
PBH HEALTH & WELLNESS WEBINAR
MANAGING SCIENTIFIC WHIPLASH
THE EVOLUTION OF DIETARY FAT & CHOLESTEROL RESEARCH
PBH
PRODUCE FOR BETTER HEALTH FOUNDATION
the INCREDIBLE EGG
EGG NUTRITION CENTER
fresh avocados
LOVE ONE TODAY
nutrient-dense • naturally good fats

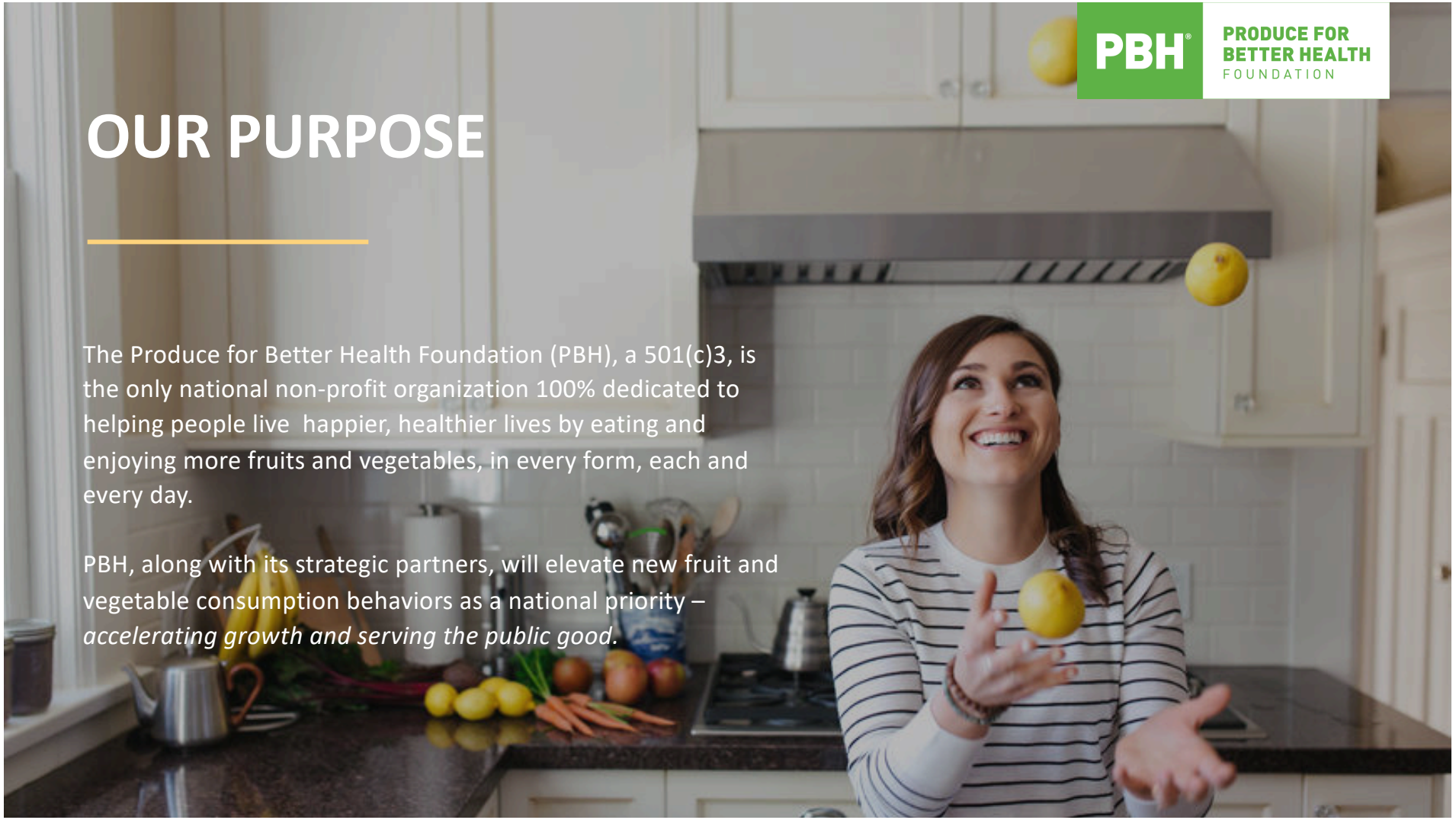
PBH® PRODUCE FOR BETTER HEALTH FOUNDATION

KATIE CALLIGARO

MARKETING & COMMUNICATIONS DIRECTOR
PRODUCE FOR BETTER HEALTH FOUNDATION

MODERATOR


PBH
PRODUCE FOR
BETTER HEALTH
FOUNDATION
ABOUT PBH



OUR PURPOSE

The Produce for Better Health Foundation (PBH), a 501(c)3, is the only national non-profit organization 100% dedicated to helping people live happier, healthier lives by eating and enjoying more fruits and vegetables, in every form, each and every day.

PBH, along with its strategic partners, will elevate new fruit and vegetable consumption behaviors as a national priority – *accelerating growth and serving the public good*.

THE AWARD-WINNING HAVE A PLANT® MOVEMENT REACHES MILLIONS

The award-winning Have A Plant® Movement is a way to inspire lasting behavior change by tapping into the emotional connection consumers have to the fruit and vegetable eating experience.

PBH is an undeniable resource for health & wellness professionals, given its trusted third-party credibility, breadth of nutrition and behavioral research, and strong consumer, influencer and industry reach.

MINNESOTA PRSA CLASSICS 2021 — MINNESOTA PRSA

PRSA CHICAGO SKYLINE AWARDS

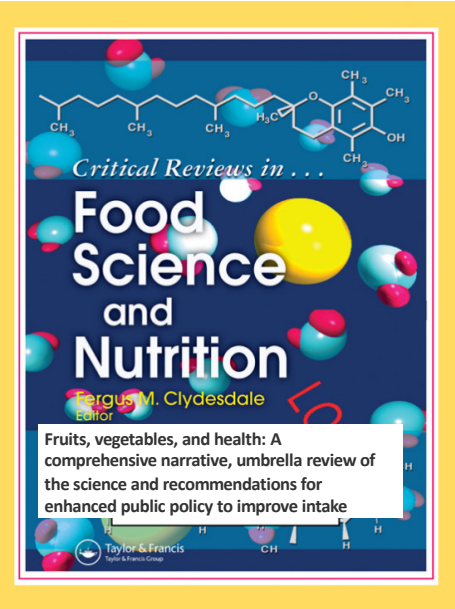
GOLDEN ARC AWARDS
Promoting excellence in agricultural public relations

2020 BIG APPLE AWARDS
BUILDING BRIDGES TO THE FUTURE

PRSA SILVER ANVIL

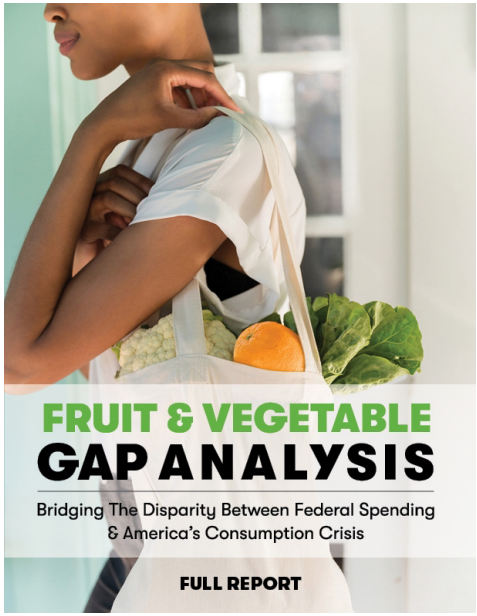
In² SABRE AWARDS NORTH AMERICA

PBH DELIVERS A COMPREHENSIVE & INNOVATIVE RESEARCH PLATFORM AS WELL AS UNIQUE INSIGHTS.



