

New cholesterol study may lead you to ask: Pass the eggs, or pass on the eggs?

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The [recent news](#) that eating three to four eggs a week is linked to a slight increase in risk for developing heart disease was a bummer for egg lovers. Should you stop eating eggs because of this new finding?

The study, published in March in the [Journal of the American Medical Association](#), examined the association between dietary cholesterol or egg consumption with cardiovascular disease and all causes of mortality.

The analysis pooled the data of over 29,000 participants from six major U.S. studies conducted between 1985 and 2016. The authors reported that when 300 mg of dietary cholesterol were consumed per day ([one large egg](#) contains about 180 mg of dietary cholesterol), there was a 17% higher risk of a cardiovascular disease incident, including stroke, heart attack, coronary [heart disease](#) or heart failure. There was also an 18% higher risk of mortality from all causes when compared to not consuming dietary cholesterol.

When the most recent version of the [Dietary Guidelines for Americans](#) did not include a recommendation to limit consumption of dietary cholesterol, it left many consumers confused.

Since the initial release of the Dietary Guidelines in 1980 and in the six following editions, there has always been a recommendation to limit [total fat](#), saturated fat and dietary cholesterol.

The 2015-2020 Dietary Guidelines' [key recommendation](#) instead focused on consuming less than 10% of daily calories from saturated fats with no mention of dietary cholesterol. Many consumers concluded that dietary cholesterol must no longer matter.

I am a registered dietitian nutritionist and will try to explain the study and previous findings.

What is cholesterol anyway?

Cholesterol is a waxy, yellowish fat that is produced in our liver and intestines. It is found in every cell of the body. It is a necessary component for many of our bodies' physiological and structural functions, including cell membrane construction, hormone production and other vital functions. All the cholesterol we need can be produced by our bodies, so it is not essential that we consume dietary sources of cholesterol for our well-being.

While our bodies make cholesterol, we can also consume cholesterol from the foods we eat. These "dietary" sources of cholesterol are found in animal sources that produce cholesterol. So foods, such as beef, pork, lamb, chicken, [eggs](#), fish and shellfish all contain cholesterol in various amounts. Small amounts of dietary cholesterol can also be found in items produced from animals, such as milk.

One reason the 2015-2020 Dietary Guidelines Advisory Committee gave for not focusing on dietary cholesterol is because dietary cholesterol and saturated fats are found in similar foods. So, when one consumes foods with low amounts of saturated fats, they are generally consuming low amounts of dietary cholesterol.

Of course individual animal foods will differ, with some containing high amounts of cholesterol and low amounts of saturated fat, low amounts of cholesterol and high amounts of saturated fat, or anywhere in between. [For example](#), a 2-ounce large egg contains 180 mg of dietary cholesterol and 1.5 g of saturated fat, while a 2-ounce top sirloin contains 60 mg of cholesterol and 3.5 g of saturated fat.

[Plant sources, including vegetables, fruits, grains, nuts and seeds](#) do not contain cholesterol.

However, some plant sources naturally contain saturated fats, and through processing and preparation can have saturated fats or trans fats added to the final product. The 2015-2020 Dietary Guidelines recommended limiting saturated fats from all sources to less than 10% of total calories (that would equal about 22 g of saturated fat in a 2,000 kcal/day eating pattern).

In the end, the guidelines faced fat, not cholesterol

The 2015-2020 committee decided not to provide a daily limit of dietary cholesterol intake, which had been included in previous versions of the Dietary Guidelines. This was due in part to a lack of evidence regarding just how much of an effect dietary cholesterol had on an individual's blood cholesterol level.

The advisory committee also noted that the [average daily intake](#) of dietary cholesterol in the United States was already below the 300 mg recommended threshold.

The omission of any definitive recommendation combined with the increasing popularity of low carbohydrate-high fat diets almost seemed an endorsement of dietary cholesterol. However, this was not the [2015-2020 DGA committee's intent](#).



A meal of high-cholesterol and high fat such as this is not healthy for most people if eaten on a regular basis.
Credit: Sloniki/Shutterstock.com

What about those with high blood cholesterol?

Less than optimal levels of blood cholesterol continues to be a critical risk factor for cardiovascular disease.

The body produces several types of [cholesterol](#), but two are of primary concern, HDL, "good cholesterol" which removes cholesterol from the body, and LDL, "bad cholesterol," which carries cholesterol to arteries and tissues. Over time high LDL levels of cholesterol can lead to a buildup of cholesterol in the arteries.

According to the [Centers for Disease Control and Prevention](#), more than 125 million adults have a total cholesterol above the recommended 200 mg/dL.

High blood cholesterol has no symptoms but raises a person's risk for heart disease, the leading cause of death, and for stroke, the fifth leading cause of death in the U.S.

For those where high cholesterol is not a current concern, [consuming eggs](#) three to four times per week appears to pose little risk to their overall health, especially if they are following other aspects of a heart-healthy diet.

However, people who have high cholesterol should continue to pay close attention to sources of saturated fat and dietary cholesterol.

What can we learn from this egg study?

It is always difficult to draw a definitive conclusion based on the result of a single study. In fact, most scientists discourage doing so. It is also very important to consider the study's design.

Regarding the JAMA article, this was not a single study with over 29,000 participants. Instead, it was a collection of six large studies conducted over a long period of time and then combined into one study.

Considering methods differed between the studies, it can be difficult to align the studies and participants exactly. While the authors worked hard to correct for this, it will still remain a limitation.

Second, the initial studies used [self-reported dietary data](#) which can result in inaccurate data and relied on a single measurement of both egg and dietary cholesterol intake, which may not reflect habitual intake.

Finally, while many additional heart disease risk factors were considered in this study, there is still a risk of ["residual confounding,"](#) which results when some other variable may actually be responsible for an outcome instead of the main variable investigated.

So, where does such a study combined with our current knowledge of the subject leave the public?

People who have normal blood cholesterol levels can continue to eat foods such as eggs and shellfish, which contain high levels of dietary cholesterol but low levels of saturated fat. These individuals should also consider following the Dietary Guidelines key recommendations. Currently, there isn't sufficient evidence to conclude how much is too much for this segment of the population. And as previously noted, [ongoing concern](#) continues to be placed on the effect of saturated fat from all sources.

However, for those with high cholesterol, there remains strong [evidence](#) that a heart-healthy eating pattern that focuses on limiting daily intake of saturated fat, trans fatty acids and [dietary cholesterol](#) while consuming a variety of fiber-rich vegetables, fruits, whole grains, low-fat and fat-free dairy, nuts, seeds and legumes is still very important.

Since determining to what degree each factor plays in every individual's blood cholesterol is impractical, the prevailing logic for those who have high blood [cholesterol](#) is to continue care with their primary health care provider and adopt an eating pattern that supports their cardiovascular health.

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