Dietary Fat: Controversy, Trends and Truth

By Sarah Williams, MHA, MPH, RD

Is fat good or bad? Does it depend on the type of fat? What does the science say? Recent media coverage has focused on the controversy over dietary fat, in particular saturated fat, and its impact on health. There is uncertainty in the food industry about consumer demand, and scientific pushback about inaccuracies in data analysis and interpretation of results.

Headlines such as, “No link found between saturated fat and heart disease” fueled confusion about a study published earlier this year. In June, the CNN article “Are butter, cheese and meat that bad?” described a new book called “The Big Fat Surprise”, which pushes for more dietary fat, including saturated fat. And a Time magazine article about “Ending the War on Fat” discussed the negative consequences of replacing fat with carbohydrates over the past few decades.

Eye-catching titles aside, common themes emerge - including the overconsumption of carbohydrates and sugars in place of fat, and the importance of dietary balance and food quality.

What does the science say?

Nutrition is not an exact science. Our understanding of the impact of foods on various health-related endpoints continues to evolve, and other factors such as genetics, environment, and lifestyle also play a role. Nonetheless, there is an opportunity to positively impact health through timely application of scientific research.

The results of multiple epidemiological studies in the 1970s and 1980s led to the conclusion that dietary fat, especially saturated fat, increases total cholesterol and low density lipoprotein (LDL) cholesterol (sometimes called “bad” cholesterol), which in turn increase coronary heart disease (CHD) and cardiovascular disease (CVD). As a result, dietary guidelines including those from the U.S. Departments of Agriculture and Health and Human Services, the Institute of Medicine, the American Heart Association, and the European Food Safety Authority, consistently focused on limiting both total and saturated fat [1].

Subsequent studies have called into question the simplicity of this conclusion and recommendations. Since the scientific literature is vast, a few studies of particular relevance are described below.

A 2003 meta-analysis of 60 trials evaluated the impact of different fats on high density lipoprotein (HDL) cholesterol and total cholesterol, since higher levels of HDL (“good”) cholesterol have been shown to lower the risk of coronary artery disease [2]. Looking specifically at the ratio of total: HDL cholesterol, this analysis found that saturated fats had a neutral effect on the ratio, replacing saturated fat with carbohydrate had an unfavorable effect, and unsaturated fats had the most beneficial impact. Trans fats had the most harmful effect (and have since been subject to legislative action to decrease their presence in the food supply). Still,
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there were some outliers – two saturated fats, lauric and stearic acid, had a favorable effect compared with carbohydrates, and though lauric acid (in coconut and palm oils) increased cholesterol more than any other fat, this was mostly by increasing HDL. The authors emphasized that measuring the impact of diet on biomarkers such as blood lipids is not the same as studying disease endpoints, and that while a food may impact the ratio of total: HDL cholesterol in a favorable way, it may also impact CAD or other health outcomes in an unfavorable way through other biological pathways.

A 2010 meta-analysis of 21 prospective studies found no significant evidence that dietary saturated fat is associated with an increased risk of CHD or CVD [3]. However, the authors noted that previous research had shown that substituting polyunsaturated fat (versus carbohydrate) for saturated fat had a favorable effect on CHD risk, and suggested that the benefit of reducing saturated fat may depend on also increasing polyunsaturated fat.

Different types of food containing saturated fat were evaluated in a 2013 meta-analysis of 26 studies [4]. Higher consumption of meat and processed meat was associated with increased risk of mortality in most but not all studies, while higher intake of milk, cheese, yogurt, and butter was not associated with increased risk. The authors noted that other factors aside from saturated fat may have an impact.

Most recently, the systematic review and meta-analysis in the March issue of the Annals of Internal Medicine garnered significant attention with the conclusion that, “Current evidence does not clearly support cardiovascular guidelines that encourage high consumption of polyunsaturated fatty acids and low consumption of total saturated fats.” [5] Other scientists challenged the findings, citing errors in the data which impacted conclusions about polyunsaturated fat. In response to the controversy, Harvard School of Public Health held an expert panel discussion, “Saturated or not: Does type of fat matter?” which was summarized as follows [6] and is representative of results from multiple scientific studies [7, 8, 9]:

The overarching message was that when it comes to the health values of various fats, it’s about substitution. If you remove one type of fat, what are you replacing it with? Cutting back on saturated fat can be good for health if people replace saturated fat with good fats, especially, polyunsaturated fats. If you remove saturated fat and replace it with refined carbohydrates, there will be a detrimental effect. Moreover, we need to think about food quality – including food sources, and dietary patterns – rather than on nutrients alone.

What does the market say?

Trends in food production confirm awareness and interest in the type of fat in foods. Mintel and Leatherhead Food Research noted recent patents for fat compositions with health benefits, including those with low saturated fat or with cholesterol-lowering benefits [10].

Mintel also reported on the rapid growth of coconut oil in the market in the past 5 years; other products with coconut are also popular. Though coconut oil is mostly saturated fat, there is a health halo around coconut in recent years, likely due to its favorable impact on HDL cholesterol, and its medium chain triglycerides which are metabolized differently compared to other fats. In the past six months, there have been 18 news articles about coconut in the U.S. Though coconut has been reported to provide numerous health benefits including helping with weight loss and Alzheimer’s prevention, studies to back up such claims are limited at best. Still,
within the past year alone, 207 products with coconut in their name have been launched in the U.S., in a variety of product categories [11].

Omega-3 fats are also a popular ingredient and have been featured in the product description of 272 new products in the U.S. this past year, including margarines, snack foods, prepared foods, bread products, baby foods, and others. There is a wealth of scientific research regarding omega-3 fats, and though it is also a complex topic, in general the Western diet is low in omega-3 fats which are essential for health. A recent article suggested that the effect of saturated fat on health may even be mitigated by the presence of omega-3s in the diet, though further research is needed [12].

Also, though it has been suggested that there are favorable health and economic benefits in replacing one dietary fat with another in foods such as fried potatoes [13], fried foods have been linked with health issues including type 2 diabetes and CAD [14]. As such, consumer perception and demand for what is healthful may differ or lag from the research, as the issue is rarely as simple as switching one fat for another in a food product.

What does the future hold? Though certain dietary trends will always be present, whether in response to new research or societal hype, over time the fascination with specific fats such as coconut oil may fade, and the fluctuation toward including higher amounts of saturated fat in the diet may also level off. However, it is likely that fats in general are here to stay – food is more flavorful and satisfying with some fat, and research continues to decipher the ideal types and amounts of fat for promoting health.

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References


About the Analyst

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Analyst Sarah Williams collaborates with Nerac clients in the food, dietary supplement, and medical device industries to support their research and regulatory needs. Her diverse background in regulatory affairs, product-related research, clinical literature analysis, and nutrition education provide a unique perspective and well-rounded expertise for working with companies to find timely, effective solutions.

As a Registered Dietitian, Sarah has experience analyzing food and nutrient related research to support product development and label claims. She is skilled at assessing and applying regulations to meet a company’s specific needs. Sarah initially developed regulatory expertise working in the medical device field, where she supported product development and registration for a top tier company.

Sarah also has experience in public health, where she advised menu improvements and provided nutrition education for diverse audiences. An avid runner, she has completed multiple half-marathons and marathons, including the Boston Marathon. Her passion for health, nutrition, and fitness serves to enhance her professional skills. Sarah is a member of the Academy of Nutrition and Dietetics.

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