Food & Nutrition Scientific Research

Consumption Data & Behavioral Insights



Data Analysis & Policy Implications

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

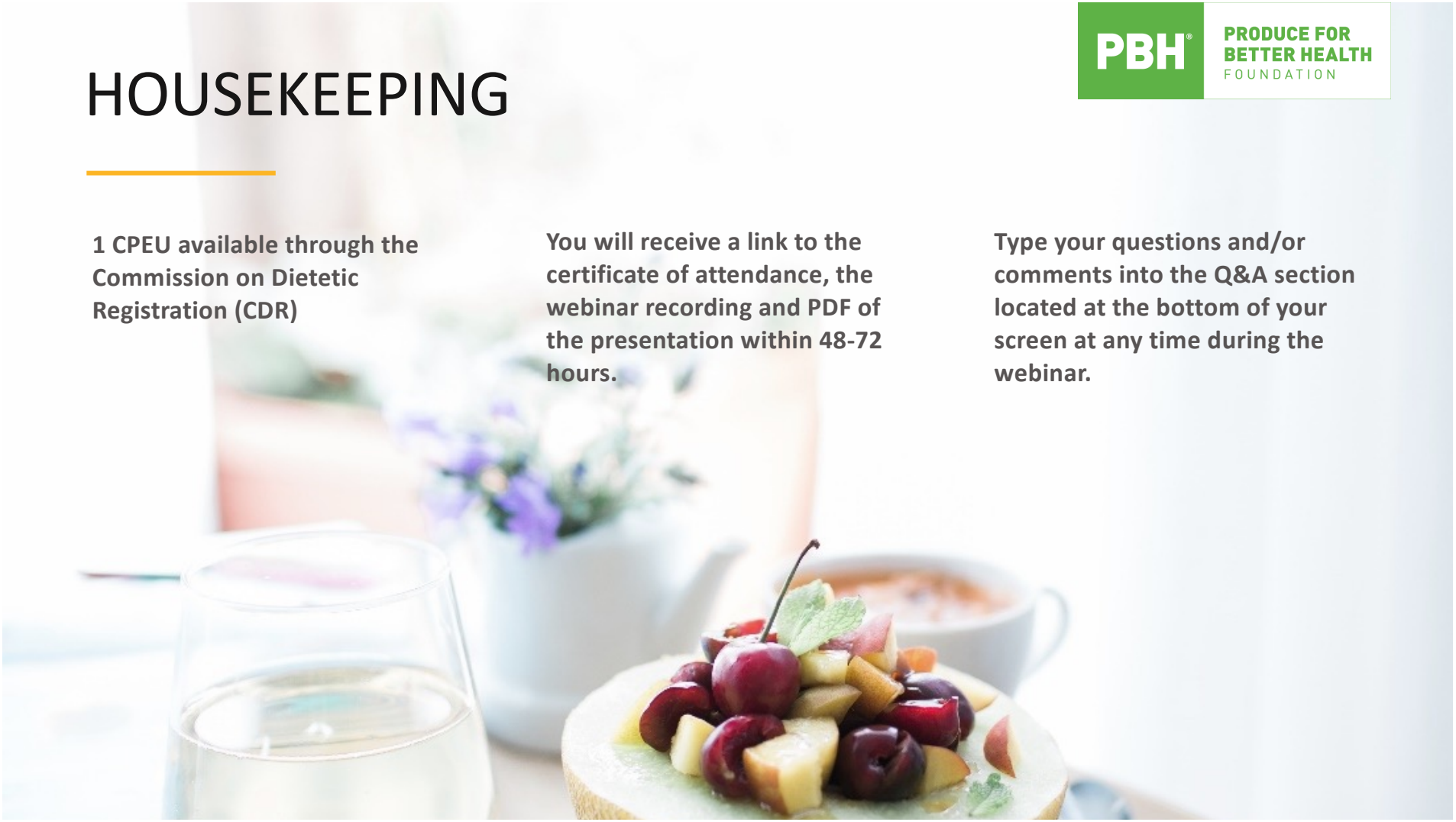
HOUSEKEEPING

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

1 CPEU available through the Commission on Dietetic Registration (CDR)

You will receive a link to the certificate of attendance, the webinar recording and PDF of the presentation within 48-72 hours.

Type your questions and/or comments into the Q&A section located at the bottom of your screen at any time during the webinar.



SPEAKERS

JEN HOUCHINS, Ph.D., RD
Director of Nutrition Research
Egg Nutrition Center

NIKKI FORD, Ph.D.
Senior Director of Nutrition
Avocado Nutrition Center

LACY HANEY, RDN
Nutrition Marketing and Sales
H-E-B

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

History of Cholesterol Research and Recommendations

JEN HOUCHINS, Ph.D., RD

Director of Nutrition Research

Egg Nutrition Center

jhouchins@eggnutritioncenter.org

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Nutrition science and dietary cholesterol recommendations have evolved over time

Select Committee on Nutrition and Human Needs – United States Senate. 1977. Available at https://naldc.nal.usda.gov/download/1759572/PDF

Previous Editions of the Dietary Guidelines for Americans. https://www.dietaryguidelines.gov/about-dietary-guidelines/previous-editions

Dietary Guidelines for Americans, 2020-2025. 9th Edition. December 2020. Available at DietaryGuidelines.gov

Krauss RM et al. J Nutr 2001;131

McNamara DJ. Nutrients 2015;7

Eckel RH et al. Circulation 2014;149

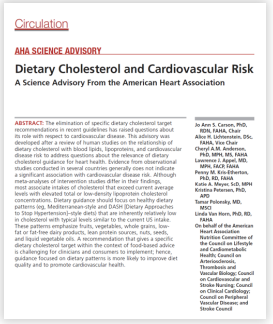
Carson JAS et al. Circulation 2019;140

Now: eggs are recommended as part of healthy dietary patterns across the lifespan

2020-2025 Dietary Guidelines for Americans

"Focus on meeting food group needs with nutrient dense foods and beverages…"

No numeric limit for dietary cholesterol (300 mg/day removed in 2015)


Circulation

AHA SCIENCE ADVISORY

Dietary Cholesterol and Cardiovascular Risk

A Science Advisory From the American Heart Association

2019 American Heart Association Science Advisory

Healthy individuals can include up to a whole egg daily in heart-healthy dietary patterns.

For older healthy individuals, given the nutritional benefits and convenience of eggs, consumption of up to 2 eggs per day is acceptable within the context of a heart-healthy dietary pattern.

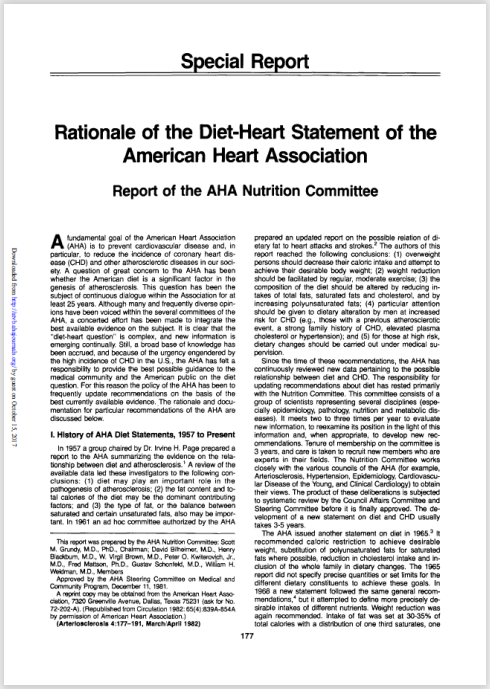
PBH PRODUCE FOR BETTER HEALTH FOUNDATION

U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2020-2025*. 9th Edition. December 2020. Available at DietaryGuidelines.gov. Carson JAS et al. Circulation 2019;140

How did we get to the current recommendations?

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

The previous recommendation of <300 mg dietary cholesterol per day was based on the information available at that time



Special Report

Rationale of the Diet-Heart Statement of the American Heart Association

Report of the AHA Nutrition Committee

A fundamental goal of the American Heart Association (AHA) is to prevent cardiovascular disease and, in particular, to reduce the incidence of coronary heart disease (CHD) and other atherosclerotic diseases in our society. A question of great concern to the AHA has been whether the American diet is a significant factor in the genesis of atherosclerosis. This question has been the subject of continuous dialogue within the Association for at least 25 years. Although many and frequently diverse opinions have been voiced within the several committees of the AHA, a concerted effort has been made to integrate the best available evidence on the subject. It is clear that the "diet-heart question" is complex, and new information is emerging continually. Still, a broad base of knowledge has been accrued, and because of the urgency engendered by the high incidence of CHD in the U.S., the AHA has felt a responsibility to provide the best possible guidance to the medical community and the American public on the diet question. For this reason the policy of the AHA has been to frequently update recommendations on the basis of the best currently available evidence. The rationale and documentation for particular recommendations of the AHA are discussed below.

I. History of AHA Diet Statements, 1957 to Present

In 1957 a group chaired by Dr. Irvine H. Page prepared a report to the AHA summarizing the evidence on the relationship between diet and atherosclerosis.[1] A review of the available data led these investigators to the following conclusions: (1) diet may play an important role in the pathogenesis of atherosclerosis; (2) the fat content and total calories of the diet may be the dominant contributing factors; and (3) the type of fat, or the balance between saturated and certain unsaturated fats, also may be important. In 1961 an ad hoc committee authorized by the AHA prepared an updated report on the possible relation of dietary fat to heart attacks and strokes.[2] The authors of this report reached the following conclusions: (1) overweight persons should decrease their caloric intake and attempt to achieve their desirable body weight; (2) weight reduction should be facilitated by regular, moderate exercise; (3) the composition of the diet should be altered by reducing intakes of total fats, saturated fats and cholesterol, and by increasing polyunsaturated fats; (4) particular attention should be given to dietary alteration by men at increased risk for CHD (e.g., those with a previous atherosclerotic event, a strong family history of CHD, elevated plasma cholesterol or hypertension); and (5) for those at high risk, dietary changes should be carried out under medical supervision.

Since the time of these recommendations, the AHA has continuously reviewed new data pertaining to the possible relationship between diet and CHD. The responsibility for updating recommendations about diet has rested primarily with the Nutrition Committee. This committee consists of a group of scientists representing several disciplines (especially epidemiology, pathology, nutrition and metabolic diseases). It meets two to three times per year to evaluate new information, to reexamine its position in the light of this information and, when appropriate, to develop new recommendations. Tenure of membership on the committee is 3 years, and care is taken to recruit new members who are experts in their fields. The Nutrition Committee works closely with the various councils of the AHA (for example, Arteriosclerosis, Hypertension, Epidemiology, Cardiovascular Disease of the Young, and Clinical Cardiology) to obtain their views. The product of these deliberations is subjected to systematic review by the Council Affairs Committee and Steering Committee before it is finally approved. The development of a new statement on diet and CHD usually takes 3-5 years.

The AHA issued another statement on diet in 1965.[3] It recommended caloric restriction to achieve desirable weight, substitution of polyunsaturated fats for saturated fats where possible, reduction in cholesterol intake and inclusion of the whole family in dietary changes. The 1965 report did not specify precise quantities or set limits for the different dietary constituents to achieve these goals. In 1968 a new statement followed the same general recommendations,[4] but it attempted to define more precisely desirable intakes of different nutrients. Weight reduction was again recommended. Intake of fat was set at 30-35% of total calories with a distribution of one third saturates, one

This report was prepared by the AHA Nutrition Committee: Scott M. Grundy, M.D., Ph.D., Chairman; David Bilheimer, M.D., Henry Blackburn, M.D., W. Virgil Brown, M.D., Peter O. Kwiterovich, Jr., M.D., Fred Mattson, Ph.D., Gustav Schonfeld, M.D., William H. Weidman, M.D., Members

Approved by the AHA Steering Committee on Medical and Community Program, December 11, 1981.

A reprint copy may be obtained from the American Heart Association, 7320 Greenville Avenue, Dallas, Texas 75231 (ask for No. 72-202-A). (Republished from Circulation 1982; 65(4):839A-854A by permission of American Heart Association.)

(Arteriosclerosis 4:177–191, March/April 1982)

177

- Some investigations suggested dietary cholesterol can increase atherosclerosis
- Controlled studies in humans demonstrated dietary cholesterol can increase total blood cholesterol
- Several studies showed a relationship between total blood cholesterol and the incidence of coronary heart disease

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Grundy SM, Bilheimer D, Blackburn H, et al. Rationale of the Diet-Heart Statement of the American Heart Association: Report of the AHA Nutrition Committee. Arteriosclerosis 1982;4:177-91.

