e18f5333b06a5e26a82772ca/
Evolution of the Health Benefits of Soy Isoflavones	Heavy consumption of soy in Southeast Asia is associated with reduced rates of certain cancers and cardiovascular diseases, and may also prevent osteoporosis, hereditary chronic nose bleed syndrome, and autoimmune diseases.	Abstract Soy is a unique dietary source of the isoflavones, genistein and daidzein. It has been part of the Southeast Asian diet for nearly five millenia, whereas consumption of soy in the United States and Western Europe has been limited to the 20th century. Heavy consumption of soy in Southeast Asian populations is associated with reduction in the rates of certain cancers and cardiovascular disease. Recent experimental evidence suggests that phytochemicals in soy are responsible for its beneficial effects, which may also include prevention of osteoporosis, a hereditary chronic nose bleed syndrome, and autoimmune diseases. Exposure of soy formula-fed infants to the potential estrogenizing effects of the isoflavones is limited by the first pass effect of the liver following the uptake of isoflavones from the gut. Several mechanisms of action of isoflavones have been proposed—both through estrogendependent and estrogen-independent pathways.	Proceedings of the Society for Experimental Biology and Medicine		10.3181/00	https://consensus.app/papers/evolution-health-benefits-isoflavones-barnes/9a26087af1e056148f6618946d5a5849/
Soybean Consumption And Health Benefits	Soybean consumption provides health benefits for cancer, heart disease, menopause symptoms, and osteoporosis due to its rich source of dietary protein and phytoestrogens.	soy foods are rich source of dietary protein. soy based foods are rich in a class of compounds called isoflavones. Isoflavones have chemical structure that is similar to the hormone estrogen receptors commonly called phytoestrogens. the consumption of soy isoflavones appears to result in health benefits for cancer, heart disease, menopausal symptoms and osteoporosis. so as a result soy protein have become major components of food.	International Journal of Scientific & Technology Research			https://consensus.app/papers/consumption-health-benefits-bolla/2e94428da9fe58b2bdc2ce03faf6677c/

Health benefits of soy and soy phytochemicals	Soy and soy phytochemicals have been shown to have health benefits, including preventing cardiovascular disease, obesity-related metabolic syndrome, certain cancers, and other chronic diseases.	Soy is an important commodity and a long-time staple food in eastern Asian countries. Recent research and clinical studies have provided ample evidence for the health benefits of soy and soy foods, which have also contributed to an increase in soy consumption among the Western population. The current mini-review aims to summarize the current knowledge of the health benefits of soy and soy phytochemicals, and their reported effects in preventing (I) cardiovascular disease, (II) obesity-related metabolic syndrome, (III) certain types of cancers, and (IV) other chronic diseases. In addition to the widely reported soy isoflavones, namely, genistein, daidzein, and glycitein, a novel group of soy phytoalexins, glyceollins, have also shown promising biological activities, such as insulinotropic, antiestrogenic, antiproliferative, antioxidation, anti-inflammation, and cholesterol-lowering effects. The elucidation of soy's health benefits is an important part of promoting the consumption of soy as a functional food and the understanding of the mechanism of actions of soy and soy phytochemicals' biological activities will provide further evidence for the optimized use for health promotion.	AME Medical Journal		10.21037/a	https://consensus.app/papers/health-benefits-phytochemicals-wu/bea065765630564b8a63ef39b14dc3a0/
Potential Benefits of Soy for Skin, Hair, and Nails	Soy consumption may have potential benefits for skin, hair, and nails, with potential benefits attributed to its isoflavones and protein components.	The effects of soy on diet and health have been topics of intense research for the last 20 years or more. Much of this research has suggested that soy consumption can have beneficial effects on several aspects of human health. Regular inclusion of soy and/or soy isoflavones in the diet has been reported to modestly improve plasma lipid profiles, improve bone health, reduce menopausal symptoms, enhance cognitive function, and potentially reduce the risk of breast and prostate cancers. The health benefits of dietary soy have been attributed to its isoflavones as well as to the biological actions of its constituent proteins. These potential health benefits of soy consumption have been extensively reviewed elsewhere [9, 30] and will not be discussed in this chapter.			10.1007/97	https://consensus.app/papers/benefits-skin-hair-nails-blair/20434a3912a05f71a3ccb36015e57f59/
Nutritional and health benefits of soy proteins.	Soy proteins offer potential health benefits, but require further research to optimize digestibility and allergen removal for optimal human and animal feed use.	Soy protein is a major component of the diet of food-producing animals and is increasingly important in the human diet. However, soy protein is not an ideal protein because it is deficient in the essential amino acid methionine. Methionine supplementation benefits soy infant formulas, but apparently not food intended for adults with an adequate nitrogen intake. Soy protein content of another essential amino acid, lysine, although higher than that of wheat proteins, is still lower than that of the milk protein casein. Adverse nutritional and other effects following consumption of raw soybean meal have been attributed to the presence of endogenous inhibitors of digestive enzymes and lectins and to poor digestibility. To improve the nutritional quality of soy foods, inhibitors and lectins are generally inactivated by heat treatment or eliminated by fractionation during food processing. Although lectins are heat-labile, the inhibitors are more heat-stable than the lectins. Most commercially heated meals retain up to 20% of the Bowman-Birk (BBI) inhibitor of chymotrypsin and trypsin and the Kunitz inhibitor of trypsin (KTI). To enhance the value of soybeans in human nutrition and health, a better understanding is needed of the factors that impact the nutrition and health-promoting aspects of soy proteins. This paper discusses the composition in relation to properties of soy proteins. Also described are possible beneficial and adverse effects of soy-containing diets. The former include soy-induced lowering of cholesterol, anticarcinogenic effects of BBI, and protective effects against obesity, diabetes, irritants of the digestive tract, bone, and kidney diseases, whereas the latter include poor digestibility and allergy to soy proteins. Approaches to reduce the concentration of soybean inhibitors by rearrangement of protein disulfide bonds, immunoassays of inhibitors in processed soy foods and soybean germplasm, the roles of phytoestrogenic isoflavones and lectins, and research needs in all of these areas are also discussed. This integrated overview of the widely scattered literature emphasizes general concepts based on our own studies as well as recent studies by others. It is intended to stimulate interest in further research to optimize beneficial effects of soy proteins. The payoff will be healthier humans and improved animal feeds.	Journal of agricultural and food chemistry	1	10.1021/JF	https://consensus.app/papers/nutritional-health-benefits-proteins-friedman/155661879db857f7b483979630f85d01/
