

Egg Story Unscrambled

By ACSH Staff — July 1, 2004

For over twenty years, eggs have been considered dietary demons by many because of their high cholesterol content. Since high levels of cholesterol in the blood have been linked to an increased risk of heart disease, the thinking was that limiting dietary cholesterol by limiting egg consumption would be a step in the right direction. Current dietary recommendations are to restrict cholesterol intake to 300 milligrams per day one large egg yolk contains about 213 milligrams to decrease the risk of heart disease. But, as with most simple solutions to complex problems, this egg-phobic approach is incorrect.

First of all, the response of blood cholesterol to dietary cholesterol intake varies widely among individuals. The majority of people don't become hypercholesterolemic when consuming eggs or other sources of cholesterol. Second, we know a lot more now about blood cholesterol levels and how they're controlled than we did even ten years ago, and it's more complicated than we thought.

Most people interested in the topic of cholesterol levels and heart disease know (or have heard of) the different forms in which cholesterol is carried in the blood. The particles known as high-density lipoproteins (HDL) are considered the "good" cholesterol because they do not seem to form the artery-clogging deposits called plaques. On the other hand, the low-density lipoproteins (LDL) are known as "bad" cholesterol because these are the particles that seem most likely to form arterial plaques.

LDL ("bad") levels do increase for some folks when they consume a lot of dietary cholesterol so they should stay away from or limit eggs, right? That's not so clear anymore either, as suggested by a recent article in the scientific journal *Metabolism*.¹ The study looked at the effect of high or low consumption of cholesterol from eggs on different sized LDL particles yes, there are even subdivisions of LDL.

It turns out that the bigger the LDL particles, the less risk they pose of artery clogging, which sounds counter-intuitive. But it seems that it's the smaller, more dense LDLs that actually penetrate the artery walls, which is where plaque formation occurs.

The researchers fed forty men and fifty-one premenopausal women either the equivalent of three whole eggs per day (640mg of cholesterol) or a placebo for thirty days. Then the people went back to their regular diets for three weeks, and then went on the other diet for another thirty days. Some of the experimental subjects were hyperresponders that is, for every 100mg increase in dietary cholesterol, their total blood cholesterol increased by at least 2.5mg/100cc of blood (total cholesterol is cholesterol in all the various particles LDL, HDL, and others).

The interesting result was that although the hyperresponders' LDL levels did increase after the high-cholesterol part of the study, the increase was seen in the largest and presumably least

artery-clogging LDL particles. This response was more pronounced in women than men.

The take-home lesson? Well, this was just one study, and its results must be replicated by others before we can be comfortable that they are generally applicable. But it certainly suggests that the old admonitions to avoid eggs will not necessarily help prevent heart disease in most people even those whose "bad" cholesterol increases when they eat eggs. And this is good news, since eggs provide myriad nutrients besides cholesterol, and can make important nutritional contributions to the daily diet. For more information about eggs, see ACSH's publications [The Role of Eggs in the Diet](#) ^[1] and [What's the Story? Eggs](#) ^[2].

¹ Herron KL, Lofgren IE, Sharman M, Volek JS, Fernandez ML. High intake of cholesterol results in less atherogenic low-density lipoprotein particles in men and women independent of response classification. 2004; *Metabolism* 53(6):823-830.

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