

## CHOCOLATE AND HEALTH BENEFITS

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### INTRODUCTION:

Chocolate comes from cacao, which is a plant with high levels of minerals and antioxidants. Commercial milk chocolate contains cocoa butter, sugar, milk, and small quantities of cacao. In contrast, dark chocolate has much larger amounts of cacao and less sugar than milk chocolate.

Dark chocolate is rich in minerals, such as iron, magnesium, and zinc. The cocoa in dark chocolate also contains antioxidants called flavonoids, which may provide several health benefits.

### HEALTH BENEFITS:

Dark chocolate contains several compounds that possess antioxidant properties, such as flavanols and polyphenols. Antioxidants neutralize free radicals and prevent oxidative stress. Oxidative stress refers to the damage that excessive amounts of free radicals can inflict on cells and tissues in the body.

Oxidative stress contributes to the natural aging process. Over time, the effects of oxidative stress may also contribute to the development of a variety of diseases, such as

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- heart disease
- diabetes
- Parkinson's disease
- Alzheimer's disease
- cancer
- eye disease

- **Heart disease risk:**

Regularly eating dark chocolate may help reduce a person's likelihood of developing heart disease. Some of the compounds in dark chocolate, specifically flavanols, affect two major risk factors for heart disease: high blood pressure and high cholesterol.

- **Blood pressure**

The flavanols in dark chocolate stimulate nitric oxide production in the body. Nitric oxide causes blood vessels to dilate, or widen, which improves blood flow and lowers blood pressure. A 2015 study investigated the effects of chocolate consumption in 60 people with type 2 diabetes and high blood pressure. The researchers found that participants who ate 25 grams (g) of dark chocolate daily for 8 weeks had significantly lower blood pressure than those who ate the same quantity of white chocolate.

The findings of a study conducted in 2017, showed that the beneficial effects of dark chocolate on blood pressure might be more significant in older people and those with a higher risk of cardiovascular disease, as opposed to younger, healthy individuals.

- **Cholesterol**

Dark chocolate also contains certain compounds, such as polyphenols and theobromine, that may lower levels of low-density lipoprotein (LDL) cholesterol in the body and increase levels of high-density lipoprotein (HDL) cholesterol.

A 2017 study reported that eating dark chocolate for 15 days raised HDL cholesterol levels in people living with HIV. However, dark chocolate consumption did not affect LDL cholesterol levels in the study participants.

- **Anti-inflammatory effects**

Eating dark chocolate may help reduce inflammation in the body. However, chronic inflammation can damage cells and tissues and may increase the risk of some health conditions, including type 2 diabetes, arthritis, and certain types of cancer.

Dark chocolate contains compounds with anti-inflammatory properties that may help reduce inflammation in the body.

A study from 2018 involving five healthy people examined the effects of dark chocolate on the immune system. The results suggested that consuming large amounts of 70-percent dark chocolate affects the activity of genes that regulate the immune response. However, it remains unclear how this study will be of practical significance.

Researchers found that eating 30 g of 84-percent dark chocolate each day for 8 weeks significantly reduced inflammatory biomarkers in people with type 2 diabetes. The authors of the study concluded that there is a need for additional studies to evaluate the optimal amounts of dark chocolate to use to treat those with diabetes.

- **Insulin resistance**

Insulin resistance occurs when the body's cells stop responding to the hormone insulin. Insulin resistance can cause abnormally high levels of blood glucose, which can lead to prediabetes and type 2 diabetes.

A 6-month study from 2018 examined the relationship between regular dark chocolate consumption and blood glucose levels among Hispanic individuals. The research findings suggest that eating 48 g of 70-percent dark chocolate each day may help lower fasting glucose levels and reduce insulin resistance.

- **Brain function**

Eating dark chocolate may improve brain function and help prevent neurodegenerative conditions, such as Alzheimer's disease and Parkinson's disease.

Study suggests that the flavanols present in dark chocolate may enhance neuroplasticity, which is the brain's ability to reorganize itself, particularly in response to injury and disease.

A study from 2016 identified a positive association between regular chocolate consumption and cognitive performance.

- **Nutritional information**

Chocolate with 70–85 percent cocoa is a good source of magnesium, zinc, and iron. According to the United States Department of Agriculture, a 101-g bar of dark chocolate with 70–85 percent cocoa solids provides:

- 604 calories
- 7.87 g of protein
- 43.06 g of fat
- 46.36 g of carbohydrates
- 11.00 g of dietary fibre
- 24.23 g of sugar
- 12.02 milligrams (mg) of iron

- 230.00 mg of magnesium
- 3.34 mg of zinc

### **RISKS AND CONSIDERATIONS:**

The health benefits of dark chocolate come primarily from the flavanols present in the cacao solids. However, flavanol content varies among dark chocolate products. Processing methods also differ between manufacturers, and this can affect the flavanol content of the chocolate.

Although dark chocolate contains beneficial antioxidants and minerals, it is usually also high in sugar and fat, which makes it a very calorie-dense food. In general, dark chocolate contains less sugar than milk chocolate and white chocolate. Dark chocolate with higher percentages of cacao solids typically contains even less sugar.

### **HOW MUCH TO EAT?**

Chocolate manufacturers do not have to report the flavanol content of their products. As a result, it is difficult to know how much dark chocolate a person would need to eat to maximize its health benefits.

The studies in this article generally used 20–30 g of dark chocolate per day. Dark chocolate with higher percentages of cacao solids typically contains less sugar but more fat. More cacao also means more flavanols, so it is best to choose dark chocolate that includes at least 70 percent cacao solids.

### **SUMMARY:**

Dark chocolate is a rich source of antioxidants and minerals, and it generally contains less sugar than milk chocolate.

Some research suggests that dark chocolate may help lower the risk of heart disease, reduce inflammation and insulin resistance, and improve brain function.

People who are interested in adding dark chocolate to their diet should keep in mind that it is high in fat and calories, so moderation is key.