The Role of Soy in Vegetarian Diets	Optimal adult soy intake, except for those allergic to soy protein, is between two and four servings per day, with no evidence supporting adverse effects.	Soyfoods have long been prized among vegetarians for both their high protein content and versatility. Soybeans differ markedly in macronutrient content from other legumes, being much higher in fat and protein, and lower in carbohydrate. In recent years however, soyfoods and specific soybean constituents, especially isoflavones, have been the subject of an impressive amount of research. Nearly 2,000 soy-related papers are published annually. This research has focused primarily on the benefits that soyfoods may provide independent of their nutrient content. There is particular interest in the role that soyfoods have in reducing risk of heart disease, osteoporosis and certain forms of cancer. However, the estrogen-like effects of isoflavones observed in animal studies have also raised concerns about potential harmful effects of soyfood consumption. This review addresses questions related to soy and chronic disease risk, provides recommendations for optimal intakes, and discusses potential contraindications. As reviewed, the evidence indicates that, with the exception of those individuals allergic to soy protein, soyfoods can play a beneficial role in the diets of vegetarians. Concerns about adverse effects are not supported by the clinical or epidemiologic literature. Based on the soy intake associated with health benefits in the epidemiologic studies and the benefits noted in clinical trials, optimal adult soy intake would appear to be between two and four servings per day.	Nutrients	1	10.3390/nu	https://consensus.app/papers/role-vegetarian-diets-messina/b37fedd572915df1be3d2c87c2ae8cc1/

The Key Importance of Soy Isoflavone Bioavailability to Understanding Health Benefits	Understanding soy isoflavone bioavailability is crucial for understanding its health benefits, as current research shows inconsistencies in clinical trials and a need for further research on metabolism and gut microbiota.	Research over the past two decades has provided significant epidemiological and other evidence for the health benefits of the consumption of soy-based foods. A large number of dietary intervention studies have examined the effects of soy isoflavones on risk factors for cardiovascular disease and hormone-dependent cancers. However, these report large variability in outcome measures, very limited reproducibility between studies, and in some cases, controversy between the results of clinical trials using dietary soy or soy protein and isoflavone supplementation. This highlights a major gap in our understanding of soy isoflavone uptake, metabolism, distribution, and overall bioavailability. There are many potential factors that may influence bioavailability and a better knowledge is necessary to rationalize the inconsistencies in the intervention and clinical studies. This review focuses attention on our current state of knowledge in this area and highlights the importance of metabolism of the parent soy isoflavones and the critical role of gut microbiota on the bioavailability of these compounds and their metabolites.	Critical Reviews in Food Science and Nutrition	1	10.1080/10	https://consensus.app/papers/importance-isoflavone-bioavailability-understanding-larkin/89d72b481f3e5a859d086546d7594d44/
Gaining insight into the health effects of soy but a long way still to go: commentary on the fourth International Symposium on the Role of Soy in Preventing and Treating Chronic Disease.	Soybeans show promise in preventing and treating chronic diseases, but more research is needed to confirm their health benefits and reduce the risk of certain diseases.	Research into the health effects of soyfoods and soybean constituents has increased at a phenomenal pace over the past decade. This research includes a wide range of areas, such as cancer, coronary heart disease, osteoporosis, cognitive function, menopausal symptoms and renal function. Importantly, there are an increasing number of clinical studies being conducted in this field, which was quite evident from the findings presented at the Fourth International Symposium on the Role of Soy in Preventing and Treating Chronic Disease, November 4-7, 2001, in San Diego, California. There is no doubt that progress in understanding the health effects of soy is being made, but much of the data are frustratingly inconsistent. For example, there were conflicting results presented at the symposium on the role of isoflavones in bone health. Similarly, presentations painted an unclear picture of the role of isoflavones in cholesterol reduction. The relatively short duration and small sample size of many of the human studies in this field likely contribute to the inconsistent results. Although there are some controversies regarding the safety of soy for certain subsets of the population, special sessions at the symposium on breast cancer and cognitive function did much to alleviate concerns that soy could have detrimental effects in these areas. Furthermore, published data and new research presented at this meeting suggest that the consumption of even 10 g (typical of Asian intake) of isoflavone-rich soy protein per day may be associated with health benefits. If this modest amount of soy protein were to be incorporated in the American diet, it would represent only approximately 15% of total U. S. protein intake.	The Journal of nutrition	1	10.1093/JN	https://consensus.app/papers/gaining-health-effects-long-still-international-messina/0329b609747c5826b453f01368eba7bf/
Chapter 7 – Soy Food Products and their Health Benefits	Soybeans are a high-protein, nutrient-rich food that can help prevent chronic diseases and promote overall health.	This chapter discusses soy food products and their health benefits. The soybean is a high-protein food and a good source of nitrogen for humans because the amino acid composition of protein in the soybean has the equivalent nutritional value as animal protein. Soybeans also contain dietary fiber and oligosaccharides, such as sucrose, raffinose, and stachyose. Soybean oil contains abundant Essential Fatty Acids (EFAs), such as linoleic acid and linolenic acid. Also, the soybean contains functional minor components such as isoflavone, saponin, lecithin, and phytosterol. Soy foods and soybean constituents have been widely investigated for their preventive role in chronic disease, which is attributed to their major physiological functions, such as cholesterol lowering, anti-obesity, antihypertensive, immunity regulation, lipid lowering, anti-carcinogenic, anticoagulant, anti-osteoporosis, and antioxidant. Furthermore, the United States Food and Drug Administration (FDA) confirmed the 'Soy Protein Health Claim' on 26 October, 1999, that 25 grams of soy protein a day may reduce the risk of heart disease. Therefore, taking this opportunity, soy foods will penetrate rapidly into Western cultures and diets. In the public health area, it is known that relatively minor substitution or addition of soy to the conventional diet can have healthful consequences.			10.1533/97	https://consensus.app/papers/chapter-food-products-health-benefits-guo/14b0d8b925f55f8781f34644c55a5245/
