

Review

Sunflower Seeds (*Helianthus Annuus*) and Health Benefits: A Review

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ypuraikalan@dom.edu; mscott@my.dom.edu* **Correspondence:** Yamunadevi Puraikalan; E-Mail: ypuraikalan@dom.edu**Academic Editor:** Antonios E. Koutelidakis**Special Issue:** [Bioactivity and bioavailability of functional foods](#)*Recent Progress in Nutrition*
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doi:10.21926/rpn.2303010**Received:** October 29, 2022**Accepted:** July 03, 2023**Published:** July 06, 2023**Abstract**

A literature review was conducted to present an overview of sunflower seeds, nutritional value, and health benefits. Sunflower seeds are inexpensive, readily available, and nutritious all year long. Some of the most important nutrients for humans are found in them in particularly high concentrations. There are several vitamins in sunflower seeds, including vitamin B1 and B5, vitamin E and folate. Additionally, they contain important minerals like copper, magnesium, selenium, and phosphorous. The fats in sunflower seeds are also heart-healthy fats that can increase high density lipoprotein cholesterol and provide cardiovascular protection. One of these nutrients is vitamin E, a powerful antioxidant that plays an important role in preserving cardiovascular health. The vitamin E in sunflower seeds is quite high, with a quarter cup providing ninety percent of the recommended daily allowance. Furthermore, lignan, arginine, and phenolic acids support cardiovascular health. The benefits of consuming these substances are increasingly emerging, even though they are less well known by most people.

Keywords

Sunflower seeds; cardiovascular health



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1. Introduction

There is a growing realization among nutrition scientists that all individuals should pay more attention to their intake of complex plant foods such as seeds, nuts, and whole grains daily. When consumed as a whole food, sunflower seed (SFS) is an excellent source of nutrients that can be readily added to the diet [1]. Sunflower seeds are one of nature's most powerful nutritional powerhouses. The seeds of sunflowers contain healthy unsaturated fats, protein, fiber, selenium, copper, zinc, folate, iron, and phytochemicals [2]. The nutritional quality of the diet can be improved by eating one ounce of sunflower seeds each day. Sunflower seeds are the fruit of the sunflower (*Helianthus annuus*). When referring to the seed's pericarp, or hull, the term "sunflower seed" is inaccurate. In accordance with the United States Department of Agriculture [3] [USDA], a 100-gram sunflower seed contains 20.78 grams of protein, 51.46 grams of lipids, 3.02 grams of ash, 20 grams of carbohydrates, and 8.6 grams of fiber. Additionally, some elements, such as selenium, have been shown to reduce the risk of some types of cancer.

2. An Overview of Sunflower Seed

It has been shown that a nation's health is influenced by both the quantity and quality of nutrients it consumes. The sunflower seed has the potential to address this issue in an unswerving manner. The sunflower is a plant that has many uses, ranging from roots (recycling nutrients and organic matter from the soil), stems (feed), leaves (green manure, together with its stems), flowers (honey extraction), and seeds (oil production). It is pertinent to note that sunflower seeds contain a large amount of protein, dietary fiber, vitamins, and minerals. Additionally, this seed contains phytochemicals such as tocopherols, choline, betaine, lignan, phenolic acids, and arginine, in addition to the phytochemicals. Thus, it is also considered a functional food. As a result of its antioxidant properties, it can prevent several diseases, such as hypercholesterolemia, arterial hypertension, obesity, and cancer [4]. The role of cereal and legume seeds in human nutrition has always been one of the most significant aspects of their development. There are about 70% of the calories and 50% of the protein in the total human food consumption that can be attributed to seeds. In terms of the most widely consumed seeds by humans, rice, wheat, barley, rye, and beans are the most common ones. It is possible, however, to supplement the diet with other seeds to enhance the nutritional value of the diet by adding them as a supplement [5].

2.1 Types of Sunflower Seed

Sunflower seeds can be categorized into three types: black oil sunflower seeds, striped sunflower seeds, and hulled sunflower seeds. The pattern on the husk of sunflower seeds is usually used to classify them. Black oil sunflower seeds have a solid black husk. Sunflower oilseed crops may be referred to as oilseed sunflower crops. Oil is usually extracted from these seeds by pressing them. Due to their primary use as food, striped sunflower seeds are also known as confectionery sunflower seeds and chocolate sunflower seeds. There are different levels of monounsaturated, saturated, and polyunsaturated fats in each variety [6].

2.2 Nutritive Value and Health Benefits of Sunflower Seed

Proteins from sunflower seeds do not contain all the essential amino acids. However, when combined with grains, they enhance the biological value of plant proteins. Xylans, xyloglucans, and pectin's are the main non-starch polysaccharides found in this seed. Sunflower seeds are also an excellent source of vitamins and minerals such as thiamine, folic acid, vitamin B6, vitamin E, iron, phosphorus, magnesium, zinc, copper, and selenium. A high percentage of fat is also present in sunflower seeds. More than 90 percent of its fat is polyunsaturated fatty acids, especially linoleic acid or omega 6. As a result, a single portion of 28 grams of this seed contains 160 calories, 6 grams of protein, 14 grams of fat, and 3 grams of dietary fiber.

