#DairyNourishesLife

Fat or Fiction:

The Science of Whole Milk Dairy Foods within Healthy Eating Patterns

May 14, 2019

NDC
NATIONAL DAIRY COUNCIL™

Reminders for Today's Webinar

During the webinar

- Preferred browsers: Google Chrome of Firefox
- Q & A: Please type your questions into the chat window
- Follow along with **#DairyNourishesLife** on social media throughout today's presentation!

After the webinar

- Continuing education certificates and handouts will be shared via email within 24 hours of the webinar's conclusion
- Full webinar recording: Will be available next week on www.nationaldairycouncil.org

NATIONAL DAIRY COUNCIL™

Bringing to life the dairy community's shared vision of a healthy, happy, sustainable world, with science as our foundation

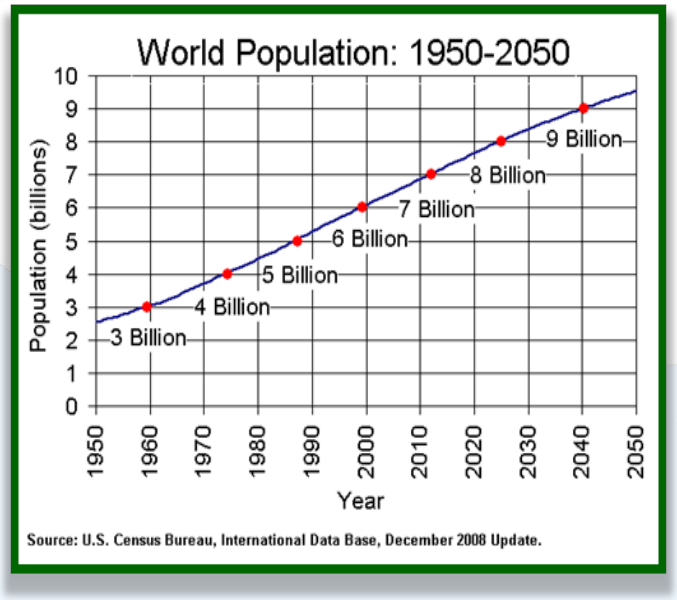
The U.S. Dairy Stewardship Commitment. http://commitment.usdairy.com/

Greatest Challenge of Our Generation:

Nourishing a Growing Global Population with Limited Natural Resources

Food production will need to increase by 70% to feed to world by 2050

Global middle class will triple by 2030



70% of the world population will live in cities by 2050

70% of suitable agricultural land is already in use

52% of world population could have severe water scarcity by 2050

2009, FAO's Director-General on How to Feed the World in 2050. Population and Development Review, 35: 837–839.