Soy Protein, Isoflavones, and Cardiovascular Health: An American Heart Association Science Advisory for Professionals From the Nutrition Committee	Soy protein with isoflavones may slightly decrease LDL cholesterol levels, but their overall impact on cardiovascular health and menopause symptoms remains unclear.	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 ≈3%. 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.	Circulation	1	10.1161/CI	https://consensus.app/papers/protein-isoflavones-cardiovascular-health-american-sacks/19c3e1ea8fb35d369587f7ae99a5068f/

Effects of Dietary Soy and Its Constituents on Human Health: A Review	Soybeans provide health benefits like reducing cholesterol and LDL, but also contain allergens, antinutrient agents, and potential negative effects like hypothyroidism and hormonal consequences in infants.	Soy Protein occurs naturally in Soybean and is known to have many benefits to health. It is an alternate source of protein for those people who don't eat meat but along with benefits. This review has been undertaken to make people familiar with the importance of soy beans in clinical set up and in the food industries. Soybeans are legumes which include peanuts, chickpeas, other beans and pulses. Soybeans are highly versatile beans can be processed into oil, flour and meal. Approved health claims for soy protein in different countries is about 25g/day which is known to reduce total cholesterol and LDL. Soy has different effective substance in it like Trypsin inhibitors, saponins, fibers, isoflavones and phytic acid. It has observed that soy shows some toxic effects. There are many studies raising concerns about the potential negative effects of it, due to the presence of allergens, also they contain anti nutrient agents who inhibit micronutrient absorption, it may also cause hypothyroidism, being deficient in a few essential amino acids, it is considered as an incomplete protein source. It may also cause hormonal consequences in infants in their later life.	Biomedical Journal of Scientific & Technical Research		10.26717/B	https://consensus.app/papers/effects-constituents-human-health-review-ahsan/a66b31fbe28354d9b3635746add1d015/
Soy versus whey protein bars: Effects on exercise training impact on lean body mass and antioxidant status	Soy and whey protein bars both promote lean body mass gain, but soy has the added benefit of preserving antioxidant function.	BackgroundAlthough soy protein may have many health benefits derived from its associated antioxidants, many male exercisers avoid soy protein. This is due partly to a popular, but untested notion that in males, soy is inferior to whey in promoting muscle weight gain. This study provided a direct comparison between a soy product and a whey product.MethodsLean body mass gain was examined in males from a university weight training class given daily servings of micronutrient-fortified protein bars containing soy or whey protein (33 g protein/day, 9 weeks, n = 9 for each protein treatment group). Training used workouts with fairly low repetition numbers per set. A control group from the class (N = 9) did the training, but did not consume either type protein bar.ResultsBoth the soy and whey treatment groups showed a gain in lean body mass, but the training-only group did not. The whey and training only groups, but not the soy group, showed a potentially deleterious post-training effect on two antioxidant-related related parameters.ConclusionsSoy and whey protein bar products both promoted exercise training-induced lean body mass gain, but the soy had the added benefit of preserving two aspects of antioxidant function.	Nutrition Journal	1	10.1186/14	https://consensus.app/papers/versus-whey-protein-bars-effects-exercise-training-body-brown/8603cf70348e5c8ba4d00efb47615d4d/
Effects of high- and low-isoflavone soyfoods on blood lipids, oxidized LDL, homocysteine, and blood pressure in hyperlipidemic men and women.	Substituting soyfoods for animal products reduces coronary artery disease risk by modestly reducing blood lipids, oxidized LDL, homocysteine, and blood pressure.	BACKGROUND Many of the benefits of soy have been attributed to soy isoflavones. OBJECTIVE The objective was to determine the effects of high- and low-isoflavone soy-protein foods on both lipid and nonlipid risk factors for coronary artery disease (CAD). METHODS Forty-one hyperlipidemic men and postmenopausal women participated in a study with three 1-mo diets: a low-fat dairy food control diet and high- (50 g soy protein and 73 mg isoflavones daily) and low- (52 g soy protein and 10 mg isoflavones daily) isoflavone soyfood diets. All 3 diets were very low in saturated fat (< 5% of energy) and cholesterol (< 50 mg/d). Fasting blood samples were drawn and blood pressure was measured at the start and end of each diet. RESULTS No significant differences were seen between the high- and low-isoflavone soy diets. Compared with the control diet, however, both soy diets resulted in significantly lower total cholesterol, estimated CAD risk, and ratios of total to HDL cholesterol, LDL to HDL cholesterol, and apolipoprotein B to A-I. No significant sex differences were observed, except for systolic blood pressure, which in men was significantly lower after the soy diets than after the control diet. On the basis of blood lipid and blood pressure changes, the calculated CAD risk was significantly lower with the soy diets, by 10.1 +/- 2.7%. CONCLUSION Substitution of soyfoods for animal products, regardless of isoflavone concentration, reduces the CAD risk because of both modest reductions in blood lipids and reductions in oxidized LDL,	The American journal of clinical nutrition	1	10.1093/A	https://consensus.app/papers/effects-lowisoflavone-soyfoods-blood-lipids-oxidized-jenkins/bc53d43ce4ee544bb23a002fb4257cfc/

Soy and Gut Microbiota: Interaction and Implication for Human Health.	Soy foods can increase gut microbiota levels, reduce pathogenic bacteria, and improve human health by influencing development, physiology, immunity, and nutrition.	Soy (Glycine max) is a major commodity in the United States, and soy foods are gaining popularity due to their reported health-promoting effects. In the past two decades, soy and soy bioactive components have been studied for their health-promoting/disease-preventing activities and potential mechanisms of action. Recent studies have identified gut microbiota as an important component in the human body ecosystem and possibly a critical modulator of human health. Soy foods' interaction with the gut microbiota may critically influence many aspects of human development, physiology, immunity, and nutrition at different stages of life. This review summarizes current knowledge on the effects of soy foods and soy components on gut microbiota population and composition. It was found, although results vary in different studies, in general, both animal and human studies have shown that consumption of soy foods can increase the levels of bifidobacteria and lactobacilli and alter the ratio between Firmicutes and Bacteroidetes. These changes in microbiota are consistent with reported reductions in pathogenic bacteria populations in the gut, thereby lowering the risk of diseases and leading to beneficial effects on human health.	Journal of agricultural and food chemistry	1	10.1021/A	https://consensus.app/papers/microbiota-interaction-implication-human-health-huang/357a2dfe5ca65a068c235826b0b3c0c5/