We now understand that there were flaws with the 1960s cholesterol recommendation

nutrients

MDPI

Review

Is There a Correlation between Dietary and Blood Cholesterol? Evidence from Epidemiological Data and Clinical Interventions

María Luz Fernandez [1,*] and Ana Gabriela Murillo [2]

[1] Department of Nutritional Sciences, University of Connecticut, Storrs, CT 06268, USA
[2] Department of Biochemistry, University of Costa Rica, San Jose 11501-2060, Costa Rica; anagabriela.murillo@ucr.ac.cr
* Correspondence: maria-luz.fernandez@uconn.edu

Abstract: Dietary cholesterol has been a topic of debate since the 1960s when the first dietary guidelines that limited cholesterol intake to no more than 300 mg/day were set. These recommendations were followed for several years, and it was not until the late 1990s when they were finally challenged by the newer information derived from epidemiological studies and meta-analysis, which confirmed the lack of correlation between dietary and blood cholesterol. Further, dietary interventions in which challenges of cholesterol intake were evaluated in diverse populations not only confirmed these findings but also reported beneficial effects on plasma lipoprotein subfractions and size as well as increases in HDL cholesterol and in the functionality of HDL. In this review, we evaluate the evidence from recent epidemiological analysis and meta-analysis as well as clinical trials to have a better understanding of the lack of correlation between dietary and blood cholesterol.

Keywords: dietary cholesterol; plasma cholesterol; lipoproteins; epidemiological studies; clinical interventions

check for updates

Citation: Fernandez, M.L.; Murillo, A.G. Is There a Correlation between Dietary and Blood Cholesterol? Evidence from Epidemiological Data and Clinical Interventions. *Nutrients* **2022**, *14*, 2168. https://doi.org/10.3390/nu14102168

Academic Editor: Frans Stellaard

Received: 9 May 2022
Accepted: 20 May 2022
Published: 23 May 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

1. Introduction

The relationship between dietary and blood cholesterol is very controversial and has been debated within the scientific community since the 1960s when the first guidelines for dietary cholesterol were published [1]. It was not until the 2015 dietary guidelines that the upper limits of dietary cholesterol were eliminated, based on more current information [2]. The guidelines from the 1960s were not based on epidemiological data, meta-analysis or clinical intervention; they were construed as a consensus based on the current information available at that time [1]. Animal studies that have been used to study effects of dietary cholesterol on atherosclerosis, oxidative stress, and inflammation are not reliable since the concentration of cholesterol used varied from 1.25 to 5% of the diet [3–5], which would be the equivalent of approximately 10,000 to 37,000 mg/day. These dietary challenges with these exorbitant amounts of dietary cholesterol cannot possibly have any clinical application. Since those early years, the information regarding dietary cholesterol in humans has been substantially increased by key findings from epidemiological data of large cohort studies including the Framingham study as early as the 1980s [6], the Nurses' study [7], National Health and Nutrition Examination Survey (NHANES) [8], and more recently others such as the Hellenic National Nutrition and Health Survey (HNNHS) [9]. In addition, clinical interventions in diverse populations including children [10], young adults [11,12], elderly people [13,14], obese individuals [15,16] metabolic syndrome populations [17,18], and diabetic patients [19,20] have demonstrated that the plasma biomarkers of coronary heart disease are not increased by dietary cholesterol (provided by eggs) but may result in the formation of less atherogenic lipoproteins [21,22].

There were two main objectives of this review: (1) To evaluate the most recent epidemiological evidence and meta-analysis that continue to support the lack of correlation between dietary and blood cholesterol and (2) to evaluate the effects of dietary cholesterol

- Initial recommendations based on studies with limited real-world application
- Studies with high amounts of cholesterol are not applicable to humans

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Fernandez ML and AG Murillo. Nutrients 2022;14:2168.

Two important publications contributed to the removal of the 300 mg/day limit in 2015

"**Cholesterol**---Previously, the Dietary Guidelines for Americans recommended that cholesterol intake be limited to no more than 300 milligrams per day. The 2015 DGAC will not bring forward this recommendation because **available evidence shows no appreciable relationship between consumption of dietary cholesterol and serum cholesterol**, consistent with the conclusions of the AHA/ACC report. **Cholesterol is not a nutrient of concern for overconsumption**."

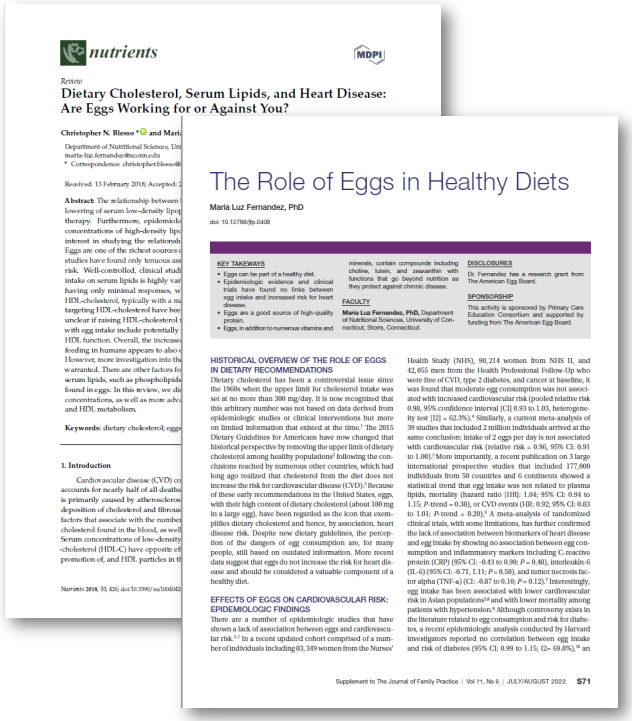
Shin, JY et al. Am J Clin Nutr 2013;98:146-59
Eckel RH et al. Circulation 2014;149
Scientific Report of the 2015 Dietary Guidelines Advisory Committee

Bulk of scientific publications conclude egg intake is not associated with CVD risk

Hu FB et al. JAMA 1999;281:1387-1394
Alexander DD et al. J Am Coll Nutr 2016;35:704-716
Qin C et al. Heart 2018;104:1756-1763
Virtanen JK et al. Am J Clin Nutr 2016;103:895-901

Rong Y et al. BMJ 2013;346:e8539
Shin, JY et al. Am J Clin Nutr 2013;98:146-59
Dehgahn, M et al. Am J Clin Nutr 2020;111:795-803
Drouin-Chartier, J-P et al. BMJ 2020;368:m513

Eggs do not negatively impact blood cholesterol profile when consumed in moderation



nutrients

MDPI

Review

Dietary Cholesterol, Serum Lipids, and Heart Disease: Are Eggs Working for or Against You?

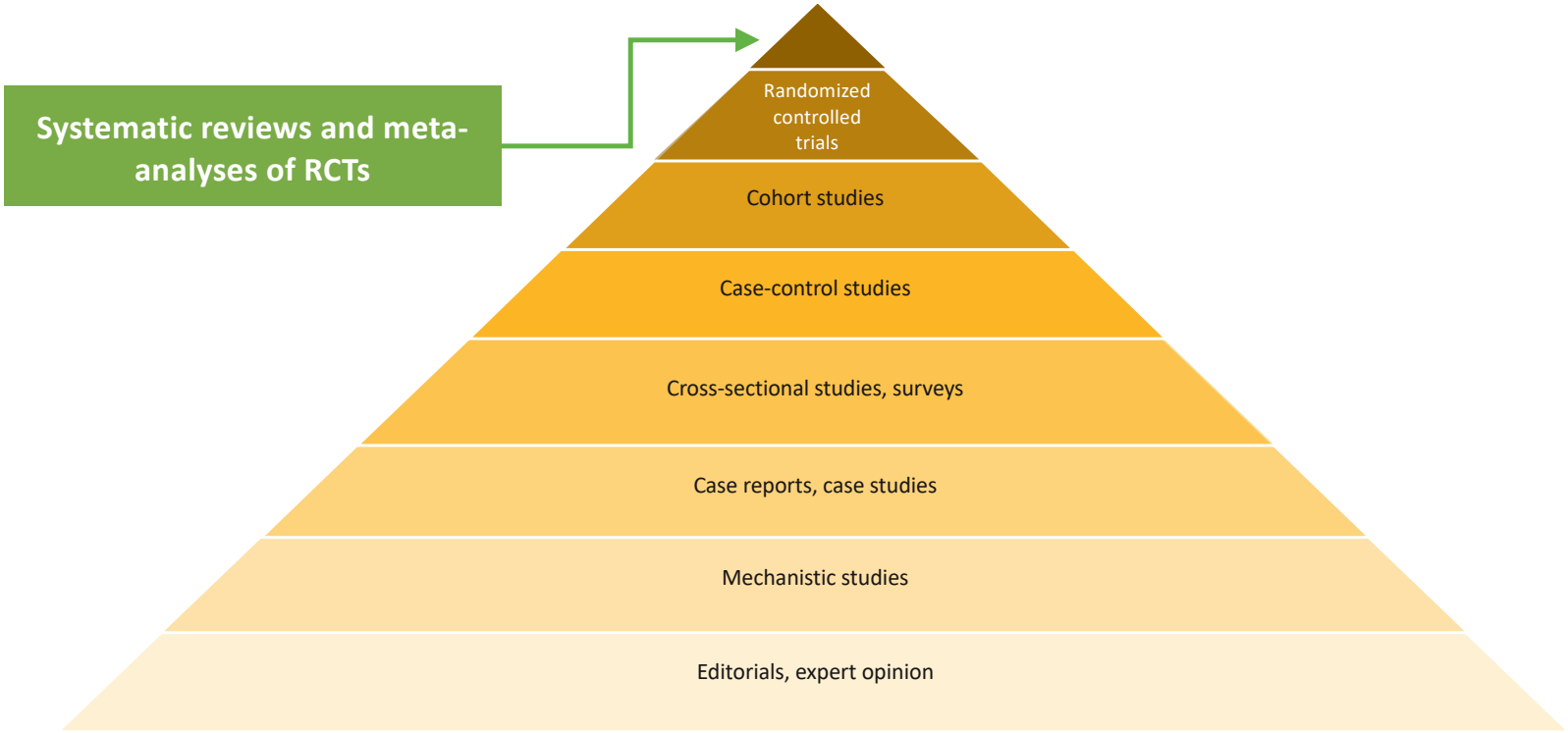
The Role of Eggs in Healthy Diets

Maria Luz Fernandez, PhD

- Large LDL-cholesterol is not easily oxidized
- HDL-cholesterol with improved functionality

Fernandez ML. The Role of Eggs in Healthy Diets. Supplement to The Journal of Family Practice 2022: S71.
Blesso CN and ML Fernandez. Nutrients 2018.

