

Egg on Your Face

All you need to know about the impact of eggs on our health

Eggs have never been an essential part of the human diet, merely an addition. There is no recommended egg intake simply because we don't need to eat any. Whilst they do contain some nutrients, the health risks far outweigh any benefit.

To reinforce this point, in correspondence between the USDA (United States Department of Agriculture) and the American Egg Board, the Board was clearly instructed that eggs cannot be advertised as healthy and nutritious because of their cholesterol and fat content; they cannot be marketed as protein-rich foods, simply because they're not; and they cannot be marked as safe – because they are the main source of *Salmonella* food poisoning (in the US) and there's also a risk of bird flu infection (Greger, 2014). In the UK, *Salmonella* is not as common but is still a concern, as are all the other nutritional worries associated with eggs.

Heart Disease

Eggs contain saturated fat and cholesterol, yet the industry is very good at confusing people – even healthcare professionals – into believing that eating eggs is harmless. However, there's no doubt that eggs increase your risk of heart disease.

Cholesterol

Eggs contain high amounts of cholesterol which is not only unnecessary for your health but is downright harmful for many people. Just one egg contains on average 187 milligrams of cholesterol and the recommended daily limit for people at risk of heart disease is 200 milligrams. A large egg can easily exceed this amount. Cholesterol from food doesn't always increase your blood

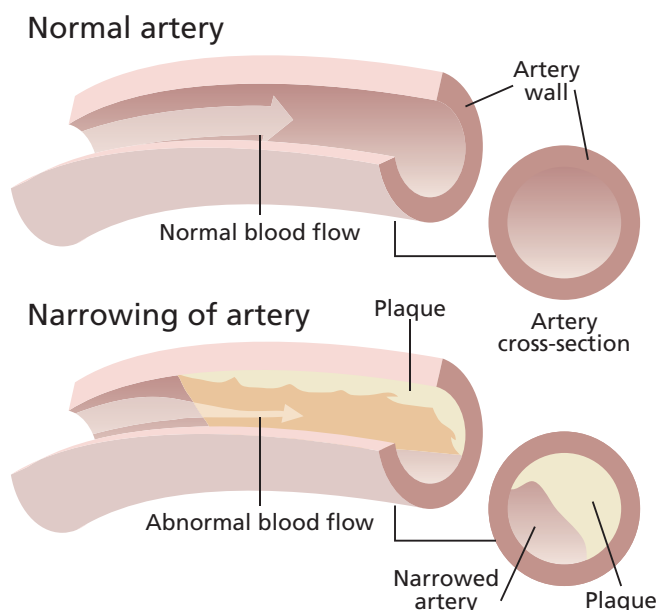


cholesterol levels, but in people with a certain genetic makeup it does, and they need to be very careful about cholesterol in their diet (Kang and Zivkovic, 2021). In others, eating cholesterol together with saturated fat – for example having eggs with bacon or an egg-based dessert with cream – is the key combination that leads to rising cholesterol levels in the blood.

Choline

Eggs contain a substance called choline – an essential nutrient needed for cell membranes, nerve signal transmission and other metabolic functions. Too much, however, can be damaging to health and eggs are by far the richest source. We can easily obtain safe amounts of choline from plant foods but eggs simply supply too much.

Research into choline and heart disease found that one of the by-products of choline called TMAO increases the build-up of cholesterol plaques in your blood vessels, increasing the risk of heart disease (Tang *et al.*, 2013). The higher the levels of TMAO, the higher the risk of stroke and heart attack. Research studies show that different people produce different amounts of TMAO after eating eggs – some produce very little while others produce high amounts (Kang and Zivkovic, 2021). Scientists think that this difference is caused by gut bacteria.



Even half an egg increases the risk

There are many studies showing that egg consumption increases the risk of heart disease. For example, one large study found that each 300 milligrams of cholesterol a day increased the risk of heart disease by 17 per cent and each half-egg a day increased the risk by six per cent (Zhong *et al.*, 2019).

