

## Omega-3 fatty acids

### What are they?

Omega-3 fatty acids are a type of polyunsaturated fat (like omega-6), considered an essential fatty acid because it cannot be manufactured by the body. As a result, people must obtain omega-3 fatty acids from foods such as fish, nut, and plant-based oils such as canola oil and sunflower oils.

### What are the types of omega-3 fatty acids?

ALA – ALA, or alpha-linolenic acid, is an 18-carbon chain and three cis double bonds. The first double bond is located in the n-3 position or at the omega end of the fatty acid. Thus, ALA is considered a polyunsaturated n-3 (omega-3) fatty acid.

EPA – EPA or eicosapentaenoic acid contains a 20-carbon chain and five cis double bonds; the first double bond is located at the third carbon from the omega end. Therefore, EPA also is considered an omega-3 fatty acid.

DHA – DHA or docosahexaenoic acid is a 22-carbon chain with six cis double bonds; the first double bond is located at the third carbon from the omega end of the fatty acid.

### What are the sources of these omega-3 fatty acids?

ALA – Canola, Soybeans, Walnuts, and Flaxseed

EPA – Oily fishes such as Cod Liver, Herring, Mackerel, Salmon, and Sardines

DHA – Oily fishes such as Cod Liver, Herring, Mackerel, Salmon, and Sardines, and also are produced from algal fermentation

### What are the health benefits of omega-3s?

Omega-3 fatty acids correct imbalances in modern diets that lead to health problems. Eating foods rich in omega-3 fatty acids can help lower the risk of chronic diseases such as heart disease, stroke, and cancer as well as lower LDL or “bad” cholesterol.

ALA – Studies show a diet high in ALA helps reduce heart disease and stroke by reducing cholesterol and triglyceride levels, enhancing the elasticity of blood vessels, and preventing the build-up of harmful fat deposits in the arteries. In fact, the National Institutes of Health (NIH) has reported the majority of U.S. diets no longer contain the amount of omega-3 fatty acids needed by our bodies for overall health and wellness.

EPA/DHA – Studies show that diets high in amounts of EPA and DHA help with brain and eye development, prevents cardiovascular disease, and can help to prevent Alzheimer’s disease.

For example, diets notably high in DHA have been known to protect against degenerative processes within the retina of the eye<sup>1</sup> to increasing the problem solving skills in nine month old infants.<sup>2</sup> A 10-year study correlated increased intakes of DHA/EPA as consumed by various population sectors with relative risk of heart-related deaths. Those who increased consumption of DHA/EPA up to 664 mg/day were associated with an approximate 40 percent reduction in cardiovascular disease and a significant reduction in all-cause mortality.<sup>3</sup> All infant formula is now supplemented with DHA.

## Omega-6 fatty acids

### What are they?

Omega-6 fatty acid is also a polyunsaturated fat, essential for human health because it cannot be made in the body. For this reason, people must obtain omega-6 fatty acids by consuming foods such as meat, poultry, and eggs as well as nut and plant-based oils such as canola and sunflower oils.

### What are the types of omega-6 fatty acids?

LA – LA or linolenic acid is an unsaturated omega-6 fatty acid. Chemically, it is an 18-carbon chain. The first double bond is located at the sixth carbon from the omega end of the fatty acid.

AA – AA or Arachidonic acid is a 20-carbon chain. Its first double bond is located at the sixth carbon from the omega end of the fatty acid.

### What are the sources of omega-6 fatty acids?

LA – Soybean oil, Corn oil, Safflower Oil, Sunflower Oil ... Peanut Oil, Cottonseed oil, and Rice Bran Oil

AA – Peanut Oil, Meat, Eggs, and Dairy Products

### What are the health benefits of omega-6 fatty acids?

Most omega-6 fatty acids are consumed in the diet from vegetable oils such as linoleic acid. Excessive amounts of linolenic acid can contribute to inflammation and result in heart disease, cancer, asthma, arthritis, and depression.<sup>4 5 6</sup>

### Omega-3 and Omega-6 fatty acids: Striking the Balance

By finding a balance between omega-3 and omega-6 fatty acids in the diet, both substances can work together to promote health. An improper balance and excess in omega-6 fatty acids promotes inflammation and can contribute to the development of diseases such as coronary heart disease, cancer, and arthritis. A healthy diet should consist of roughly two to four times more omega-6 fatty acids than omega-3 fatty acids. A typical North American diet may contain 11 to 30 times more omega-6 fatty acids than omega-3 fatty acids, contributing to the rising rate of inflammatory disorders in the United States.

## Omega-9 fatty acids

### What are they?

Omega-9 fatty acids are from a family of unsaturated fats that commonly are found in vegetable and animal fats. This monounsaturated fat is described as omega-9 because the double bond is in the ninth position from the omega end. These fatty acids are also known as oleic acids or monounsaturated fats and can often be found in canola, sunflower, olive, and nut oils. Unlike omega-3 and omega-6 fatty acids, omega-9 fatty acids are produced by the body, but are also beneficial when they are obtained in food.

### What are the types of omega-9 fatty acids?

Oleic acid – Oleic acid is a main component of canola oil, sunflower oil, olive oil, and other monounsaturated fats, many of which are used as a solution for reducing bad fats in cooking oils.

### What are the sources of omega-9 fatty acids?

Oleic acid – Canola oil, Sunflower Oil, and Almonds

Specially developed oils for foodservice, such as Omega-9 Canola and Sunflower Oils, are uniquely high in monounsaturated fats (>70 percent) and reduces key factors that contribute to heart disease and diabetes. Omega-9 fatty acids are found in various animal and plant sources. Canola, sunflower, olive, and nut oils have significant levels of omega-9 fatty acids, which are also known as high-oleic acids, or monounsaturated fats. Oils produced from these sources have emerged as healthier, highly functional replacements for partially hydrogenated cooking oils, which are often laden with unhealthy trans and saturated fats

### What are the health benefits of omega-9 fatty acids?

Research has shown that omega-9 fatty acids, commonly referred to as monounsaturated fatty acids, can help reduce the risk of cardiovascular disease and stroke. Because omega-9 fatty acids have been shown to increase HDL (“good”) cholesterol and decrease LDL (“bad”) cholesterol, they help eliminate plaque build-up in the arteries, which causes heart attack and stroke. Omega-9 Canola and Sunflower Oils are uniquely high in monounsaturated (omega-9) fat, as well as low in saturated fat and zero trans fat.

In fact, the U.S. Food and Drug Administration recently approved a Qualified Health Claim for canola oil saying, “limited and not conclusive scientific evidence suggests that eating about 1 ½ tablespoons (19 grams) of canola oil daily may reduce the risk of coronary heart disease due to the unsaturated fat content in canola oil. To achieve this possible benefit, canola oil is to replace a similar amount of saturated fat and not increase the total number of calories you eat in a day.”

## How do they add up?

Although omega-3, omega-6, and omega-9 fatty acids all serve different functions within the body, the evidence is clear that incorporating balanced proportions of both essential and non-essential fatty acids are necessary for maintaining overall heart health and general wellness. According to the ADA, adults should receive 20-35 percent of energy from dietary fats, avoiding saturated and trans (“bad”) fats, and increasing omega-3 fatty acids. The Association also found that substitution of canola oil for fat commonly used in the U.S. would increase compliance with dietary recommendations for fatty acids, particularly in lowering saturated fat and increasing heart-healthy monounsaturated fat.

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