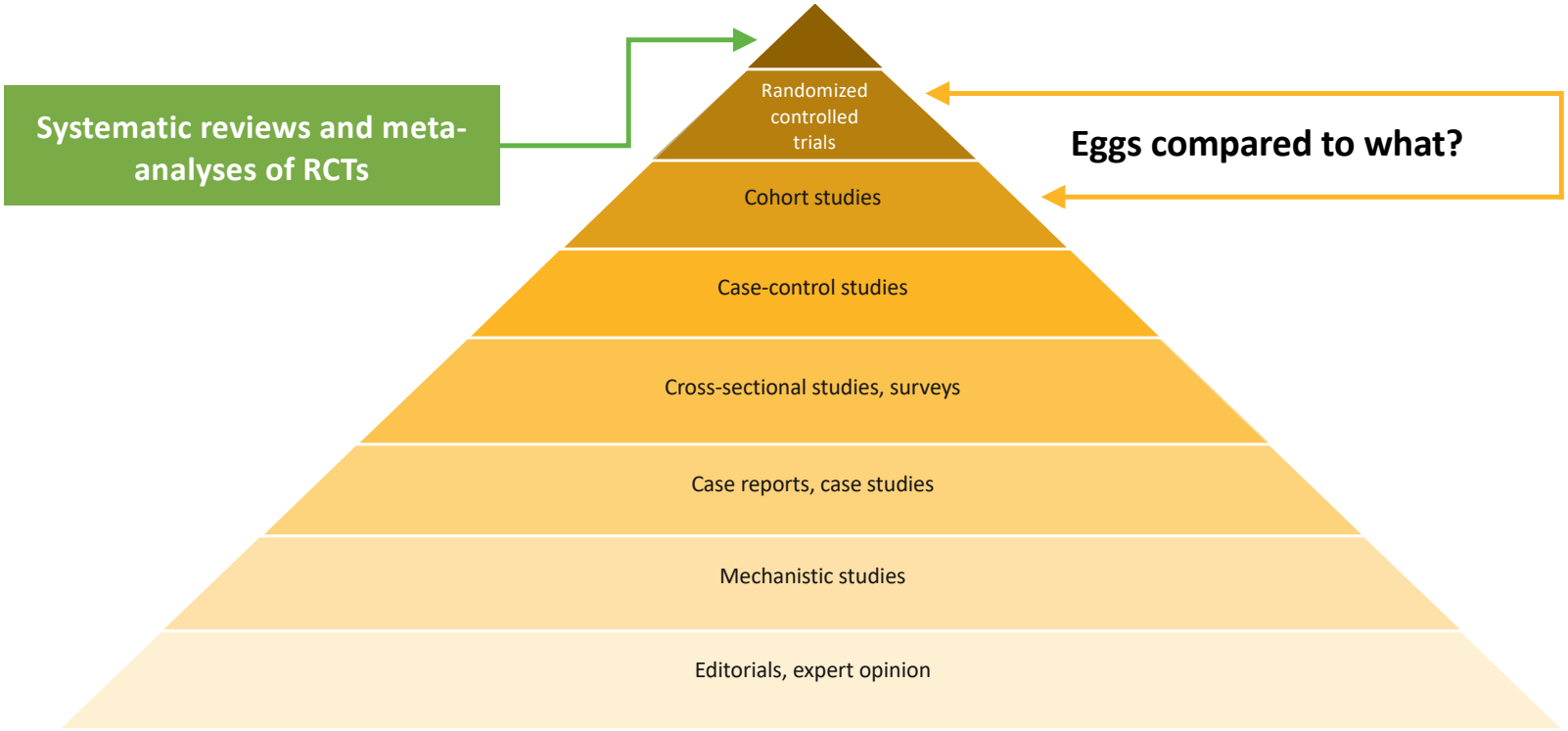
All published papers can be valuable, but the level of evidence is not equal



PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Image modified from Yetley EA, MacFarllane AJ, Greene-Finestone LS, et al. Am J Clin Nutr 2017;105(Suppl):249S-85S.

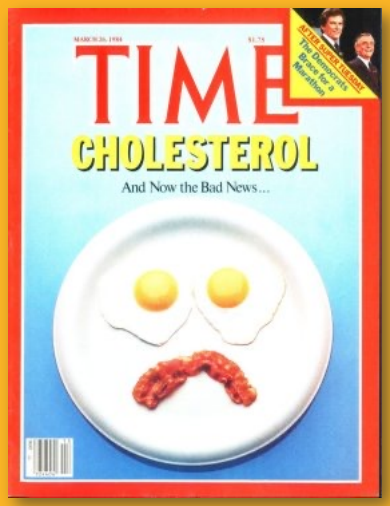
All published papers can be valuable, but the level of evidence is not equal

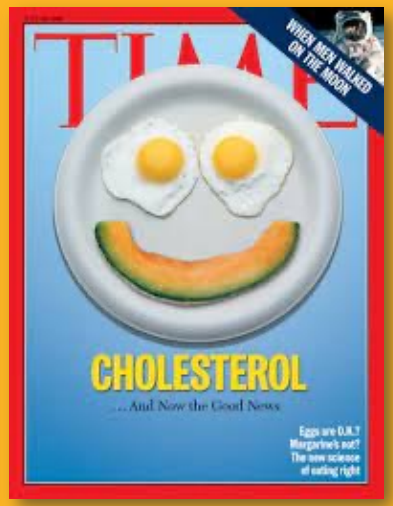


PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Tobias DK. What Eggsactly Are We Asking Here? Unscrambling the Epidemiology of Eggs, Cholesterol, and Mortality. Circulation 2022;145:1521-1523.
Image modified from Yetley EA, MacFarllane AJ, Greene-Finestone LS, et al. Am J Clin Nutr 2017;105(Suppl):249S-85S.

Media headlines can be confusing – health professionals play a key role in translation





How eating eggs can boost heart health

Here's why eggs are so good for you

Eating too many eggs can still be risky, but most people don't have to give them up entirely, experts say

An egg a day may be fine for you after all, a new study says

Eggs are bad again? New study raises cholesterol questions

Are Eggs Bad for Your Heart Health? Maybe

Health effects of eggs: Where do we stand?

The truth about eating eggs

2020 Dietary Guidelines for Americans provides four key recommendations

Nutrient Dense:
Provides vitamins, minerals, and other health-promoting components and has little added sugars, saturated fat, and sodium.

Vegetables, fruits, whole grains, seafood, eggs, beans, peas, and lentils, unsalted nuts and seeds, fat-free and low-fat dairy products, and lean meats and poultry—when prepared with no or little added sugars, saturated fat, and sodium—are nutrient-dense foods.

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2020-2025.* 9th Edition. December 2020. Available at DietaryGuidelines.gov. Figure taken from Chapter 1, page 17.

What's next for egg nutrition research?

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

ENC future research with eggs focused on healthy diet patterns for optimal health

- Limited need for additional observational data in relation to eggs and cardiovascular health
- Randomized-controlled human trials to address research gaps for cardiovascular health
- Many opportunities to evaluate the role of eggs as part of healthy diets across the lifespan

Summary Points

- Nutrition science and, as a result, dietary guidance has evolved over several decades
- The bulk of the high-quality scientific literature shows eating eggs is not associated with CVD risk
- Research is ongoing and will continue to shape recommendations for eggs as part of healthy eating patterns
- There is an opportunity for health professionals to help translate headlines

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

History of Fat Research and Recommendations

Nikki Ford, Ph.D.

Senior Director of Nutrition

Avocado Nutrition Center

nikki@hassavocadoboard.com

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Media headlines about fat have flip-flopped – health professionals play a key role in translation

Report Urges Low Fat Diet for Everyone

Low Fat Diet not the Best for Weight Loss

Study Doubt's Saturated Fat's Link to Heart Disease

How a low-fat diet benefits you


08 NEWS ADELAIDE ADVERTISER 31 OCT 15 SATURDAY OCTOBER

Weight of evidence against low-fat diet in obesity fight

SUE DUNLEVY

IF you've been sipping skinny lattes, eating fat-free chicken and shunning butter to lose weight, you've been getting it all wrong.

The low-fat diets promoted by health experts are no good for long-term weight control, a study has revealed.

It's higher fat, lower carbohydrate diets that are better for weight loss, according to research published in *The Lancet*.

The Harvard University researchers reviewed 53 diet studies involving more than 68,000 participants and found higher-fat, low-carbohydrate diets led to greater long-term weight loss than low-fat diets.

"Health and nutrition guidelines should cease recommending low-fat diets for weight loss in view of the clear absence of long-term efficacy when compared with other similar intensity dietary interventions," the research said.

Reduced-fat diets only led to greater weight loss when compared with no diet at all, and resulted in less weight loss compared with low-carbohydrate interventions, the study found.

The average weight loss from all weight loss diets a year after they started was 3.8kg, the study found.

Low carbohydrate weight loss interventions led to an average 1.15kg greater long-term weight loss than low-fat weight loss interventions, it found.

"There is no good evidence for recommending low-fat diets," lead author Dr Deirdre Tobias from Harvard Medical School said. "The science does not support low-fat diets as the optimal long-term weight loss strategy.

"To effectively address the obesity epidemic, we will need more research to identify better approaches for long-term weight loss and weight maintenance - including the proportion of calories that come from fat, carbohydrate and protein," she said.

University of Adelaide nutrition expert Professor Jon Buckley says *The Lancet* study confirms what dietitians have suspected for a long time.

"While there may be differences in weight loss over the short term there is no difference over the longer term and in the end a calorie is a calorie," he said.

KEY FINDINGS AND TOP DIET TIPS

LANCET STUDY

No good evidence for recommending low-fat diets

Those on low-carbohydrate diets lost 1.15kg more than low-fat dieters

Average weight loss from all diets a year on was 3.8 kg

More research needed on the best diet

LOSE WEIGHT AND KEEP IT OFF

Don't focus on losing weight, let that be a by-product of a healthy lifestyle.

Put more thought or mindfulness into the speed and reason for eating.

Focus on eating more plants and less packets, and then make sure you've got some protein sources spread evenly through the day.

Do some structured exercise through the week that will develop or maintain muscle mass.

Be more aware of general moving and less sitting - activity monitors can be a useful tool.

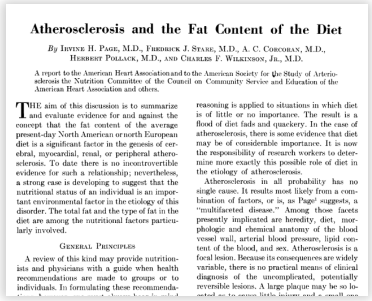
Don't diet – don't get stuck in a rut of drastic reduction because it can make you moody, irritable and deprivation can lead to indulgence.