An Italian study found that people who ate more than four eggs a week had a 75 per cent higher risk of dying from cardiovascular disease than people who ate just one egg a week or less (Ruggiero *et al.*, 2021). A study of postmenopausal women showed that eating an egg a day increased their risk of heart disease by 14 per cent compared to eating less than one egg a week (Chen *et al.*, 2021).

Professor David Spence, director of the Stroke Prevention and Atherosclerosis Research Centre in Ontario, Canada, warns that eating eggs can have an effect on blood vessels similar to that of smoking (Spence *et al.*, 2012). He and his team surveyed more than 1,200 patients and found that regularly eating egg yolks contributed to an increased build-up of cholesterol plaques in their arteries.

Vegans and people who eat predominantly wholefood plant-based diets have lower blood pressure and cholesterol levels than all other diet groups and a much lower risk of heart disease – 25-57 per cent (Bradbury *et al.*, 2014; Le and Sabaté, 2014; Appleby and Key, 2016; Dinu *et al.*, 2017; Benatar and Stewart, 2018; Kahleova *et al.*, 2018; Korakas *et al.*, 2018; Matsumoto *et al.*, 2019).

Type 2 Diabetes

According to researchers, eating eggs and their cholesterol in particular affects blood sugar metabolism and increases the risk of developing type 2 diabetes (Lee *et al.*, 2014). Cholesterol both inhibits the production of insulin (hormone regulating blood sugar) and can lower the body's sensitivity to it.

A large study revealed that people who ate an egg a day had double the risk of developing type 2 diabetes compared to people who had less than one egg a week (Spence *et al.*, 2010).

Another study of 57,000 US adults who ate eggs daily found they were 58-77 per cent more likely to develop diabetes type 2 than those who didn't eat eggs (Djoussé *et al.*, 2009). And an even bigger study by the same team revealed that the risk of type 2 diabetes starts increasing from eating two eggs a week (Djoussé *et al.*, 2021).

Vegans have up to 50 per cent lower risk of type 2 diabetes (Appleby and Key, 2016; Salas-Salvadó *et al.*, 2019). Even if you already have the disease, there's good news – a healthy vegan diet low in fat and high in wholefoods, can help reverse it (Barnard *et al.*, 2009; Kahleova *et al.*, 2011; McMacken and Shah, 2017).



Food poisoning – Salmonella

Salmonella food poisoning is one of the most common and widespread diseases carried by food, affecting tens of millions of people across the world every year and eggs are the main source (Cardoso *et al.*, 2021).

Salmonella are hardy bacteria that come in thousands of different strains some of which are antibiotic-resistant. Symptoms of *Salmonella* food poisoning include diarrhoea, stomach cramps, nausea, vomiting and fever. In most cases, people who become ill recover within a few days but in extreme cases, or in people whose health is compromised, it can be fatal.

Salmonella are destroyed by cooking so the main risk is from raw or undercooked eggs and egg products, such as meringues and mayonnaise. Contamination is another infection source – the bacteria passing from one product to another when you're handling or preparing food.

Because of previous *Salmonella* outbreaks, egg-laying hens on farms subscribing to the British Lion code of practice have to be vaccinated against it. According to The Poultry Site, 90 per cent of eggs in the UK are now produced under the British Lion scheme (The Poultry Site, 2020). It follows that 10 per cent of UK eggs come from farms that might or might not have vaccinated their chickens or are imported. Farms that have fewer than 350 hens don't have to comply with the Salmonella National Control Programme, so are largely unregulated where *Salmonella* is concerned (DEFRA, 2021).

