

## Fats, Soyfoods and Heart Health – Making Sense of the Evidence

### ENSA Scientific Advisory Committee Position Paper

#### Introduction

For many years scientists have recognised the important role diet plays in maintaining a healthy heart. Much of the focus has been placed on reducing dietary saturated fat - also thought of as ‘unhealthy’ fats - and this still remains a key recommendation today. However new research has provided a much better understanding of the effects of different dietary fats on heart health and so the simple message of ‘reducing saturated fat’ may no longer be appropriate; replacing saturated fats for polyunsaturated fat (PUFA) seems important for reducing heart disease risk.

#### History of Fats

The link between saturated fat and heart disease risk stems back to the 1950s when Ancel Keys, who led the Seven Countries Study, identified that dietary saturated fat plays a key role in the different rates of heart disease seen among the various countries. This, along with later research, resulted in the push to reduce saturated fat in our diets, with many organisations, including the American Heart Association (AHA), building this advice into their dietary recommendations.

Since that time numerous studies have built on Keys’ work, particularly looking at the health effects of different types of fats. Findings from large population studies, trials and reviews continue to show that swapping saturated fat with polyunsaturated fat (PUFA) reduces the risk of heart disease. In 2012, a Cochrane Systematic Review, internationally recognised as being the highest standard in evidence, concluded that reducing saturated fat intake could lower the risk of cardiovascular events by 14%. So it’s not surprising that health organisations, including the AHA, European Food Safety Authority and the World Health Organisation, continue to recommend cutting down on saturated fats.

Despite this wealth of evidence the role of saturated fat in heart disease risk has recently been challenged. This came about after a study, published in 2014, suggested reducing saturated fat to reduce the risk of heart disease was no longer justified. However these conclusions have been heavily criticized due to flaws in the analysis. Another review has since been done which included thirteen studies and involved over 310,600 individuals. This review found that replacing saturated



fat with linoleic acid, a type of PUFA commonly found in vegetable oils such as corn oil, soybean oil and sunflower oil, nuts and seeds, did in fact lower the risk of dying from heart disease. Not only that, but people who consumed the most linoleic acid had a lower risk of dying from heart disease than those who ate the least.

### **PUFA and Heart Health**

The benefits of PUFA are supported in many other studies. For example, an analysis of five meta-analyses (a type of statistical analysis that integrates the findings from many different studies) found that while saturated fat intake on its own didn't appear to be linked to diseases of the heart and circulatory system (Cardiovascular Disease - CVD), the incidence of CVD events was reduced by about 10% when dietary saturated fat was replaced with PUFA.

There's also some evidence suggesting a consuming a mixture of omega-6 PUFA (linoleic acid) and omega-3 PUFA (alpha-linolenic acid) may be better for heart health than consuming just omega-6 PUFA alone. Alpha-linolenic acid (ALA) is found in soybeans, flaxseeds, walnuts and rapeseed oil. While the types of omega-3 PUFA found in fish oil has been recommended to support heart health, it now also appears that plant omega-3 PUFA is beneficial.

At one time there was concern that having too much linoleic acid in the diet was harmful as it was thought to increase inflammation - an underlying cause of heart disease. However this is no longer thought to be the case. Human studies which have added linoleic acid to the diet have not shown an increase in inflammatory markers. In fact, some of the compounds produced from linoleic acid in the body may actually be anti-inflammatory and so protective.

### **Monounsaturated Fat (MUFA) and Heart Health**

The traditional Mediterranean diet has long been recognised for its health benefits, with particular attention being given to olive oil. This oil is rich in MUFA which is often thought of as being good for the heart. Yet in recent years this has been questioned.

In 2011, a group of experts concluded that while replacing dietary carbohydrates with MUFA lowered LDL-cholesterol (the 'bad' type of cholesterol in the blood) there's little evidence that MUFA actually reduces the risk of heart disease. Another extensive review of the evidence came to the same conclusion. It doesn't seem to matter where the MUFA comes from, animal or plant sources, there appears to be little evidence to support increasing this particular type of fat. However the review did confirm there were benefits to increasing PUFA. It may be there are other compounds in olive oil, not the MUFA, that are protective as the

evidence continues to show a traditional Mediterranean diet supports a healthy heart.