TIPS FROM TANYA LEWIS, DIRECTOR AND DIETITIAN AT LIFE PERSONAL TRAINERS ADELAIDE

Can Certain Liquid Oils Improve Heart Health?

High Fat Diet Increases Breast Cancer Risk

Early public policy recommendations demonized fat



Atherosclerosis and the Fat Content of the Diet

By Irvine H. Page, M.D., Frederick J. Stare, M.D., A. C. Corcoran, M.D., Herbert Pollack, M.D., and Charles F. Wilkinson, Jr., M.D.

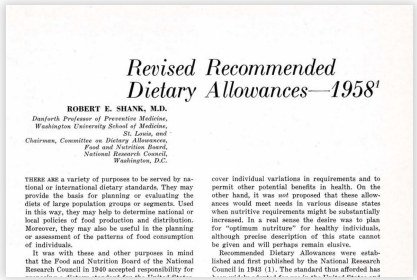
A report to the American Heart Association and to the American Society for the Study of Atherosclerosis the Nutrition Committee of the Council on Community Service and Education of the American Heart Association and others.

THE aim of this discussion is to summarize and evaluate evidence for and against the concept that the fat content of the average present-day North American or north European diet is a significant factor in the genesis of cerebral, myocardial, renal, or peripheral atherosclerosis. To date there is no incontrovertible evidence for such a relationship; nevertheless, a strong case is developing to suggest that the nutritional status of an individual is an important environmental factor in the etiology of this disorder. The total fat and the type of fat in the diet are among the nutritional factors particularly involved.

General Principles

A review of this kind may provide nutritionists and physicians with a guide when health recommendations are made to groups or to individuals. In formulating these recommendations reasoning is applied to situations in which diet is of little or no importance. The result is a flood of diet fads and quackery. In the case of atherosclerosis, there is some evidence that diet may be of considerable importance. It is now the responsibility of research workers to determine more exactly this possible role of diet in the etiology of atherosclerosis.

Atherosclerosis in all probability has no single cause. It results most likely from a combination of factors, or is, as Page[1] suggests, a "multifaceted disease." Among those facets presently implicated are heredity, diet, morphologic and chemical anatomy of the blood vessel wall, arterial blood pressure, lipid content of the blood, and sex. Atherosclerosis is a focal lesion. Because its consequences are widely variable, there is no practical means of clinical diagnosis of the uncomplicated, potentially reversible lesions. A large plaque may be so lo-



Revised Recommended Dietary Allowances—1958[1]

ROBERT E. SHANK, M.D.

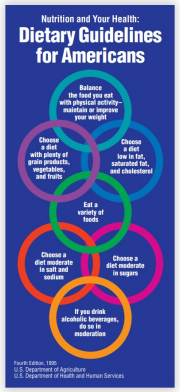
Danforth Professor of Preventive Medicine, Washington University School of Medicine, St. Louis, and Chairman, Committee on Dietary Allowances, Food and Nutrition Board, National Research Council, Washington, D.C.

THERE ARE a variety of purposes to be served by national or international dietary standards. They may provide the basis for planning or evaluating the diets of large population groups or segments. Used in this way, they may help to determine national or local policies of food production and distribution. Moreover, they may also be useful in the planning or assessment of the patterns of food consumption of individuals.

It was with these and other purposes in mind that the Food and Nutrition Board of the National Research Council in 1940 accepted responsibility for

cover individual variations in requirements and to permit other potential benefits in health. On the other hand, it was not proposed that these allowances would meet needs in various disease states when nutritive requirements might be substantially increased. In a real sense the desire was to plan for "optimum nutriture" for healthy individuals, although precise description of this state cannot be given and will perhaps remain elusive.

Recommended Dietary Allowances were established and first published by the National Research Council in 1943 (1). The standard thus afforded has



AHA publishes first guidelines

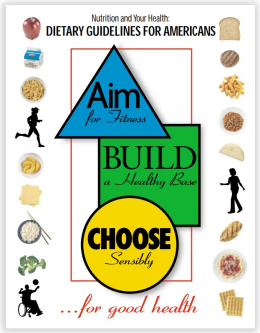
"Excessive intake of dietary fat is potentially harmful to health" in RDA

First DGAs urge a diet low in fat

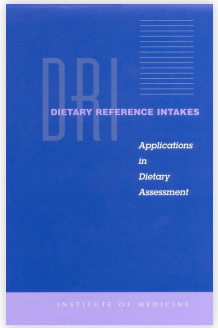
DGAs still caution against oils

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

DGA/DRIs recommend shift from liming fat to focusing on oils/unsaturated fat

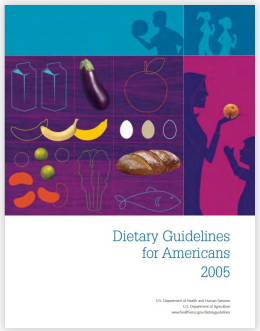


DGAs recommend diets moderate in total fat

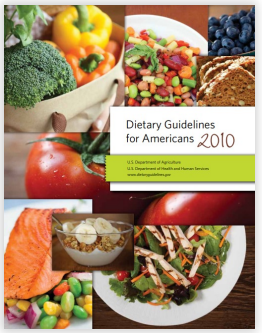


First edition of the Dietary Reference Intakes (DRIs)

Avocados first listed as a source of unsaturated fat.



DGAs advise to keep total fat intake between 20-35% of calories



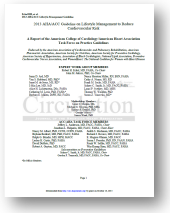
DGAs advise the using oils to replace solid fats and added sugars

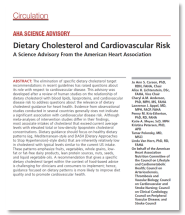
Avocados are listed as a source of oil.

2000 2005 2010

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Recommendations shift to limiting saturated fat





DGAs limit saturated fat to less than 10% of total calories by reducing saturated fat and replacing it with unsaturated fats.

AHA/ACC Guideline on Lifestyle Management advise on dietary patterns

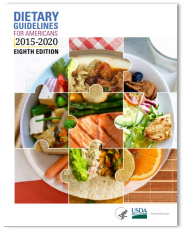
FDA approves heart health claim for fresh avocados + other raw fruits and vegetables

First time we see only a limit on saturated fat and not total fat.

2012 — 2013 — 2015 — 2016 — 2017 — 2020

AHA submitted citizen petition asking FDA to amend existing regulation

DGAs limit saturated fats to 10% of total calories.



AHA shift from saturated to unsaturated fats


Circulation

CLINICAL STATEMENTS AND GUIDELINES

Dietary Fats and Cardiovascular Disease: A Presidential Advisory From the American Heart Association

Frank M. Sacks, MD, FAHA, Chair, Alice H. Lichtenstein, DSc, FAHA, Jason H.Y. Wu, PhD, MSc, Lawrence J. Appel, MD, MPH, FAHA, Mark A. Creager, MD, FAHA, Penny M. Kris-Etherton, PhD, RD, FAHA, Michael Miller, MD, FAHA, Eric B. Rimm, ScD, FAHA, Lawrence L. Rudel, PhD, FAHA, Jennifer G. Robinson, MD, MPH, FAHA, Vice Chair, Neil J. Stone, MD, FAHA, Linda V. Van Horn, PhD, RD, FAHA, Vice Chair, and On behalf of the American Heart Association

ABSTRACT: Cardiovascular disease (CVD) is the leading global cause of death, accounting for 17.3 million deaths per year. Preventive treatment that reduces CVD by even a small percentage can substantially reduce, nationally and globally, the number of people who develop CVD and the costs of caring for them. This American Heart Association presidential

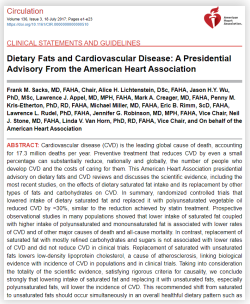
PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Now: Unsaturated fats are recommended as part of healthy dietary patterns across the lifespan, limits set only on saturated fat not total fat

2020-2025 Dietary Guidelines for Americans

Limit saturated fat to <10% of calories per day by replacing with unsaturated fats.

Focus on sources of oils higher in polyunsaturated and monounsaturated fat.


Circulation

CLINICAL STATEMENTS AND GUIDELINES

Dietary Fats and Cardiovascular Disease: A Presidential Advisory From the American Heart Association

Frank M. Sacks, MD, FAHA, Chair, Alice H. Lichtenstein, DSc, FAHA, Jason H.Y. Wu, PhD, MSc, Lawrence J. Appel, MD, MPH, FAHA, Mark A. Creager, MD, FAHA, Penny M. Kris-Etherton, PhD, RD, FAHA, Michael Miller, MD, FAHA, Eric B. Rimm, ScD, FAHA, Lawrence L. Rudel, PhD, FAHA, Jennifer G. Robinson, MD, MPH, FAHA, Vice Chair, Neil J. Stone, MD, FAHA, Linda V. Van Horn, PhD, RD, FAHA, Vice Chair, and On behalf of the American Heart Association

ABSTRACT: Cardiovascular disease (CVD) is the leading global cause of death, accounting for 17.3 million deaths per year. Preventive treatment that reduces CVD by even a small percentage can substantially reduce, nationally and globally, the number of people who develop CVD and the costs of caring for them. This American Heart Association presidential advisory on dietary fats and CVD reviews and discusses the scientific evidence, including the most recent studies, on the effects of dietary saturated fat intake and its replacement by other types of fats and carbohydrates on CVD. In summary, randomized controlled trials that lowered intake of dietary saturated fat and replaced it with polyunsaturated vegetable oil reduced CVD by >30%, similar to the reduction achieved by statin treatment. Prospective observational studies in many populations showed that lower intake of saturated fat coupled with higher intake of polyunsaturated and monounsaturated fat is associated with lower rates of CVD and of other major causes of death and all-cause mortality. In contrast, replacement of saturated fat with mostly refined carbohydrates and sugars is not associated with lower rates of CVD and did not reduce CVD in clinical trials. Replacement of saturated with unsaturated fats lowers low-density lipoprotein cholesterol, a cause of atherosclerosis, linking biological evidence with incidence of CVD in populations and in clinical trials. Taking into consideration the totality of the scientific evidence, satisfying rigorous criteria for causality, we conclude strongly that lowering intake of saturated fat and replacing it with unsaturated fats, especially polyunsaturated fats, will lower the incidence of CVD. This recommended shift from saturated to unsaturated fats should occur simultaneously in an overall healthful dietary pattern such as

2017 American Heart Association Presidential Advisory

As part of an overall healthy dietary pattern, replace saturated with unsaturated fats to lower LDL and reduce incidence of CVD.