In Only 70 Years, We've Reduced our Impact…

90% less land

65% less water

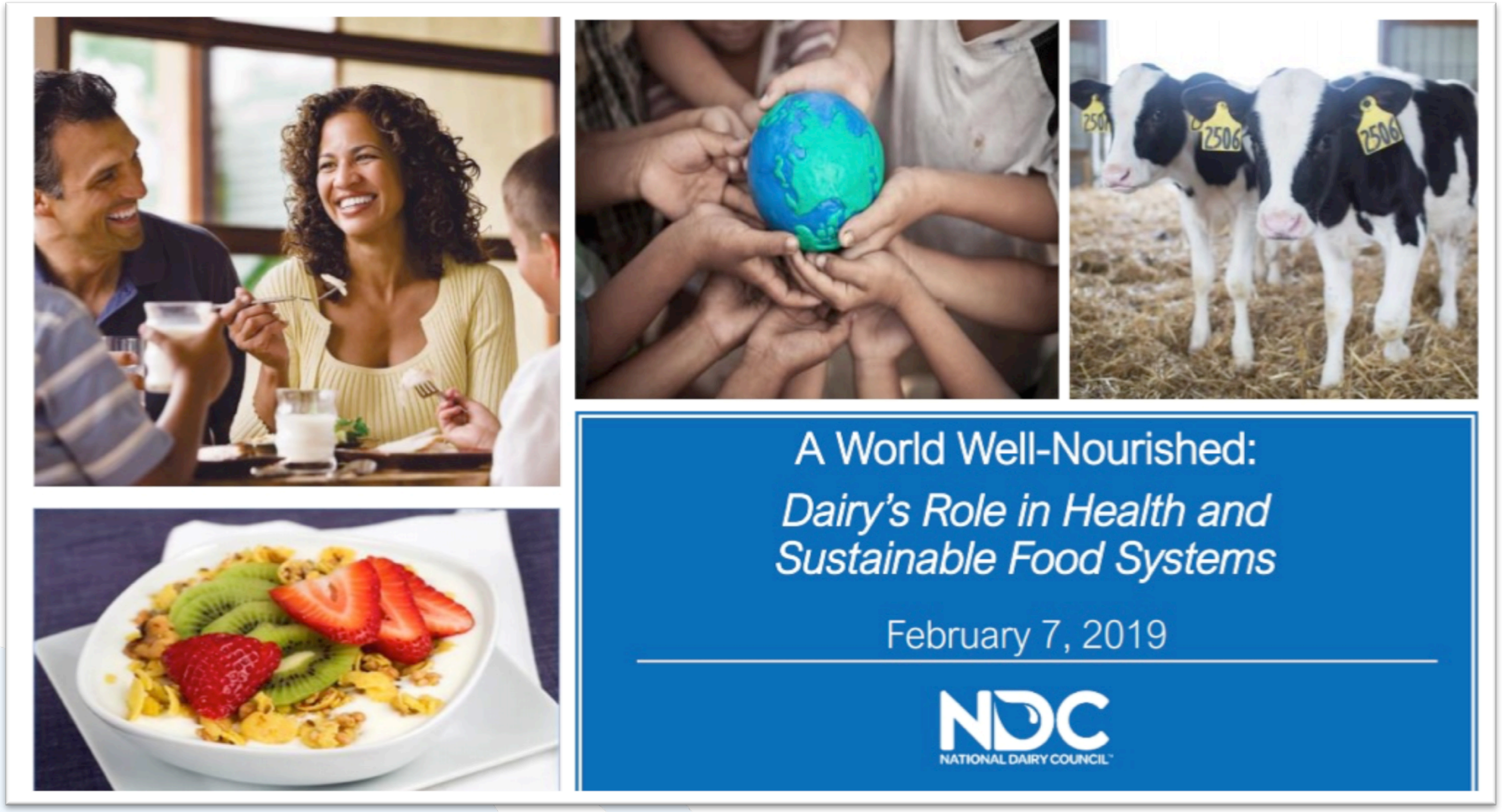
76% less manure

63% less GHG

The dairy community has a voluntary commitment to further reduce GHG 25% by 2020

Capper J. Cady A. Bauman D. 2009. The environmental impact of dairy production; 1944 compared with 2007. Journal of Animal Science. 87:2160-2167

US Dairy Stewardship Commitment



https://dairygood.org/content/2019/a-world-well-nourished-dairys-role-in-health-and-sustainable-food-systems

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Achieving Fat Flexibility in an Inflexible World

The Science of Whole Milk Dairy Foods

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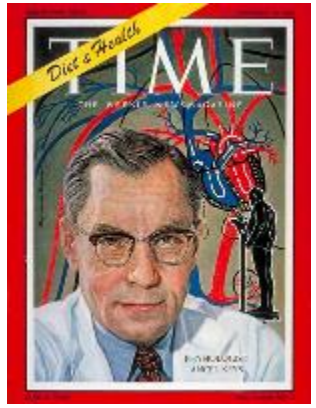
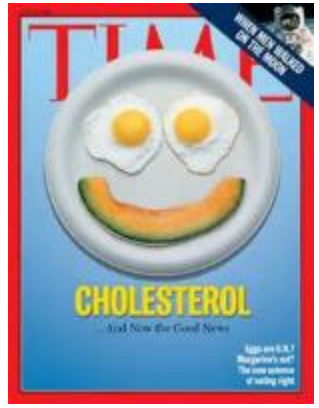
The Evolving Discussion on Diet, Fat and Cholesterol



1961

1984



1999

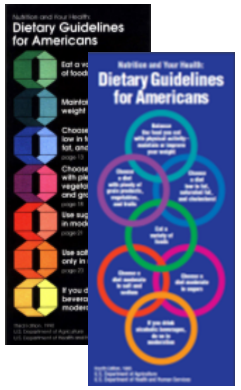
2003

2014

Evolution of Fatty Acid Guidance

1977 Dietary Goals for the US
Total fat: ≤30 kcal
Sat fat: <10% kcal
MUFA, PUFA: 10% kca. each
Chol: 300mg/day
(1977)

1980, 1985 DGA
Avoid too much fat, sat fat and chol



1990, 1995 DGA
Choose a diet low in fat, sat fat and chol

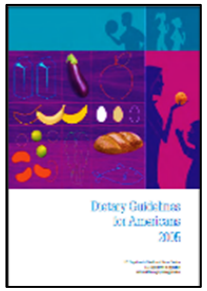
Total fat: ≤30% kcal
Sat fat: <10% kcal

Chol: <300mg/day

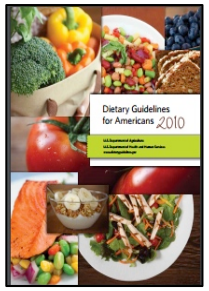
2000 DGA
Choose a diet low in sat fat & chol; **moderate** in total fat