Phytochemicals and nutritional health benefits of soy plant	Soybean is a high-quality protein source with low saturated fat, dietary fiber, and isoflavones, potentially benefiting cardiovascular and overall health.	Health properties and uses of soybean, as well as the different chemical and botanical characteristics of this legume, are shown in this review. Soybean represents an excellent source of high quality protein; it has a low content in saturated fat, it contains a great amount of dietary fiber and its isoflavone content makes it singular among other legumes. Characterization and positive health effects of soybeans have been recently studied. Most of the studies have been focused on soybean protein as a possible source of prevention against cardiovascular disease. This positive effect may be due to a decrease in serum cholesterol concentrations. In addition, there are many studies on isoflavones, non-nutritive substances, associated with prevention and treatment of different chronic diseases. Moreover, some studies have shown the health properties of soy dietary fiber. The efficacy and safety of soy isoflavones for preventing or treating cancer of the breast, endometrium, and prostate are not established. In contrast, many soy products should be beneficial to cardiovascular and overall health because of their high content of polyunsaturated fats, fibers, vitamins, and minerals and low content of saturated fat. Therefore, it would be interesting to consider the replacement of animal based foods for soybean foods in order to obtain some nutritional benefits.	International journal of Nutrition, Pharmacology, Neurological Diseases	4	10.4103/22	https://consensus.app/papers/phytochemicals-health-benefits-plant-asif/679304b88c965140a4122af6e6531ff3/
Soy and Gastrointestinal Health: A Review	Consuming soy foods, particularly fermented soy milk, may improve gastrointestinal health.	Soybean is the most economically important legume globally, providing a major source of plant protein for millions of people; it offers a high-quality, cost-competitive and versatile base-protein ingredient for plant-based meat alternatives. The health benefits of soybean and its constituents have largely been attributed to the actions of phytoestrogens, which are present at high levels. Additionally, consumption of soy-based foods may also modulate gastrointestinal (GI) health, in particular colorectal cancer risk, via effects on the composition and metabolic activity of the GI microbiome. The aim of this narrative review was to critically evaluate the emerging evidence from clinical trials, observational studies and animal trials relating to the effects of consuming soybeans, soy-based products and the key constituents of soybeans (isoflavones, soy proteins and oligosaccharides) on measures of GI health. Our review suggests that there are consistent favourable changes in measures of GI health for some soy foods, such as fermented rather than unfermented soy milk, and for those individuals with a microbiome that can metabolise equol. However, as consumption of foods containing soy protein isolates and textured soy proteins increases, further clinical evidence is needed to understand whether these foods elicit similar or additional functional effects on GI health.	Nutrients	1	10.3390/nu	https://consensus.app/papers/gastrointestinal-health-review-belobrajdic/94a7c3cff5b95db9b4752fd0fa351242/
Role of Dietary Soy Protein in Obesity	Dietary soy protein may help reduce body weight, fat mass, and cholesterol levels, potentially improving insulin resistance and fatty acid metabolism.	Soy protein is an important component of soybeans and provides an abundant source of dietary protein. Among the dietary proteins, soy protein is considered a complete protein in that it contains ample amounts of all the essential amino acids plus several other macronutrients with a nutritional value roughly equivalent to that of animal protein of high biological value. Soy protein is unique among the plant-based proteins because it is associated with isoflavones, a group of compounds with a variety of biological properties that may potentially benefit human health. An increasing body of literature suggests that soy protein and its isoflavones may have a beneficial role in obesity. Several nutritional intervention studies in animals and humans indicate that consumption of soy protein reduces body weight and fat mass in addition to lowering plasma cholesterol and triglycerides. In animal models of obesity, soy protein ingestion limits or reduces body fat accumulation and improves insulin resistance, the hallmark of human obesity. In obese humans, dietary soy protein also reduces body weight and body fat mass in addition to reducing plasma lipids. Several potential mechanisms whereby soy protein may improve insulin resistance and lower body fat and blood lipids are discussed and include a wide spectrum of biochemical and molecular activities that favorably affect fatty acid metabolism and cholesterol homeostasis. The biologic actions of certain constituents of soy protein, particularly conglycinin, soyasaponins, phospholipids, and isoflavones, that relate to obesity are also discussed. In addition, the potential of soy protein in causing food allergy in humans is briefly discussed.	International Journal of Medical Sciences	2	10.7150/IJ	https://consensus.app/papers/role-dietary-protein-obesity-velasquez/e55fd6b5c0f55283ac40508e776f0831/

Soy isoflavones inhibit endothelial cell dysfunction and prevent cardiovascular disease.	Soy isoflavones, found in soybeans, may help prevent cardiovascular diseases by inhibiting endothelial cell dysfunction and promoting healthy vascular function.	Soybeans are among the most popular foods worldwide, and intake of soy-containing foods has been associated with many health benefits, in part because of it structure similar to estrogen. Epidemiologic studies have demonstrated that soy consumption improves serum profiles of hypercholesterolemic patients. Several studies have also indicated an inverse relationship between the consumption of soy isoflavones and the incidence of cardiovascular diseases (CVD). Soy is a rich dietary source of isoflavones. The main soy isoflavones are daidzein and genistein; equol, another isoflavone and a major intestinal bacterial metabolite of daidzein, is generated by enterobacterial effects. Many isoflavones have anti-oxidative effects and anti-inflammatory actions, as well as induce nitric oxide production to maintain a healthy endothelium and prevent endothelial cell dysfunction. These effects may limit the development of atherosclerosis and CVD and restore healthy endothelial function in altered endothelia. Although the evidence supporting the benefits of soy isoflavones in CVD prevention continues to increase, the association between soy isoflavones and disease is not fully understood. This review summarized recent progress in identifying the preventive mechanisms of action of dietary soybean isoflavones on vascular endothelial cells. Furthermore, it describe the beneficial roles that these isoflavones may have on endothelial dysfunction-related atherosclerosis.	Journal of Cardiovascular Pharmacology	2	10.1097/FJ	https://consensus.app/papers/isoflavones-inhibit-cell-dysfunction-prevent-disease-yamagata/8bbdf7e0fac9532aa54fe83bdf265fb0/