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2020-2025.* 9th Edition. December 2020. Available at DietaryGuidelines.gov. Sacks FM, Lichtenstein AH, Wu JHY, et al. Dietary Fats and Cardiovascular Disease: A Presidential Advisory From the American Heart Association [published correction appears in Circulation. 2017 Sep 5;136(10):e195]. Circulation. 2017;136(3):e1-e23. doi:10.1161/CIR.0000000000000510

Now: Focus on including more nutrient-dense foods and looking at eating patterns as a continuum rather than restricting foods

- Guidance is to enjoy nutrient-dense foods that reflect personal preferences, cultural traditions, and budgetary considerations.

- Consumers no longer define health and wellness by restrictive diets and grueling exercise routines, but rather health and wellness from the inside out.

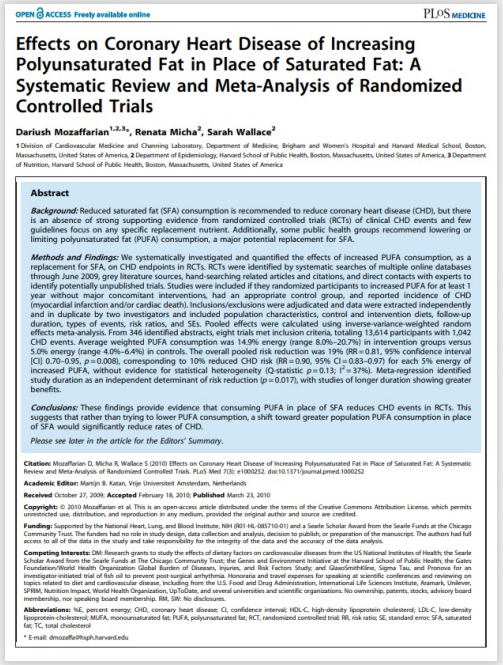
PBH PRODUCE FOR BETTER HEALTH FOUNDATION

U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2020-2025.* 9th Edition. December 2020. Available at DietaryGuidelines.gov.
Mintel Health Management Trends Report, US, 2022

How did we get to the current recommendations?

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Published research supports shift to recommending oils/unsaturated fats vs. Limiting total fat



OPEN ACCESS Freely available online PLOS MEDICINE

Effects on Coronary Heart Disease of Increasing Polyunsaturated Fat in Place of Saturated Fat: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

Dariush Mozaffarian[1,2,3]*, Renata Micha[2], Sarah Wallace[2]

1 Division of Cardiovascular Medicine and Channing Laboratory, Department of Medicine, Brigham and Women's Hospital and Harvard Medical School, Boston, Massachusetts, United States of America, 2 Department of Epidemiology, Harvard School of Public Health, Boston, Massachusetts, United States of America, 3 Department of Nutrition, Harvard School of Public Health, Boston, Massachusetts, United States of America

Abstract

Background: Reduced saturated fat (SFA) consumption is recommended to reduce coronary heart disease (CHD), but there is an absence of strong supporting evidence from randomized controlled trials (RCTs) of clinical CHD events and few guidelines focus on any specific replacement nutrient. Additionally, some public health groups recommend lowering or limiting polyunsaturated fat (PUFA) consumption, a major potential replacement for SFA.

Methods and Findings: We systematically investigated and quantified the effects of increased PUFA consumption, as a replacement for SFA, on CHD endpoints in RCTs. RCTs were identified by systematic searches of multiple online databases through June 2009, grey literature sources, hand-searching related articles and citations, and direct contacts with experts to identify potentially unpublished trials. Studies were included if they randomized participants to increased PUFA for at least 1 year without major concomitant interventions, had an appropriate control group, and reported incidence of CHD (myocardial infarction and/or cardiac death). Inclusions/exclusions were adjudicated and data were extracted independently and in duplicate by two investigators and included population characteristics, control and intervention diets, follow-up duration, types of events, risk ratios, and SEs. Pooled effects were calculated using inverse-variance-weighted random effects meta-analysis. From 346 identified abstracts, eight trials met inclusion criteria, totaling 13,614 participants with 1,042 CHD events. Average weighted PUFA consumption was 14.9% energy (range 8.0%–20.7%) in intervention groups versus 5.0% energy (range 4.0%–6.4%) in controls. The overall pooled risk reduction was 19% (RR = 0.81, 95% confidence interval [CI] 0.70–0.95, $p = 0.008$), corresponding to 10% reduced CHD risk (RR = 0.90, 95% CI = 0.83–0.97) for each 5% energy of increased PUFA, without evidence for statistical heterogeneity (Q-statistic $p = 0.13$; $I^2 = 37\%$). Meta-regression identified study duration as an independent determinant of risk reduction ($p = 0.017$), with studies of longer duration showing greater benefits.

Conclusions: These findings provide evidence that consuming PUFA in place of SFA reduces CHD events in RCTs. This suggests that rather than trying to lower PUFA consumption, a shift toward greater population PUFA consumption in place of SFA would significantly reduce rates of CHD.

Please see later in the article for the Editors' Summary.

Citation: Mozaffarian D, Micha R, Wallace S (2010) Effects on Coronary Heart Disease of Increasing Polyunsaturated Fat in Place of Saturated Fat: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. PLoS Med 7(3): e1000252. doi:10.1371/journal.pmed.1000252

Academic Editor: Martijn B. Katan, Vrije Universiteit Amsterdam, Netherlands

Received October 27, 2009; **Accepted** February 18, 2010; **Published** March 23, 2010

Funding: Supported by the National Heart, Lung, and Blood Institute, NIH (R01-HL-085710-01) and a Searle Scholar Award from the Searle Funds at the Chicago Community Trust. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript. The authors had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

Competing Interests: DM: Research grants to study the effects of dietary factors on cardiovascular diseases from the US National Institutes of Health; the Searle Scholar Award from the Searle Funds at The Chicago Community Trust; the Genes and Environment Initiative at the Harvard School of Public Health; the Gates Foundation/World Health Organization Global Burden of Diseases, Injuries, and Risk Factors Study; and GlaxoSmithKline, Sigma Tau, and Pronova for an investigator-initiated trial of fish oil to prevent post-surgical arrhythmia. Honoraria and travel expenses for speaking at scientific conferences and reviewing on topics related to diet and cardiovascular disease, including from the U.S. Food and Drug Administration, International Life Sciences Institute, Aramark, Unilever, SPRIM, Nutrition Impact, World Health Organization, UpToDate, and several universities and scientific organizations. No ownership, patents, stocks, advisory board membership, nor speaking board membership. RM, SW: No disclosures.

Abbreviations: %E, percent energy; CHD, coronary heart disease; CI, confidence interval; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol; MUFA, monounsaturated fat; PUFA, polyunsaturated fat; RCT, randomized controlled trial; RR, risk ratio; SE, standard error; SFA, saturated fat; TC, total cholesterol

* E-mail: dmozaffa@hsph.harvard.edu

HHS Public Access

Author manuscript

J Am Coll Cardiol. Author manuscript; available in PMC 2016 October 06.

Published in final edited form as:

J Am Coll Cardiol. 2015 October 6; 66(14): 1538–1548. doi:10.1016/j.jacc.2015.07.055.

Saturated Fat as Compared With Unsaturated Fats and Sources of Carbohydrates in Relation to Risk of Coronary Heart Disease: A Prospective Cohort Study

Yanping Li, PHD[#], Adela Hruby, PHD, MPH[#], Adam M. Bernstein, MD, SCD[†], Sylvia H. Ley, PHD[*], Dong D. Wang, MD[*], Stephanie E. Chiuve, SCD[*,‡], Laura Sampson, RD[*], Kathryn M. Rexrode, MD, MPH[‡], Eric B. Rimm, SCD[*,§,‖], Walter C. Willett, MD, DRPH[*,§,‖], and Frank B. Hu, MD, PHD[*,§,‖]

[*]Department of Nutrition, Harvard T.H. Chan School of Public Health, Boston, Massachusetts

[†]Wellness Institute, Cleveland Clinic, Lyndhurst, Ohio

[‡]Division of Preventive Medicine, Department of Medicine, Brigham and Women's Hospital, and Harvard Medical School, Boston, Massachusetts

[§]Department of Epidemiology, Harvard T.H. Chan School of Public Health, Boston, Massachusetts

[‖]Channing Division of Network Medicine, Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts

[#] These authors contributed equally to this work.

Abstract

Background—The associations between dietary saturated fat and risk of coronary heart disease (CHD) remain controversial, but few studies have compared saturated with unsaturated fats and sources of carbohydrates in relation to CHD risk.

Objective—This study sought to investigate associations of saturated fats as compared with unsaturated fats and different sources of carbohydrates in relation to CHD risk.

Methods—We followed 84,628 women (Nurses' Health Study, 1980 to 2010), and 42,908 men (Health Professionals Follow-up Study, 1986 to 2010) who were free of diabetes, cardiovascular disease, and cancer at baseline. Diet was assessed by semiquantitative food frequency questionnaire every 4 years.

Results—During 24 to 30 years of follow-up, we documented 7,667 incident cases of CHD. Higher intakes of polyunsaturated fatty acids (PUFAs) and carbohydrates from whole grains were

Reprint requests and correspondence: Frank B. Hu, MD, PhD, Departments of Nutrition and Epidemiology, Harvard T.H. Chan School of Public Health, 665 Huntington Avenue, Boston, Massachusetts 02115, Telephon: 617 432 0113 fax: 617 432 2435, nhtfh@channing.harvard.edu

Disclosures: The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Primary Prevention of Cardiovascular Disease with a Mediterranean Diet Supplemented with Extra-Virgin Olive Oil or Nuts

R. Estruch, E. Ros, J. Salas-Salvadó, M.-I. Covas, D. Corella, F. Arós, E. Gómez-Gracia, V. Ruiz-Gutiérrez, M. Fiol, J. Lapetra, R.M. Lamuela-Raventos, L. Serra-Majem, X. Pintó, J. Basora, M.A. Muñoz, J.V. Sorlí, J.A. Martínez, M. Fitó, A. Gea, M.A. Hernán, and M.A. Martínez-González, for the PREDIMED Study Investigators*

ABSTRACT

BACKGROUND

Observational cohort studies and a secondary prevention trial have shown inverse associations between adherence to the Mediterranean diet and cardiovascular risk.

