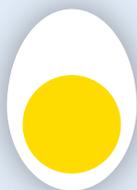


## An Egg a Day is OK

Years of mixed messages regarding dietary cholesterol have led to avoidance of foods, such as eggs, to prevent chronic diseases. However, avoiding such foods could be negatively impacting intake of other nutrients such as high-quality protein and other essential vitamins and minerals.



A study published in *Medical Science Monitor* including 9,500 people demonstrates that eating one or two eggs a day does not increase the risk of heart disease or stroke among healthy adults. The study notes that eating eggs may actually be associated with a decrease in blood pressure. <sup>6</sup>

A review of more than 25 studies that appeared in the *Journal of the American College of Nutrition* shows that eating an egg a day isn't associated with increased risk of heart disease in healthy men and women, even after taking into account other aspects of their diet that may increase the risk for heart disease. <sup>7</sup>

*Nutrition Bulletin* also published a review of scientific studies from the past 30 years showing that eating eggs daily does not have a significant impact on blood cholesterol or heart disease risk. The authors note several benefits of egg consumption, such as the high-quality protein eggs provide, and argue that consumption of one to two eggs a day should be *actively* encouraged as part of a calorie-restricted weight loss plan. <sup>8</sup>

<sup>6</sup> Qureshi A, et al. Regular egg consumption does not increase the risk of stroke or cardiovascular diseases. *Medical Science Monitor*. 2007; 13(1):CR1-8.

<sup>7</sup> Kritchevsky S and Kritchevsky D. Egg consumption and coronary heart disease: an epidemiological overview. *J Am Coll Nutr*. 2000; 19(5):549S-555S.

<sup>8</sup> Lee A and Griffin B. Dietary cholesterol, eggs and coronary heart disease risk in perspective. *Nutrition Bulletin (British Nutrition Foundation)*. 2006; 31:21-27.

## Powerful Nutrient Package With Less Cholesterol Than Ever Before

One egg has 13 essential vitamins and minerals in varying amounts, high-quality protein and antioxidants, all for 70 calories a piece. The nutrients found in eggs can play a role in weight management, muscle strength, healthy pregnancy, brain function and more.

Nutrient composition below denotes 1 large whole egg:

Nutrient	Whole Egg	%Daily Value
Calories	70	4%
Total Fat	5 g	7%
Saturated Fat	1.5 g	8%
Cholesterol	185 mg	60%
Protein	6 g	13%
Folate	24 mcg	6%
Iron	0.88 mg	4%
Zinc	0.65 mg	4%
Riboflavin	0.2 mg	10%
Selenium	15.4 mcg	20%
Vitamin D	41 IU	10%
Choline	126 mg	23%

The United States Department of Agriculture (USDA) recently reviewed egg nutrient data to update the USDA National Nutrient Database for Standard Reference. The results show that the average amount of cholesterol in a Grade A large egg is 185 mg, 14% lower than the 212 mg previously reported. The latest version of the USDA database, release 23, includes the most up-to-date nutrition information from this analysis.

The Egg Nutrition Center reports the latest science. Visit [www.eggnutritioncenter.org](http://www.eggnutritioncenter.org) to sign up for the Nutrition Close-Up and Nutrition Research Update newsletters.

Egg Nutrition Center  
  
[eggnutritioncenter.org](http://eggnutritioncenter.org)

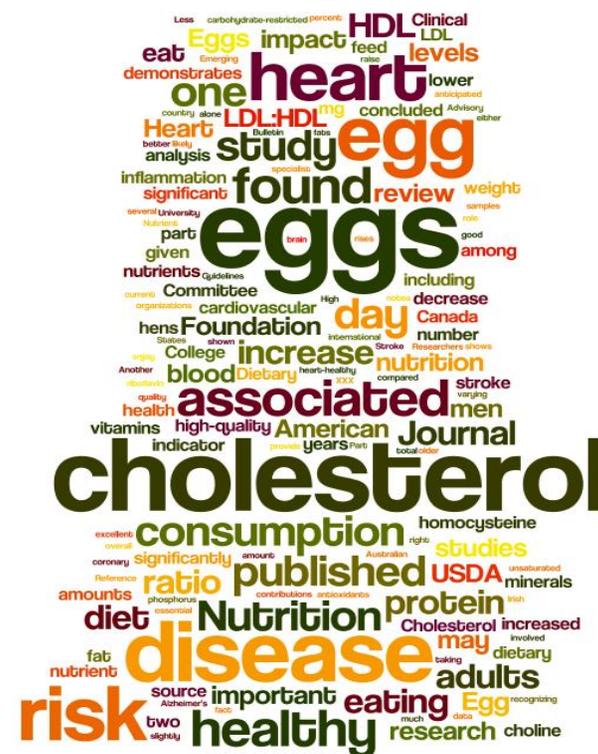
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## 40 Years of Dietary Cholesterol Research:

*What Does the Science Say?*





adults. The Committee also reported that among individuals with type 2 diabetes increased dietary cholesterol intake is associated with cardiovascular disease risk. Further research is anticipated in this area.