So while new research doesn't change official recommendations to reduce saturated fat, it's important to consider what's being used to replace it. Swapping saturated fat with carbohydrates, such as sugars, or MUFA doesn't appear to be protective, whereas replacing it with PUFA does.

### **Soyfoods and Heart Health**

Compared to other beans the soybean is a particularly good source of healthy fats - being low in saturated fat and providing a healthy mix of omega-6 and omega-3 PUFA. Replacing foods high in saturated fats for PUFA is an important dietary recommendation for lowering heart disease risk, with some evidence suggesting a mixture of omega-3 and omega-6 PUFA is better than omega-6 alone. The fat content of the soybean fits in well with these guidelines. Also the presence of omega-3 PUFAs in soyfoods and soybean oil makes these excellent foods for people who don't include oily fish in their diets.

As well as the healthy fats, other nutrients in soy have been found to be good for the heart. Soy protein has been shown to directly lower LDL-cholesterol by 4 to 6% and to slightly raise HDL-cholesterol (the 'good' cholesterol in the blood). It's been suggested that if soyfoods replaced commonly eaten sources of protein in a Western diet, e.g. meat and dairy foods, LDL-cholesterol could be reduced by around 8%. Soy protein has also been found to lower blood pressure. Furthermore soy isoflavones, naturally occurring plant compounds, have been found to help maintain healthy blood vessels.

Soy's nutritional composition, which includes the heart healthy mix of fats, protein and isoflavones makes soyfoods ideal foods to include in a heart healthy diet.

### In Summary

- The relationship between dietary fat and heart disease risk has been studied for more than half a century
- Official recommendations continue to focus on reducing saturated fat in the diet
- Recent evidence suggests that simply reducing saturated fat is not enough; it's important to consider with what the dietary saturated fat is being replaced
- Substituting saturated fat with carbohydrate or MUFA doesn't appear to reduce the risk of heart disease, whereas replacing it with PUFA does
- There's no evidence to suggest the omega-6 PUFA linoleic acid causes inflammation – an underlying cause of heart disease
- Some evidence suggests that replacing saturated fat with a mixture of omega-6 PUFA and omega-3 PUFA may be better than omega-6 PUFA alone
- The soybean provides an ideal blend of fats – being low in saturated fat and containing both omega-6 and omega-3 PUFA
- Swapping foods high in saturated fat with soyfoods can help to lower saturated fat in the diet and increase both omega-6 and omega-3 PUFA
- Soyfoods contain other components that have been found to be good for the heart - soy protein directly lowers blood cholesterol and blood pressure, and isoflavones help maintain healthy blood vessels
- The nutritional content of soy makes soyfoods ideal foods to include in a heart healthy diet

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### About ENSA

Established in January 2003, the ENSA represents the interests of natural soyfood manufacturers in Europe. The term "natural" refers to the production process used by ENSA members to produce food using whole soybeans. Soy food products from ENSA members are produced without any use of GM (genetically modified) material or GM beans.

ENSA is an association of internationally operating companies, ranging from large corporations to small, family-owned businesses with an annual turnover of €0.7 billion. Since its establishment in 2003, ENSA has been raising awareness about the role of soy and a plant-based diet in moving towards more sustainable food production and consumption patterns.

For more information about ENSA, please visit [www.ensa-eu.org](http://www.ensa-eu.org) or contact the Secretariat.

#### ENSA Secretariat

Neo Building box 7  
Rue Montoyer 51  
Brussels 1000  
Tel: + 32 2 741 62 15  
Fax: + 32 2 737 95 01  
Email: [secretariat@ensa-eu.org](mailto:secretariat@ensa-eu.org)  
Website: [www.ensa-eu.org](http://www.ensa-eu.org)