METHODS

In a multicenter trial in Spain, we assigned 7447 participants (55 to 80 years of age, 57% women) who were at high cardiovascular risk, but with no cardiovascular disease at enrollment, to one of three diets: a Mediterranean diet supplemented with extra-virgin olive oil, a Mediterranean diet supplemented with mixed nuts, or a control diet (advice to reduce dietary fat). Participants received quarterly educational sessions and, depending on group assignment, free provision of extra-virgin olive oil, mixed nuts, or small nonfood gifts. The primary end point was a major cardiovascular event (myocardial infarction, stroke, or death from cardiovascular causes). After a median follow-up of 4.8 years, the trial was stopped on the basis of a prespecified interim analysis. In 2013, we reported the results for the primary end point in the *Journal*. We subsequently identified protocol deviations, including enrollment of household members without randomization, assignment to a study group without randomization of some participants at 1 of 11 study sites, and apparent inconsistent use of randomization tables at another site. We have withdrawn our previously published report and now report revised effect estimates based on analyses that do not rely exclusively on the assumption that all the participants were randomly assigned.

RESULTS

A primary end-point event occurred in 288 participants; there were 96 events in the group assigned to a Mediterranean diet with extra-virgin olive oil (3.8%), 83 in the group assigned to a Mediterranean diet with nuts (3.4%), and 109 in the control group (4.4%). In the intention-to-treat analysis including all the participants and adjusting for baseline characteristics and propensity scores, the hazard ratio was 0.69 (95% confidence interval [CI], 0.53 to 0.91) for a Mediterranean diet with extra-virgin olive oil and 0.72 (95% CI, 0.54 to 0.95) for a Mediterranean diet with nuts, as compared with the control diet. Results were similar after the omission of 1588 participants whose study-group assignments were known or suspected to have departed from the protocol.

CONCLUSIONS

In this study involving persons at high cardiovascular risk, the incidence of major cardiovascular events was lower among those assigned to a Mediterranean diet supplemented with extra-virgin olive oil or nuts than among those assigned to a reduced-fat diet. (Funded by Instituto de Salud Carlos III, Spanish Ministry of Health, and others; Current Controlled Trials number, ISRCTN35739639.)

The authors' full names, academic degrees, and affiliations are listed in the Appendix. Address reprint requests to Dr. Martínez-González at the Department of Preventive Medicine and Public Health, Facultad de Medicina–Clínica Universidad de Navarra, Irunlarrea 1, 31008 Pamplona, Spain, or at mamartinez@unav.es.

*The PREDIMED study investigators are listed in the Supplementary Appendix, available at NEJM.org.

Drs. Estruch and Martínez-González contributed equally to this article.

This article was published on June 13, 2018, at NEJM.org.

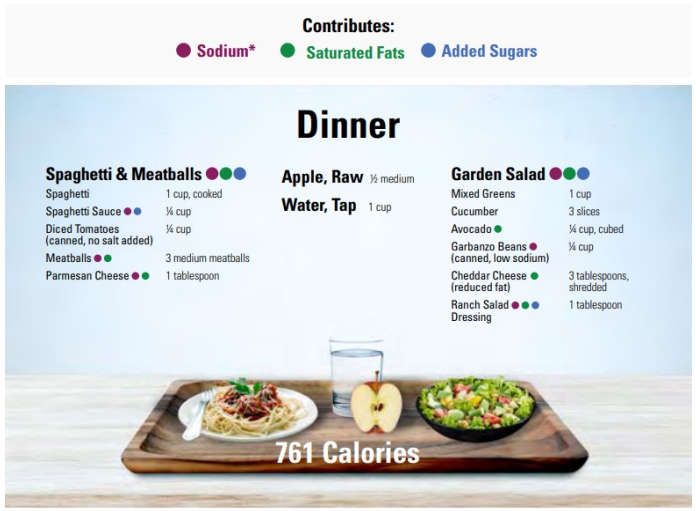
N Engl J Med 2018;378:e34.
DOI: 10.1056/NEJMoa1800389

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Mozaffarian D et al. Effects on Coronary Heart Disease of Increasing Polyunsaturated Fat in Place of Saturated Fat. PLOS Medicine 2010.
Li Y et al. Saturated Fats Compared with Unsaturated Fats and Sources of Carbohydrates in Relation to Risk of Coronary Heart Disease. J Am Coll Cardiol 2015.
Estruch R et al. Primary Prevention of Cardiovascular Disease with a Mediterranean Diet Supplemented with Extra-Virgin Olive Oil or Nuts. N Engl J Med 2018.

Avocados shift from hidden source of saturated fat to nutrient-dense option

2015-2020 DGAs



2016

FDA approves heart health claim for fresh avocados + other raw fruits and vegetables

2020-2025 DGAs

U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2015-2020 and 2020-2025*. Available at DietaryGuidelines.gov.

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

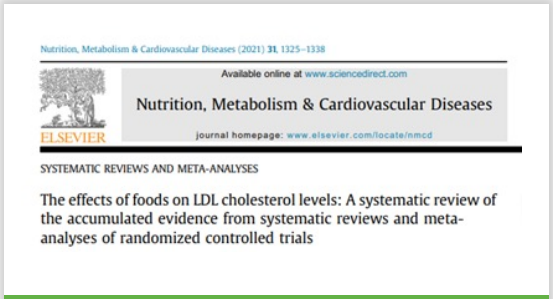
A growing body of evidence supports avocados as heart-healthy


Journal of the American Heart Association

ORIGINAL RESEARCH

Effect of Incorporating 1 Avocado Per Day Versus Habitual Diet on Visceral Adiposity: A Randomized Trial

Despite the additional calories, daily consumption of whole large avocado did not impact the primary outcome of visceral fat.


Nutrition, Metabolism & Cardiovascular Diseases (2021) 31, 1325–1338

Available online at www.sciencedirect.com

Nutrition, Metabolism & Cardiovascular Diseases

journal homepage: www.elsevier.com/locate/nmcd

SYSTEMATIC REVIEWS AND META-ANALYSES

The effects of foods on LDL cholesterol levels: A systematic review of the accumulated evidence from systematic reviews and meta-analyses of randomized controlled trials

Several foods, including avocado, distinctly modify LDL cholesterol levels.


Journal of the American Heart Association

ORIGINAL RESEARCH

Avocado Consumption and Risk of Cardiovascular Disease in US Adults

Higher avocado intake was associated with lower risk of CVD and coronary heart disease in 2 large prospective cohorts of US men and women.

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

What’s next for avocado nutrition research?

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Building on the body of research

What is in store for the future:

- More rigorous RCTs making practical food swaps in at-risk populations
- Understanding cardiometabolic health beyond heart health
- Food matrix studies
- Research specific to Hispanic and Latino populations

Lichtenstein AH et al. Effect of Incorporating 1 Avocado Per Day Versus Habitual Diet on Visceral Adiposity. JAHA 2022.
Schoeneck M et al. The effects of fods on LDL cholesterol levels. Nutr Metab Cardiovasc Dis. 2021.
Pacheco LS et al. Avocado Consumption and Risk of Cardiovascular Disease in US Adults. JAHA 2022.

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Summary Points

- Dietary guidance on fat consumption has evolved over several decades
- A growing body of evidence supports avocados as heart-healthy
- Opportunity for health professionals to continue to help translate headlines
- Future research will shed light on specific populations and will focus on eating patterns rather than specific nutrients

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Practical Application: Empowering consumers to make heart-healthy food choices with confidence

Lacy Haney, RDN

Nutrition Marketing and Sales

H-E-B

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Focus on the bigger picture

- Foster confidence in recommendations from the AHA and DGAs and encourage people to use them as their “cheat sheet”

- It’s the *overall dietary pattern* that matters…*not* the inclusion or exclusion of a single food or nutrient

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Let’s take eggs for example…

- A nutrient-dense food that can contribute to the health and well-being of Americans of all ages, including:
    - **Muscle repair and bone health:** The high-quality protein in eggs helps maintain and repair muscle while supporting bone health
    - **B12 for older adults:** Older adults are at nutritional risk for not getting enough protein and vitamin B12, which eggs provide as a good source.
    - **Natural source of vitamin D:** Americans do not get enough vitamin D, for which eggs, as one of the few natural food sources, provide 6% of the daily recommendation
    - **Supports lifelong brain health:** Eggs are one of the few foods rich in choline – a nutrient that supports memory, thinking, mood and more.
    - **Contributes to eye health:** The lutein and zeaxanthin found in egg yolks are carotenoids that help protect the eyes from blue light.
- Nearly half of an egg’s protein and most of its vitamins and minerals – including those essential for supporting our brains and bodies – are found in the yolk

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Let’s take Avocados for example…

- Fresh avocados taste great and can contribute to the health and well-being of Americans of all ages. A few benefits include:
    - **Immune health:** One-third of a medium avocado contains 6% of the Daily Value for vitamin E, an antioxidant that protects body tissue from damage and helps keep the immune system strong.
    - **Gut health:** Fiber supports gut and digestive health. A serving of avocado contains 3 grams of fiber.
    - **Eye health:** A serving of avocado contains 136 micrograms of the antioxidant, lutein, which may help to prevent serious eye conditions such as age-related blindness and may protect or slow age-related cataracts.
    - **Bone health:** Avocados are a good source of vitamin K, a nutrient vital for blood clotting and healthy bones.
    - **Maternal health:** Avocados are a good source of folate. For a healthy pregnancy, it’s important to eat foods containing folate

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Avocados and eggs complement each other

- Naturally good fats
- Dietary fiber
- Folate
- Vitamin E
- Potassium
- Vitamin K
- Lutein