Antibiotic Treatment Reduces the Health Benefits of Soy Protein.	Antibiotic treatment reduces the health benefits of soy protein, suggesting that its health benefits are partly dependent on gut microbiota.	SCOPE Soy protein is a high-quality protein and its consumption has been associated with a reduction of serum cholesterol and triglycerides and an improvement in insulin resistance. However, it is not known whether the effects of soy protein are mediated by the gut microbiota. Thus, the aim of this study was to assess whether using antibiotics to partially eradicate the gut microbiota can prevent the beneficial effects of soy protein in rats. METHODS AND RESULTS Thus, rats were fed one of the following diets for 16 weeks: casein control; soy protein control; high-fat casein; high-fat soy protein. Then rats were then treated for 4 weeks with antibiotics. Body weight and composition, energy expenditure, glucose tolerance test, metabolic endotoxemia and gut microbiota were measured before and after treatment with antibiotic. The results showed that soy protein consumption decreased weight gain, body fat, metabolic endotoxemia, and increased energy expenditure and glucose tolerance. Antibiotic treatment suppressed all these metabolic effects. These changes were accompanied by modifying the diversity and taxonomy of the gut microbiota. CONCLUSION In conclusion, the evidence suggests that the health benefits of soy protein are partly dependent of the gut microbiota. This article is protected by copyright. All rights reserved.	Molecular nutrition & food research	1	10.1002/m	https://consensus.app/papers/treatment-reduces-health-benefits-protein-s%C3%A1ncheztapia/0e15f4ba03735aa2ad680137796658f8/
Soy Protein	Soy protein offers multiple health benefits, including improved women's and children's health, but more research is needed for perinatal health.	Soy protein comes from soybeans and offers multiple health benefits, some of which are just beginning to be discovered. This column reviews the health benefits of soy products with a special focus on women and children's health. To date, little has been written or researched that is directly related to perinatal health. Thus, the column has a more broad focus so that childbirth educators have a general resource to gain knowledge related to the use of soy-based foods.	Journal of Perinatal Education		10.1891/10	https://consensus.app/papers/protein-montgomery/4736d4b43887559190d34585fdfa56c6/
Biological Effect of Soy Isoflavones in the Prevention of Civilization Diseases	Soy isoflavones may help prevent certain civilization diseases, but their effectiveness in reducing cardiovascular risk and breast cancer-promoting properties remain inconclusive.	Scientific advancements in recent years have shed new light on the relationship between diet and human health. Nutrients play an important role in the prevention of many civilization diseases, such as osteoporosis, type II diabetes, hypercholesterolemia, and cardiovascular diseases. The biological activity of natural plant components allows their use in the treatment of various diseases, especially civilization diseases, to be speculated. Special attention is paid to phenolic compounds that have numerous health-promoting properties. Isoflavones, phenolic compounds, are commonly found in legumes, especially in soybeans. Their structural similarity to 17-β-estradiol (E2), the main female sex hormone, allows them to induce estrogenic and antiestrogenic effects by binding to estrogen receptors, and their consumption has been associated with a decreased risk of hormone-related cancers. In addition, numerous epidemiological studies and related meta-analyses suggest that soy consumption may be associated with a lower incidence of certain diseases. However, there are some doubts about the potential effects on health, such as the effectiveness of cardiovascular risk reduction or breast cancer-promoting properties. The purpose of this review is to present the current knowledge on the potential effects of soy isoflavone consumption with regard to civilization diseases.	Nutrients	1	10.3390/nu	https://consensus.app/papers/effect-isoflavones-prevention-civilization-diseases-pabich/863cd2e6bea55b45a0c30b091269a223/

Biofunctionality of Probiotic Soy Yoghurt	Probiotic Soy Yoghurt offers health benefits and is a suitable alternative to cow's milk, providing nutritional benefits and promoting brain function.	Soybean provides health benefits such as reducing cardiovascular disease, reducing menopausal symptoms, weight loss, arthritis, diabetes, osteoporosis and brain function. It contains phytochemicals such as isoflavones, saponins, phytosterols that promote health benefits. Soy food products are perceived as healthy food and are considered an important part of the diet. More than 50% consumers in the USA agreed that soy foods are healthy foods. Soymilk is considered as a suitable economical substitute for cow's milk and an ideal nutritional supplement for lactose-intolerant population and also considered cholesterol free product for cardiovascular disorders. Fermented soy milk is a good source of bioactive peptides such as anti-ACE, antioxidative, anti-cancer and immunomodulatory. Many fermented soy milk based products such as soy cheese, soymilk-kefir, soy yoghurt etc. are produced.	Food and Nutrition Sciences		10.4236/FN	https://consensus.app/papers/biofunctionality-probiotic-yoghurt-vij/3f56b251b23b58118292d234ef5114d2/
Whole soy, but not purified daidzein, had a favorable effect on improvement of cardiovascular risks: a 6-month randomized, double-blind, and placebo-controlled trial in equol-producing postmenopausal women.	Whole soy, but not purified daidzein, improves cardiovascular risk factors in prehypertensive postmenopausal women by reducing LDL-C and hs-CRP levels.	SCOPE Equol is produced by the intestinal bacteria from isoflavone daidzein. Studies have reported the health benefits of soy can only present or more pronounced in equol producers. This 6-month randomized controlled trial examined the effect of whole soy (soy flour) and purified daidzein on cardiovascular biomarkers and carotid intima-media thickness (CIMT) in prehypertensive postmenopausal women who were equol producers. METHODS AND RESULTS Two hundred seventy eligible women were randomized to either one of the three treatments: 40 g soy flour (whole soy group), 40 g low-fat milk powder + 63 mg daidzein (daidzein group), or 40 g low-fat milk powder (placebo group) daily each for 6 months. Fasting venous samples were obtained at baseline and end of trial for testing glucose, lipids, high sensitivity C-reactive protein (hs-CRP), and free fatty acid. Changes in common CIMT were also assessed. Serum LDL-C decreased by 7.95% (95% CI: -15.09∼-0.81%) and 6.32% (95% CI: -13.45∼0.08%), and serum hs-CRP decreased by 0.164 (95% CI: -0.309∼-0.019) and 0.054 (95% CI: -0.199∼0.012) in the whole soy group compared with daidzein and milk placebo groups, respectively. No significant change in CIMT was found. CONCLUSION Whole soy, but not purified daidzein, had a beneficial effect on reduction of LDL-C and hs-CRP among prehypertensive equol-producing postmenopausal women.	Molecular nutrition & food research	1	10.1002/m	https://consensus.app/papers/whole-purified-daidzein-effect-improvement-liu/1a99a4820d4557568b708a486af563ab/
