

## Chocolate

Chocolate has a long history as a favoured food of many cultures, including Aztec and Mayan. These days chocolate is considered a luxury food that should be eaten sparingly as it can contribute to migraines, acne and obesity. New research, however, disputes these common beliefs and suggests that eating chocolate in moderation, as part of a nutritious well-balanced diet, may have health benefits.

New research indicates that there are components in cocoa beans (used to make chocolate) that may help prevent heart disease, cancer and other degenerative illnesses. It is worth considering this research, as the findings are very interesting, but more evidence is needed.

### Nutrients and other active components

The nutritional content of chocolate varies according to the recipe. Generally, chocolate contains:

- **Protein** – needed for cell maintenance and repair.
- **Fat** – varies, but chocolate is generally 30–45 per cent fat, of which about half is saturated fat.
- **Vitamin E** – a fat-soluble vitamin essential for cell membranes.
- **Calcium, phosphorus and magnesium** – minerals essential for strong bones and teeth.
- **Iron** – needed to form haemoglobin, the oxygen-carrying compound in blood.
- **Caffeine and theobromine** – nervous system stimulants.
- **Copper** – assists iron metabolism, formation of melanin (in hair and skin) and functioning of the central nervous system.
- **Sugars** – varies, but often make up about 50 per cent.
- **Antioxidant phytochemicals (such as flavonoids)** – cocoa beans, the main ingredient of chocolate (particularly dark chocolate), contain more than 600 plant chemicals, including antioxidants, that may protect against heart disease and cancer.

### The link to migraines

Migraines are debilitating headaches caused by spasms of the arteries leading to the brain. The underlying mechanisms remain unclear, but a number of triggers seem to be needed to start the migraine process. Certain foods, including chocolate, are commonly cited as triggers. For most sufferers, however, chocolate can't start the migraine chain reaction by itself. Numerous international trials have found that other factors, such as stress (as a result of tiredness, excitement or anger) and hormones need to be present at the same time. Fasting and eating some other foods may also play a role.

More research is needed before chocolate can be completely exonerated, but the evidence so far seems promising for chocolate lovers.

### Acne and pimples

A recent Melbourne study has shown that around 70 per cent of people believe that certain foods can cause or exacerbate acne. Chocolate was indicated as one of the main culprits. There is no evidence to date to back up this long-held belief. Research has not identified compounds, ingredients or naturally occurring chemicals in chocolate that can either trigger acne or make it worse. However, recent studies suggest that a high glycaemic index (GI) diet, combined with a high intake of refined carbohydrates (sugars, white flour etc), may be linked to pimples.

### Obesity

Specific foods do not cause obesity. Overeating in general, along with inactivity, are the main culprits. If a person regularly eats more food than their body needs, they will store the excess energy as body fat. Chocolate is energy dense, which means it contains high levels of kilojoules for its weight – approximately 2,200kJ per 100g.

Regularly eating energy-dense foods can be a fast way to gain excess weight, but it would be wrong to say that regularly eating chocolate will always lead to obesity. A person with a healthy diet and lifestyle can safely eat chocolate in moderation without fear of weight gain.

### **Diabetes**

Studies have shown that small amounts of chocolate can be eaten by people with well-controlled diabetes without any significant adverse impact on their glucose control.

### **A healthier type of saturated fat**

On average, chocolate contains around 30–45 per cent fat. Blood cholesterol levels are usually boosted by foods containing saturated fats, but about half of the saturated fat in chocolate is stearic acid. This type of fat seems to have no effect on blood cholesterol levels. People trying to limit their saturated fat intake to control their blood cholesterol can consume chocolate on the odd occasion. You do need to be aware of other ingredients in chocolate that may contribute to increased cholesterol levels.

### **Protecting against heart disease and cancer**

Cocoa beans contain a type of antioxidant that may have a role in the prevention of certain diseases. The catechins found in cocoa beans help to protect the body against degenerative diseases such as cancer and heart disease. Catechins can also be found in fruits and vegetables, but the body needs to capture as many different types of catechins as possible, such as those found in tea and chocolate.

The antioxidant content of chocolate has been found to be significantly higher than tea. Chocolate, particularly dark chocolate, is a good source of catechins. There is some evidence that cocoa may help prevent the oxidation of blood cholesterol and decrease the tendency for blood clotting. However, more evidence is needed on how these findings translate to heart health.

In general, well-conducted trials of antioxidants to prevent or treat heart disease have been disappointing and no one knows why the theory isn't matched by reality.

### **Cocoa versus chocolate**

If you want to boost your intake of antioxidants while keeping your fat intake low, try drinking cocoa instead of eating chocolate, since it generally has a much lower fat content. Tea also contains catechins (although not as many as chocolate and cocoa) and may provide some of the same benefits as consuming cocoa or chocolate, but without the fat.

### **Chocolate is not a 'health food'**

While there may be some healthy things in chocolate, it does have other components that are not good for you when you have too much of them in your diet – such as fat and sugar. We should not talk about chocolate as some kind of 'health food'. A well-balanced diet with plenty of fruit, vegetables, nuts and wholegrain cereals is still the best way to look after your body. At the same time, the evidence so far can help take away the guilt of eating chocolate in moderation.

### **Where to get help**

- An accredited practising dietitian, contact the Dietitians Association of Australia
- Your doctor

### **Things to remember**

- The main type of saturated fat in chocolate is stearic acid, which doesn't increase blood cholesterol levels.
- Chocolate and cocoa contain substances called catechins, which may help protect the body against degenerative illnesses like cancer.
- Chocolate is a high fat food that must be consumed in moderation as part of a well-balanced, nutritious diet.
- Cocoa provides the same amount of catechins as chocolate, but with less fat.

**This page has been produced in consultation with, and approved by:**

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