Nutrition Facts

3 servings per container

Serving size **1/3 medium (50g)**

Amount per serving

Calories **80**

	% Daily Value*
Total Fat 8g	**10%**
Saturated Fat 1g	**5%**
Trans Fat 0g	
Polyunsaturated Fat 1g	
Monounsaturated Fat 5g	
Cholesterol 0mg	**0%**
Sodium 0mg	**0%**
Total Carbohydrate 4g	**1%**
Dietary Fiber 3g	**11%**
Total Sugars 0g	
Includes 0g Added Sugars	**0%**
Protein 1g	
Vitamin D 0mcg	0%
Calcium 10mg	0%
Iron 0.3mg	2%
Potassium 250mg	6%
Vitamin A 0mcg	0%
Vitamin C 4mg	4%
Vitamin E 1mg	6%
Vitamin K 11mcg	10%
Thiamin 0.04mg	4%
Riboflavin 0.1mg	8%
Niacin 1mg	6%
Vitamin B_6 0.1mg	6%
Folate 45mcg DFE (0mcg folic acid)	10%
Pantothenic Acid 0.7mg	15%
Phosphorus 30mg	2%
Magnesium 15mg	4%
Zinc 0.3mg	2%
Copper 0.1mg	10%
Manganese 0.1mg	4%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

- High-quality protein
- Choline
- Vitamin B12
- Iodine
- Vitamin A
- Vitamin D
- Lutein & zeaxanthin

Nutrition Facts

12 servings per container

Serving size **1 large egg (50g)**

Amount per serving

Calories **70**

	% Daily Value*
Total Fat 5g	**6%**
Saturated Fat 1.5g	8%
Trans Fat 0g	
Polyunsaturated Fat 1g	
Monounsaturated Fat 2g	
Cholesterol 185mg	**62%**
Sodium 70mg	**3%**
Total Carbohydrate 0g	**0%**
Dietary Fiber 0g	0%
Total Sugars 0g	
Includes 0g Added Sugars	0%
Protein 6g	**12%**
Vitamin D 1mcg	6%
Calcium 30mg	2%
Iron 0.9mg	4%
Potassium 70mg	0%
Vitamin A 80mcg	8%
Vitamin E 0.5mg	4%
Riboflavin 0.2mg	15%
Niacin 1.4mg	8%
Vitamin B_6 0.1mg	6%
Folate 25mcg DFE	6%
Vitamin B_{12} 0.5mcg	20%
Biotin 11mcg	35%
Pantothenic Acid 0.8mg	15%
Phosphorus 100mg	8%
Iodine 28mcg	20%
Zinc 0.7mg	6%
Selenium 15mcg	25%
Choline 150mg	25%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Increasing consumption of fruits and vegetables

- Lean into how people feel about eating fruits and vegetables and inspire environments that make doing so easy and habitual.
    - Piggyback on habits consumers already have
    - Share new and interesting flavor combinations – think of the pairings!
    - Take advantage of fruit and vegetable “carriers”

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Promoting heart-healthy food choices and eating habits

Heart Health Meal Plan

MONDAY

Breakfast	Lunch	Dinner	Snack
 Avocado Toast with Eggs, Spinach and Tomatoes	 Taco Turkey Lettuce Wraps	 One Pan Roasted Salmon and Veggies	 Homemade Chocolate Trail Mix
	 Corn & Black Bean Salad	 Wild Rice with Cranberries, Walnuts & Parsley	

TUESDAY

Breakfast	Lunch	Dinner	Snack
 Loaded Veggie Omelet	 Chicken Salad with Apples & Cranberries	 Chicken Quesadilla with Corn	 4-Ingredient Strawberry Frozen Yogurt
 2-Minute Toasted English Muffins		 Vegetarian Lentil Tortilla Soup	**Granola** 2 tbsp

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Summary

- Fat and cholesterol misconceptions are ingrained
- Foster confidence in science and recommendations
- Focus on the overall dietary pattern
- Provide inspiration to make heart-healthy choices easy and habitual!

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

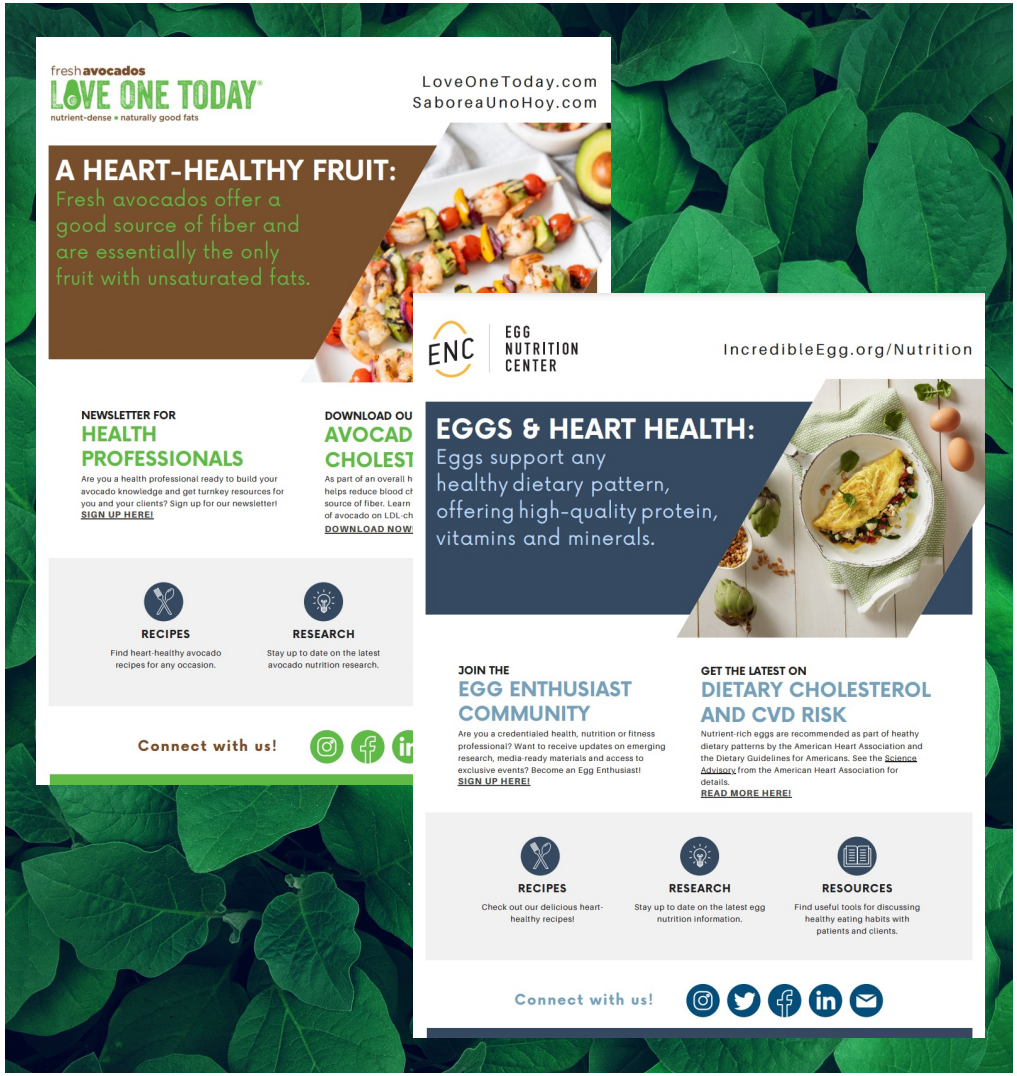
For more resources, research, continuing education, educational handouts, and heart-healthy recipes…

the INCREDIBLE EGG | EGG NUTRITION CENTER

IncredibleEgg.org/Nutrition

freshavocados LOVE ONE TODAY®
nutrient-dense • naturally good fats

LoveOneToday.com and SaboreaUnoHoy.com



PBH PRODUCE FOR BETTER HEALTH FOUNDATION


PBH
PRODUCE FOR
BETTER HEALTH
FOUNDATION
Q&A

JOIN THE MOVEMENT

have a plant®
fruitsandveggies.org

Show your support by joining the Have A Plant® community at fruitsandveggies.org/jointhenetwork

While you're there, check out our useful resources, continuing education opportunities to enhance your nutrition knowledge and tools that support you in empowering consumers at fruitsandveggies.org/educational-resources

And don't forget to follow PBH's social channels to keep up to date on all the insights and inspiration! #haveaplant

September is National Fruits & Veggies Month and each year we celebrate Have A Plant® during this monumental moment as a way to elevate fruit and vegetable consumption to a national priority.

Visit our new toolkit to join in the fun! #NFVM2022
https://fruitsandveggies.org/nfvmtoolkit/

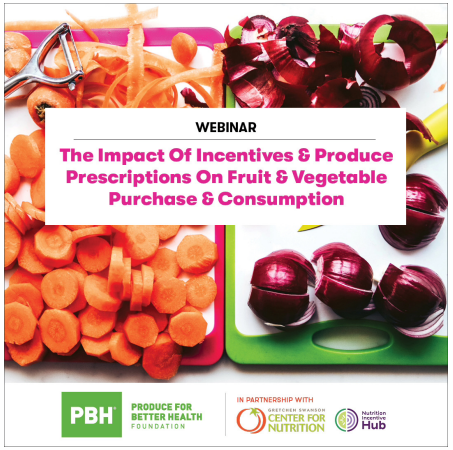
PBH PRODUCE FOR BETTER HEALTH FOUNDATION

Looking For Additional FREE Continuing Professional Education Opportunities?

fruitsandveggies.org/expert-professionals/webinars

Visit PBH's on-demand catalog of webinars on various fruit and vegetable topics including:

- *Power Pairings: Upgrading Snacks With California Strawberries & California Walnuts*
- *The Impact Of Incentives & Produce Prescriptions On Fruit & Vegetable Purchase & Consumption*
- *Breeding, Feeding & Leading: Innovations That Increase Food Security & Produce Consumption*
- *And Many More!*



PBH® PRODUCE FOR BETTER HEALTH FOUNDATION

HELP SUPPORT FRUIT & VEGGIE CONSUMPTION!

If you enjoyed today's Health & Wellness webinar and would like to support our overall mission of increasing fruit and vegetable consumption, we encourage you to make a tax-deductible donation today.

As a 501(c)3 non-profit organization, your donation helps us deliver programing, including our monthly health and wellness webinars, actionable research, future-focused education, a comprehensive digital ecosystem, and inspirational resources that helps millions discover the joy of eating fruit and vegetables each and every day.
TOGETHER – with your support – we are creating happier, healthier lives!

To donate, add the Donations app to Zoom: https://pldg.to/RiLcYw

Or donate with your phone: Text HAVEAPLANT to 707070 (US only)

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

PBH PRODUCE FOR BETTER HEALTH FOUNDATION

THANK YOU!

We live at the center of produce, partnership and passion.

WE ARE SO HAPPY YOU'RE WITH US!