Vaccination has reduced the number of *Salmonella* food poisonings but it doesn't guarantee eggs are *Salmonella*-free. In 2019, The Bureau of Investigative Journalism found that just in 2017-2019, there were at least 100 cases of *Salmonella* food poisoning linked to British eggs – including British Lion eggs (Wasley and Heal, 2019). And those are just the reported cases – many go undetected when ill people stay home rather than seeking help from their doctor. The same investigation also revealed that in 2019, 25 egg-laying flocks tested positive for *Salmonella* bacteria.

In 2020, there was another case of British Lion eggs contaminated with *Salmonella* reaching many supermarkets across the country (Food Standards Agency, 2020). Under the statutory testing programme, 42 egg-laying flocks tested positive for *Salmonella* in the same year (Animal and Plant Health Agency, 2021).

Across the world, about 153 million people get *Salmonella* food poisoning every year and 57,000 die from it; in the EU there were 91,857 confirmed cases in 2018 (Cardoso *et al.*, 2021). However, those are only the cases that are recorded and it is likely the true number is considerably higher.





Cancer

Egg consumption has been linked to cancer in several ways. In a huge study of over 500,000 people, each half-egg a day increased their risk of dying from cancer by seven per cent (Zhuang *et al.*, 2021). The same study also found that consuming 300 milligrams of cholesterol daily (about one and a half eggs or two small ones), increased the risk of fatal cancer by 24 per cent.

A study of Japanese women found that women who ate one egg daily had a 32 per cent higher risk of dying from cancer compared to women who ate one or two eggs a week (Nakamura *et al.*, 2018). An Italian study found that people who ate more than four eggs a week had a 52 per cent higher risk of dying from cancer than people who ate one egg a week or less (Ruggiero *et al.*, 2021).

When a scientific team analysed studies on egg consumption and the risk of breast, prostate and ovarian cancer, they found that eating five or more eggs a week was linked to an increased risk of these hormone-sensitive cancers – with the risk of fatal prostate cancer being especially high (Keum *et al.*, 2015). The authors suggested egg cholesterol may play a role in this, providing material for the increased production of sex hormones. At the same time, cholesterol and choline from eggs supply building materials for cell membranes and this may also help cancerous cells to grow.

Substituting eggs with plants can have a dramatic effect. One study found that substituting just three per cent of daily energy intake from egg protein with plant-based protein can reduce the risk of dying from cancer by 15-17 per cent (Huang *et al.*, 2020).

Ovarian cancer

In a study of ovarian cancer patients and healthy women, researchers found that women eating more than two eggs a week had an 82 per cent higher risk of developing ovarian cancer compared to women eating less than one egg a fortnight (Pirozzo *et al.*, 2002). The risk increase from eating just one or two eggs a week was 71 per cent!

Another review, analysing a number of studies, found that with increasing consumption of eggs, the risk of ovarian cancer also increased (Zeng *et al.*, 2015). The precise mechanism is not yet clear but the relationship is certainly there.

Prostate cancer

A large study on prostate cancer and egg and meat consumption revealed that men who ate 2.5 eggs per week had an 81 per cent higher risk of the disease, compared with men who consumed less than half an egg per week (Richman *et al.*, 2011). Eating poultry and processed red meat also increased the risk of death for men who already had prostate cancer.

Another study looked specifically at choline intake and the risk of prostate cancer over 22 years (Richman *et al.*, 2012). Whole eggs are the richest dietary source of choline and it was discovered that choline is highly concentrated in prostate cancer cells and that higher blood concentrations of choline are linked to an increased risk of prostate cancer. The study showed that men with the highest choline intake had a 70 per cent increased risk of lethal prostate cancer.

And a large study including data from North America, Europe, Australia and Asia found that men who ate half an egg or more daily had a 14 per cent higher risk of advanced or fatal prostate cancer compared to men who rarely ate eggs (Wu *et al.*, 2016).

Hard-boiled facts

The truth is: it's best to steer clear of eggs. They're not essential for your health and can significantly harm it. Many recipes can easily be adapted to be egg-free – both a healthy and ethical choice! A wholesome vegan diet is the best possible for our health, animals and the environment.



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