Soybean and Processed Soy Foods Ingredients, and Their Role in Cardiometabolic Risk Prevention.	Soybeans and processed soy foods contain various components with potential health benefits, including isoflavones, which may help prevent cardiovascular disease, non-alcoholic fatty liver disease, obesity, and diabetes.	Soybeans contain various components with potential health benefits effects, but the impact of soy foods and processed soy foods on human health has gone progressively characterized. Soy foods are the traditional Asian diets; however because of their intended health benefits they have gone popular in Westerners, especially postmenopausal women. There are lots of biologically active soybean constituents that might lead to the possible health benefits of soy, and almost consideration has concentrated on the isoflavones, which have both hormonal and nonhormonal activities. The various other constituents of soybeans (saponins, soy protein or peptides, lecithin, and flavonoids) have differing biological activities. These include hormonal, immunological, bacteriological and digestive effects. This review is the broad assessment of the literature comprehensive the health effects of soy constituents that are of superlative interest. The health benefits of soy foods on four diseases-cardiovascular disease (CVD), non-alcoholic fatty liver disease (NAFLD), obesity and diabetes-are the focus of the review.	Recent patents on food, nutrition & agriculture	2	10.2174/22	https://consensus.app/papers/soybean-processed-foods-ingredients-their-role-imai/4b741bcdc2a157b6a3b313f275d31828/
Effect of soy-based breakfast cereal on blood lipids and oxidized low-density lipoprotein.	Soy-based breakfast cereals with high isoflavone intake may decrease the risk of cardiovascular disease by reducing oxidized LDL, but have no significant effect on LDL cholesterol levels.	Consumption of soy protein may reduce the risk of cardiovascular disease both through reduction in serum lipids and by the antioxidant properties of protein-associated soy isoflavones. However, the effect that processing required for the manufacture of breakfast cereals may have on the lipid lowering and antioxidant activities of soy has not been studied. We have therefore assessed the health benefits of soy incorporation into breakfast cereals. Twenty-five hyperlipidemic men and women took soy (providing 36 g/d soy protein and 168 mg/d isoflavones) and control breakfast cereals, each for 3 weeks in a randomized crossover study with a 2-week washout period between treatments. Fasting blood samples were obtained pretreatment and at weeks 2 and 3 of each treatment. No significant difference was seen in serum lipids between treatments at week 3 apart from a 3.8% +/- 1.5% higher apolipoprotein A-1 level on control versus soy (P = .021). However, oxidized low-density lipoprotein (LDL) was reduced on the test compared with the control both as total dienes in LDL and as the ratio of conjugated dienes to cholesterol in the LDL fraction by 9.2% +/- 4.3% (P = .042) and 8.7% +/- 4.2% (P = .050), respectively. High isoflavone intakes in soy breakfast cereals may decrease the risk of cardiovascular disease by reducing oxidized LDL, while having no significant effect on the absolute concentration of LDL cholesterol.	Metabolism: clinical and experimental	1	10.1053/M	https://consensus.app/papers/effect-soybased-breakfast-cereal-blood-lipids-oxidized-jenkins/5e182a54cb075ded866fd2c04c54b833/

Comprehensive evaluation of the role of soy and isoflavone supplementation in humans and animals over the past two decades	Soy foods and isoflavones may be effective and safe for preventing cardiovascular diseases, certain cancers, and alleviating hot flashes during menopause, but more high-quality trials are needed to confirm their potential use.	Soy and soy-based foods are considered healthy, particularly in many Asia–Pacific countries, where soy products have long been consumed. Soy and soy-related products have been found to help prevent the occurrence of cardiovascular diseases and certain types of cancer, such as breast and prostate cancer. These products can also have antioxidative effects that alleviate hot flashes during menopause and bone loss. These biological and therapeutic functions are primarily due to the isoflavones derived from soy, whose structure is similar to the structure of 17-β-oestradiol. Despite the many health benefits for humans and animals, the application of isoflavones remains controversial because of their anti-oestrogenic properties. We focused on general information regarding isoflavones, as well as their structure, function, and application. We summarized evidence showing that dietary or supplemental isoflavones exert protective effects on the health of humans and animals. Based on the literature, we conclude that soy foods and isoflavones may be effective and safe; however, more high-quality trials are needed to fully substantiate their potential use.	Phytotherapy Research	1	10.1002/pt	https://consensus.app/papers/evaluation-role-isoflavone-supplementation-humans-xiao/fd599795c13152429f71b634b84fbd62/
Emerging evidence on the role of soy in reducing prostate cancer risk.	Soybeans contain isoflavones, which may reduce prostate cancer risk and benefit prostate cancer patients.	Soyfoods are a unique dietary source of isoflavones, which have both hormonal and non-hormonal effects relevant to prostate cancer prevention. In vitro, the main soybean isoflavone, genistein, inhibits prostate cancer cell growth; in animals, most but not all studies show isoflavonel rich soy protein and isolated isoflavones inhibit prostate tumor development. Currently, although only limited epidemiologic data indicate soy intake reduces prostate cancer risk, results from a pilot intervention trial suggest isoflavones may be beneficial to prostate cancer patients. For several reasons, men concerned about their prostate health may consider incorporating soy into their diet.	Nutrition reviews	1	10.1301/N	https://consensus.app/papers/emerging-evidence-role-reducing-cancer-risk-messina/9b6af5fcfd365efda902afb349e49650/
Dietary soy has both beneficial and potentially adverse cardiovascular effects: a placebo-controlled study in men and postmenopausal women.	Dietary soy may lower blood pressure and improve lipids, but may also cause side effects like reduced peripheral vascular resistance and flow-mediated vasodilation in males.	