A number of international health promotion organizations including the Canada Heart and Stroke Foundation, the Australian Heart Foundation and the Irish Heart Foundation recommend managing serum cholesterol by focusing on saturated and trans fat consumption versus dietary cholesterol.

Canada Heart and Stroke Foundation	
<p><b>HEART &amp; STROKE FOUNDATION</b> Finding answers. For life.<sup>®</sup></p>	<p>Eat a diet that is lower in saturated and trans fats, and includes plenty of fruit, vegetables and whole grains.</p>
Australian Heart Foundation	
	<p>Too much saturated and trans fat contributes to the build up of fatty material, called plaque, on the inside of your blood vessels.</p>
Irish Heart Foundation	
<p><b>IRISH HEART FOUNDATION</b></p>	<p>A key healthy eating message includes using fats and oils sparingly and choosing fats high in monounsaturates or polyunsaturates.</p>

## The Impact of Dietary Cholesterol on Clinical Biomarkers

Early studies examined total serum cholesterol as the primary marker for cardiovascular disease risk and placed significant emphasis on the role of dietary cholesterol in total serum cholesterol levels. Modern research has identified a number of clinical biomarkers used to assess cardiovascular disease risk, one of which is lipoprotein ratios. Clinical trials demonstrate that the LDL/HDL cholesterol ratio is predicted to increase 0.01 U per 100-mg/d increase in dietary cholesterol. This increase is unlikely to significantly affect cardiovascular disease risk. <sup>2</sup>

<sup>2</sup> Clarke R, et al. Dietary lipids and blood cholesterol: Quantitative meta-analysis of metabolic ward studies. *BMJ*. 1997; 314:112-117.

Studies have looked at the effect of egg consumption on blood cholesterol levels and have found little impact. Egg consumption has been found to slightly elevate LDL cholesterol, but HDL cholesterol rises as well and so does not significantly impact the LDL/HDL ratio. This is important because a review of more than 30 studies published in the *Journal of the American College of Nutrition* argues that the LDL/HDL ratio is a much better indicator of heart disease risk than either LDL or HDL alone. <sup>3</sup>

Researchers at the University of Connecticut found that healthy older adults who eat three eggs a day for one month do not experience an increase to their LDL/HDL ratio or to the ratio between total cholesterol and HDL cholesterol, another major indicator for heart disease risk. <sup>4</sup>

## Another Piece in the Puzzle: The Saturated Fat Story

Research has shown that saturated fat may be more likely to raise a person's serum cholesterol than dietary cholesterol. <sup>5</sup> As previously mentioned, international dietary guidelines do not set upper limits for dietary cholesterol, rather they focus on messages to control intake of saturated fat and trans fat.

A number of animal-protein foods such as meats and dairy contain both dietary cholesterol and saturated fat, but other foods such as eggs and shrimp are unique in that they are rich in cholesterol but relatively low in saturated fat.

<sup>3</sup> Fernandez ML and Webb D. The LDL to HDL Cholesterol Ratio as a Valuable Tool to Evaluate Coronary Heart Disease Risk. *JACN* 2008;27 (1): 1-5.

<sup>4</sup> Greene CM, et al. Maintenance of the LDL cholesterol: HDL cholesterol ratio in an elderly population given a dietary cholesterol challenge. *J Nutr*. 2005; 135:2799-2804.

<sup>5</sup> Harman NL, et al. Increased dietary cholesterol does not increase plasma low density lipoprotein when accompanied by an energy-restricted diet and weight loss. *European Journal of Nutrition* 2008; 47:287-293.

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## A Historical Look at Dietary Cholesterol Guidance

The American Heart Association (AHA) first recommended a limit on dietary cholesterol consumption for individuals with elevated total blood cholesterol levels in 1968. The recommended limit was set at 300 mg/day and was established by cutting the 1968 cholesterol consumption level of 600 mg/day in half. <sup>1</sup>

This limit was expanded to the general population in 1977 through the Dietary Goals for the United States, the earliest nutrition recommendations established by the government and the predecessor of today's Dietary Guidelines for Americans.

## Current Dietary Cholesterol Guidance in the US and Abroad

The 2010 Dietary Guidelines Advisory Committee reported that research shows only moderate evidence linking dietary cholesterol to cardiovascular disease and further concluded that consumption of one egg per day is not associated with risk of coronary heart disease or stroke in healthy

<sup>1</sup> Committee on Nutrition, American Heart Association. Diet and Heart Disease. Dallas, Texas: American Heart Association; 1968.