Sunflower seeds are an excellent source of vitamin E, the body's main lipid-soluble antioxidant. Anti-inflammatory properties of vitamin E prevent the development of inflammatory diseases caused by free radical damage, such as rheumatoid arthritis, asthma, cancer, diabetes, and osteoarthritis [7]. When cholesterol is oxidized, arteries become clogged, which leads to atherosclerosis, heart attacks, and strokes. Approximately 90 percent of the daily vitamin E requirement can be met by consuming a quarter cup of sunflower seeds. It has also been shown that vitamin E reduces the risk of colon cancer, bladder cancer, and prostate cancer [8].

Fat is the major source of calories in sunflower seeds. Approximately 163 calories and 14 grams of fat are contained in one ounce of de-shelled seeds. As a good source of mono-unsaturated and poly-unsaturated fatty acids, sunflower seeds help remove plaque that can form low-density lipoproteins in blood vessels. Strokes and heart attacks are reduced as a result. Sunflower seeds can significantly improve cardiovascular health. Sunflower seeds contain linolenic acid (LA), a pro-health fatty acid. Many types of infectious diseases as well as cancer have been prevented with this powerful antioxidant [9].

As a result of their chemical structure, phytosterols are found in plants that have a similar structure to cholesterol, and when consumed in sufficient amounts, they are believed to lower blood cholesterol levels, boost the immune system, and reduce cancer risk. Phytochemicals such as choline, lignan, phenolic acids and betaine, as well as amino acids such as arginine, are abundant in sunflower seeds. The chemical structure of phytochemicals is like that of cholesterol. As a result, they compete with cholesterol for absorption into the small intestine. Thus, less cholesterol is absorbed, resulting in a significant reduction in blood cholesterol levels.

Sunflower seeds contain magnesium, which is beneficial for maintaining bone health. Most of the magnesium in humans is found in bones, along with calcium. Some of the magnesium in the bones gives the bones their shape, while the remainder of the magnesium on the surface is stored for use by the body as and when needed. Magnesium helps prevent migraine attacks according to various studies. As well as lowering blood pressure levels, magnesium helps maintain healthy readings. By preventing calcium from seeping into the nerve cells and activating them, magnesium calms nerves and blood vessels [10]. Magnesium can be found in sunflower seeds. In numerous studies, magnesium has been shown to reduce asthma severity, lower high blood pressure, prevent migraine headaches, and reduce the risk of heart attack and stroke.

Copper helps red blood cells carry oxygen and produces energy in the cells. It is also part of some antioxidant enzymes that protect the body from oxidative stress. Copper in sunflower seeds plays a vital role in the cross-linking of collagen and elastin, providing strength and flexibility to bones and joints [11]. As an antioxidant, selenium works with vitamin E to protect cells from damage that may

lead to cancer, heart disease, and other health problems. Sunflower seeds are also a good source of selenium, an essential trace mineral for human health. Several prospective studies, intervention trials, and studies on animal models of cancer suggest that selenium intake and cancer incidence are inversely correlated. Folate is also found in sunflower seeds. An ounce of sunflower seed contains about 17 percent of the recommended daily amount. Healthy red blood cells, bone integrity, and proper mental function are dependent on adequate folate intake [12]. The folate part of B vitamins is essential for producing RNA, DNA, and hemoglobin in the body. Folate, therefore, is essential for the healthy development of a fetus in the womb of an expectant mother [13]. Vitamin B₁₂ and folate help red blood cells carry oxygen effectively by forming hemoglobin. Among the main causes of heart disease, homocysteine, an amino acid, is removed from the blood by folate [14].

Sunflower seeds are a good source of plant protein, providing 6 grams or 12 percent of the daily value per ounce. Amino acids are the building blocks of body tissues that help to build, maintain, and repair them. Moreover, they contain fine quality amino acids such as tryptophan that are essential to growth, especially in children [15]. The iron content of one ounce of sunflower seed accounts for 10% of the Daily Value. Each cell in the body needs iron to transport oxygen to the lungs, blood, and cells. The lack of iron can cause anemia, fatigue, and infection [16].

The manganese content of sunflower seeds is 37% of the daily value per cup. In the body, manganese breaks down enzymes that would otherwise remain unused. Among them are bone formation and thyroid hormone production. Manganese is an element that promotes nerve health and fights depression. Additionally, manganese aids in the synthesis of fatty acids and cholesterol, as well as the metabolism of carbohydrates and proteins. Insufficient levels of manganese in the body lead to hearing loss, dizziness, skin rash, bone loss and osteoporosis, extremely low cholesterol levels and health factors related to reproduction [17].

A significant source of zinc, sunflower seeds improve immune health and fight against infections. Sunflower seeds and oil contain unsaturated fats that may protect the heart, including monounsaturated oleic acid and polyunsaturated linoleic acid. According to studies, higher unsaturated fat diets are better for the health than low-fat diets because they lower LDL (low-density lipoprotein), also known as bad cholesterol and triglycerides, while maintaining a positive HDL (high density lipoprotein), improving the lipid profile [18]. Sunflower seeds contain vitamin B-6, which can alleviate depression. As a source of fiber, sunflower seeds promote good health by lowering blood cholesterol, controlling blood sugar levels, and preventing constipation.

3. Conclusion

The present study provides valuable insight into the health benefits of sunflower seeds. It is important for the food industry to focus on producing value-added products with sunflower seeds to achieve sustainable development in health and nutrition.

Author Contributions

A joint effort was made by both authors to conceptualize and write the original manuscript, as well as review and agree with the published version.

Competing Interests

There are no conflicts of interest reported by the author.

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