To address the cardiovascular effects of dietary soy containing phytoestrogens, we measured blood pressure (BP), lipids, vascular function (systemic arterial compliance and pulse wave velocity), and endothelial function (flow-mediated vasodilation) in a randomized, double-blind trial. Two hundred thirteen healthy subjects (108 men and 105 postmenopausal women), 50-75 yr old, received either soy protein isolate (40 g soy protein, 118 mg isoflavones) or casein placebo for 3 months. There were 34 withdrawals (16%), with 179 subjects (96 men and 83 women) completing the protocol. After intervention in the soy group, compared with casein placebo, urinary phytoestrogens increased, accompanied by a significant fall in BP reflected by the BP model ($P < 0.01$) encompassing mean change (+/-SEM) in systolic (-7.5 +/- 1.2 vs. -3.6 +/- 1.1 mm Hg, $P < 0.05$), diastolic (-4.3 +/- 0.8 vs. -1.9 +/- 0.7 mm Hg, $P < 0.05$), and mean BP (-5.5 +/- 1 vs. -0.9 +/- 1 mm Hg, $P < 0.008$). In the lipid model, soy induced greater changes, compared with placebo ($P < 0.001$). On individual analysis, significant contributors included a reduction in the low- to high-density lipoprotein ratio (-0.33 +/- 0.1 vs. 0.04 +/- 0.1 mmol/L, $P < 0.05$) and triglycerides (-0.2 +/- 0.05 vs. -0.01 +/- 0.05 mol/L, $P < 0.05$) and an increase in Lp(a) lipoprotein (+/- 95% confidence interval) [42 (range, 17-67) vs. 4 (range, -22-31) mg/L, $P < 0.05$], whereas total, low-density lipoprotein, and high-density lipoprotein cholesterol improved in both groups; but no treatment effect was demonstrated. The arterial functional model demonstrated no difference between groups; although again, overall function improved in both groups. On individual analysis, peripheral PWV (reflecting peripheral vascular resistance) improved with soy ($P < 0.01$), whereas flow-mediated vasodilation (reflecting endothelial function) declined (in males only), compared with casein placebo ($P < 0.02$). No effect of treatment on the hypothalamic-pituitary-gonadal axis was noted in males or females. In normotensive men and postmenopausal women, soy improved BP and lipids but, overall, did not improve vascular function. Potential adverse effects were noted, with a decline in endothelial function (in males only) and an increase in Lp(a). Further research in hypertensive and hyperlipidemic populations is needed.	The Journal of clinical endocrinology and metabolism	1	10.1210/JC	https://consensus.app/papers/dietary-potentially-effects-placebocontrolled-study-teede/222760f2dc6751f9b21f3cf4d3c09919/
Soy proteins and cardiovascular disease	The soybean diet effectively reduces the risk of coronary disease by activating LDL receptors in the human liver, offering a novel mechanism of cholesterol reduction beyond existing diets and drugs.	The soybean diet is the most potent dietary tool for hypercholesterolemia. The United States Food and Drug Administration recently approved the health claim for its role in reducing the risk of coronary disease. The hypocholesterolemic effect is directly correlated to the patient's cholesterolemia, with minimal or no reductions occurring at cholesterol of 6 mmol/L or less, and the most benefit occurring in patients with cholesterol of greater than 7 mmol/L. Hypotheses on the mechanism of action include soy fiber, isoflavones (phytoestrogens), and the protein itself. Although there is no evidence for the effect of fiber, studies with ethanol-extracted soy (devoid of isoflavones) indicated a loss of effect, but the extract itself (isoflavone rich) has no hypocholesterolemic activity. In humans, soy protein activates the low-density lipoprotein (LDL) receptor pathway. Recent data suggest that soy protein subunits, particularly 7S, directly activiate LDL receptors in the human liver, thus providing a novel mechanism of plasma cholesterol reduction different from currently available diets and hypolipidemic drugs.	Current Atherosclerosis Reports	1	10.1007/S1	https://consensus.app/papers/proteins-disease-sirtori/ccb8d55dcc535423a82afc7f01bf8286/

Functional and Edible Uses of Soy Protein Products	Soy protein products are gaining acceptance due to their high nutritional quality, digestibility, and affordability, making them a versatile and nutritious alternative to other protein foods.	Consumers are becoming increasingly interested in healthful foods and are open to soy protein ingredients. Soybeans as food are very versatile and a rich source of essential nutrients. They are also an excellent source of good-quality protein, comparable to other protein foods, and suitable for all ages. Adverse nutritional and other undesirable effects followed by the consumption of raw soybean meal have been attributed to the presence of endogenous inhibitors of digestive enzymes and lectins, as well as poor digestibility. To improve the nutritional quality of soy foods, inhibitors and lectins are generally inactivated by heat or eliminated by fractionation during food processing. Soybeans provide an alternative source of protein for people who are allergic to milk protein. Soy protein is highly digestible (92% to 100%) and contains all essential amino acids. Although relatively low in methionine, it is a good source of lysine. Soy-protein products contain a high concentration of isoflavones, up to 1 g/kg. Increased acceptance of soy proteins is due to unmatched qualities like good functional properties in food applications, high nutritional quality, abundance, availability, and low cost. At present the various forms of soy proteins are primarily utilized for their functional effects rather than their nutritional properties. This article summarizes the integrated overview of the widely available, scattered information about the nutritional and functional uses of the soy proteins when applied in food systems and intends to present the most current knowledge with an interest to stimulate further research to optimize their beneficial effects.	Comprehensive Reviews in Food Science and Food Safety	1	10.1111/J.1	https://consensus.app/papers/functional-uses-protein-products-singh/751a7df51b8a58278851befc022152fa/
Soybean, a promising health source.	Soybean is a promising health source with high quality protein, low saturated fat, dietary fiber, and isoflavones, potentially preventing cardiovascular disease and other chronic diseases.	Health properties and uses of soybean, as well as the different chemical and botanical characteristics of this legume are shown in this review. Soybean represents an excellent source of high quality protein, it has a low content in saturated fat, it contains a great amount of dietary fibre and its isoflavone content makes it singular among other legumes. Many researches have been carried out into the benefits of legumes: chickpeas, beans, lentils and soy, among others, but characterization and positive health effects of soybeans have been recently studied. The interest in this legume has increased because of its functional components. Most of the studies have been focused on soybean protein as a possible source of prevention against cardiovascular disease. This positive effect may be due to a decrease in serum cholesterol concentrations. In addition, there are many studies on isoflavones, non-nutritive substances, associated with prevention and treatment of different chronic diseases. Moreover, some studies have shown the health properties of soy dietary fibre. Therefore, it would be interesting to consider the replacement of animal based foods for soybean foods in order to obtain some nutritional benefits.	Nutricion hospitalaria	3		https://consensus.app/papers/soybean-promising-health-source-mateosaparicio/dcfcf46dc0fd5e7090f1ce66f9d5265f/
Functional Components and Health Benefits of Fermented Soymilk	Fermented soymilk offers greater health benefits than soymilk, including cholesterol lowering, prevention of obesity, cancer, and inflammation.	Abstract Soy foods are known to promote health, and their functional constituents include soy proteins and isoflavones. Although soymilk with beany flavor is considered unfavorable, its palatability is improved by fermentation. Soymilk can turn to a yogurt-like paste following lactic acid fermentation using Lactobacillus, Bifidobacterium, or other bacteria. Isoflavone aglycones and peptides that are produced in soymilk during fermentation have hypolipidemic effects, such as blood cholesterol lowering and prevention of hepatic lipid and visceral fat accumulation. Accordingly, physiological effects of fermented soymilk are greater than those of soymilk. Additionally, soy peptides, isoflavone aglycones, and other functional components in fermented soymilk reportedly exert many beneficial effects and can prevent cardiovascular disease, obesity, cancer, and inflammation. In conclusion, as an alternative to cow milk yogurt, fermented soymilk can provide much greater health benefits.			10.1016/B9	https://consensus.app/papers/components-health-benefits-fermented-soymilk-fukuda/54fe48d5ad6157a89b689d672fe17755/

Soybean Seed Compounds as Natural Health Protectors	Soybean consumption offers numerous health benefits, including protection against lung cancer, cardiovascular disease, and cadmium intoxication, while also reducing cholesterol and obesity.	Glycine max (L) Merrill, better known as soy or soybean, is a legume of asian origin considered an excellent biotype, given the fact that it contains almost everything the human being needs for the diet. Its cultivation worldwide is one of the most important, and soy itself and its derivatives are highly on demand. The health effects of soy derived foods have been investigated for more than 25 years, and some of them remain controversial. On the other hand, we wondered if soy could be used to ameliorate the toxic effects of heavy metals. Therefore, in this chapter we review general characteristics of soy as well as its nutritional potential, and we compiled the newest information about the health effects of soy. In order to test our hypoth-esis, we developed a model of animals exposed to cadmium, and we gave them a soy based diet, comparing it with a casein-based diet as control. This allowed us to col-lect information about its effect on the respiratory and nervous system. Among the results of this review, we show that it reduces the cholesterol level and obesity while also having antidiabetic effects. We enumerate the benefits of soy-based diets on the respiratory system, such as protection against lung cancer and radiotherapy, better lung function in asthma patients and protection against cadmium intoxication. In the cardiovascular system it reduces the risk of coronary heart disease, improves blood pressure, glycemic control, and inflammation while it reduces not all but some of the alterations induced by cadmium exposure on the aorta and heart. It apparently promotes neurogenesis, improves cognitive functions, and reduces the oxidative stress and apoptosis induced by cadmium exposure in the cerebellum. Taken all together, this information let us conclude that soy consumption would exhibit numerous benefits for human health, although future studies should try to elucidate the best outcome considering variables such as gender, age, treatment duration and dosage of soy products consumption in the diet.			10.5772/IN	https://consensus.app/papers/soybean-seed-compounds-natural-health-protectors-boldrini/275f0748133b50ff89a6cbac48e5af69/
Review of Dietary Soy's Effects on Human Health and Its Constituents	Soybeans provide health benefits, including lowering cholesterol and LDL, but also contain allergens and potential harmful effects, such as hypothyroidism and hormonal effects on infants.	Soy protein is a natural component of soybeans and is known to provide a variety of health advantages. It offers advantages and is a different source of protein for folks who don't consume meat. The purpose of this review is to familiarize readers with the value of soy beans in both the food and medical industries. Legumes, which also include peanuts, chickpeas, various beans and pulses, contain soybeans. Soybeans are incredibly flexible because they can be made into meal, flour and oil. Soy protein has roughly 25 g of approved health claims per day, which is known to lower total cholesterol and LDL. Soy has a variety of powerful ingredients, including fiber, isoflavones, phytic acid, saponins and trypsin inhibitors. Soy has been seen to have several harmful consequences. Numerous studies have raised concerns about the potential negative effects of it because of the allergens present and the antinutrient agents they contain, which prevent micronutrient absorption. It may also result in hypothyroidism because it lacks some essential amino acids, making it a source of incomplete protein. Additionally, it might have hormonal effects on infants later in life.	Journal of Clinical Medical Research		10.46889/j	https://consensus.app/papers/review-dietary-soys-effects-human-health-constituents-sheneni/6018d24f005c5a0b94f34dd39348ff9f/
Research on Nutrition and Health Benefits of Soy Protein	Soy protein has potential health benefits, including hyperlipemia reduction, insulin sensitivity improvement, and weight reduction, making it a crucial industry for China's daily protein intake and reducing chronic disease morbidity.	This article reviews the present researches on nutrition and health care function of soy protein,especially the studies on the effect and mechanism of hyperlipemia reduction,insulin sensitivity improvement and weight reducing effect enhancement.Author also introduces the current status and developing trends of soy protein industry in China,it is declared that revitalization of soy protein industry is essential for augmenting the Chinese daily protein intake and remitting the high chronic disease morbidity.	Journal of Beijing Technology and Business University			https://consensus.app/papers/research-nutrition-health-benefits-protein-xinqi/087a035fba8254aa9564293426c80254/
Probiotic-fermented soyfoods: benefits and enhanced bioactivities.	Probiotic-fermented soyfoods show potential in enhancing health benefits of soy, such as reduced risk of ovarian cancer and cardiovascular diseases, by enhancing the bioactivities of bioactive components.	The consumption of soy has long been associated with various health-enhancing effects including hypocholesterolemia, antihypertension, alleviation of post-menopausal symptoms, and reducing risks of ovarian cancer and cardiovascular diseases. Past studies have indicated that these effects are mediated by bioactive components of soy such as isoflavones and bioactive peptides. However, some of these bioactive components could only confer health benefits upon bioconversion by gastrointestinal microorganisms in the intestines. This has led to increased interest to evaluate the possibility of utilizing probiotics to enhance the bioactivities of soyfoods. Probiotics are live microorganisms that could exert health benefits on the host when administered in adequate amounts. Probiotic-fermented soyfoods have been shown to have increased antihypertensive properties and could better alleviate menopausal associated disorders. However, this area is relatively new and although seemed promising, most of the recent findings have emphasized on in vitro evaluations, while the lack of in-vivo evidence and/or incompatible outcomes between in vitro experiments and in-vivo trials has led to the need to better understand the exact mechanisms involved. This present review highlights some of the benefits of soy and addresses the currently investigated bioactivities of probiotic-fermented soyfoods.	Acta Alimentaria	3	10.1556/A	https://consensus.app/papers/probioticfermented-soyfoods-benefits-enhanced-woo/ed0b04deab0f57eeb62986597c761c35/