Total fat: ≤30% kcal
Sat fat: <10% kcal
Chol: <300mg/day

Acknowledges TFA ↑ blood chol, but doesn't recommend limit



2005 DGA
Total fat:20-35% kcal
Sat fat: <10% kcal w/ most fats from PUFA/MUFA
Chol: <300mg/day
Limit TFAs



2010 DGA
Total fat: 20-35% kcal
Sat fat: <10% kcal by replacing w/ PUFA/MUFA
Chol: <300mg/day
TFAs: as low as possible
Solid fats: ↓

2015 DGA
A healthy eating pattern limits saturated and trans fats

Total fat: 20-35% kcal
Sat fat: <10% kcal

1970s	1980s	1990s	2000s		2010s	2015
FDA Hydrogenated soybean oil given GRAS status (1976)	**NIH & AHA** Establishes NCEP (1986)	**FDA** NLEA mandates sat fat on NFP (1990)	**NYC** bans TFAs in restaurants (2006)	**FDA** Adds TFAs to NFP (2006)	**AHA/ACC Lifestyle Guidelines** Sat fat: 5-10% kcal ↓TFA Ø Chol reco (2013)	**FDA** Proposes withdrawing GRAS status of PHOs (the leading source of trans fat in American diet) (2013)

Original Diet Heart Paradigm

The original diet-heart paradigm reasoned that because saturated fat raises LDL ("bad") cholesterol, and LDL cholesterol raises coronary heart disease (CHD) risk, then saturated fat raises CHD risk

The latest evidence indicates
the real story may be more complex.

Mozaffarian D Curr Atheroscler Rep 2005

Emerging Evidence:
Saturated Fat Consumption May Not Be Linked to CVD Risk

The American Journal of CLINICAL NUTRITION

Meta-analysis of prospective cohort studies evaluating the association of saturated fat with cardiovascular disease[1,2,3,4,5]

21 observational studies
347,747 participants

"…there is no significant evidence for concluding that dietary saturated fat is associated with an increased risk of CHD or CVD."

Annals of Internal Medicine

Established in 1927 by the American College of Physicians

Association of Dietary, Circulating, and Supplement Fatty Acids With Coronary Risk

A Systematic Review and Meta-analysis

32 observational studies
512,420 participants

"Current evidence does not clearly support cardiovascular guidelines that encourage high consumption of polyunsaturated fatty acids and low consumption of total saturated fats."

---

thebmj

Intake of saturated and trans unsaturated fatty acids and risk of all cause mortality, cardiovascular disease, and type 2 diabetes: systematic review and meta-analysis of observational studies

3-12 observational studies
90,501-339,090 participants

"Saturated fats are not associated with all cause mortality, CVD, CHD, ischemic stroke or type 2 diabetes, but the evidence is heterogeneous with methodological limitations."

Neurological Sciences

Can dietary saturated fat be beneficial in prevention of stroke risk? A meta-analysis

15 prospective studies
476,569 participants

"…higher saturated fatty acid intake is inversely associated with risk of stroke morbidity and mortality with race, sex and BMI as key factors influencing risk."

1. Siri-Tarino, et al, AJCN, 2010
2. Chowdhury, et al, Annals of Internal Medicine, 2014
3. de Souza, et al, BMJ, 2015
4. Cheng, et al, Neurol Sci, 2016

2015 DGA Maintains Recommendation for <10% for Saturated Fat

Refocused the saturated fat discussion in terms of finding the ideal replacement nutrient

"Strong and consistent evidence shows that **replacing** saturated fats with unsaturated fats, especially polyunsaturated fats, is associated with reduced blood levels of total cholesterol and LDL-C. Additionally, strong and consistent evidence shows that **replacing** saturated fats with polyunsaturated fats is associated with a reduced risk of CVD..."

Is this the case for all food sources of saturated fat?

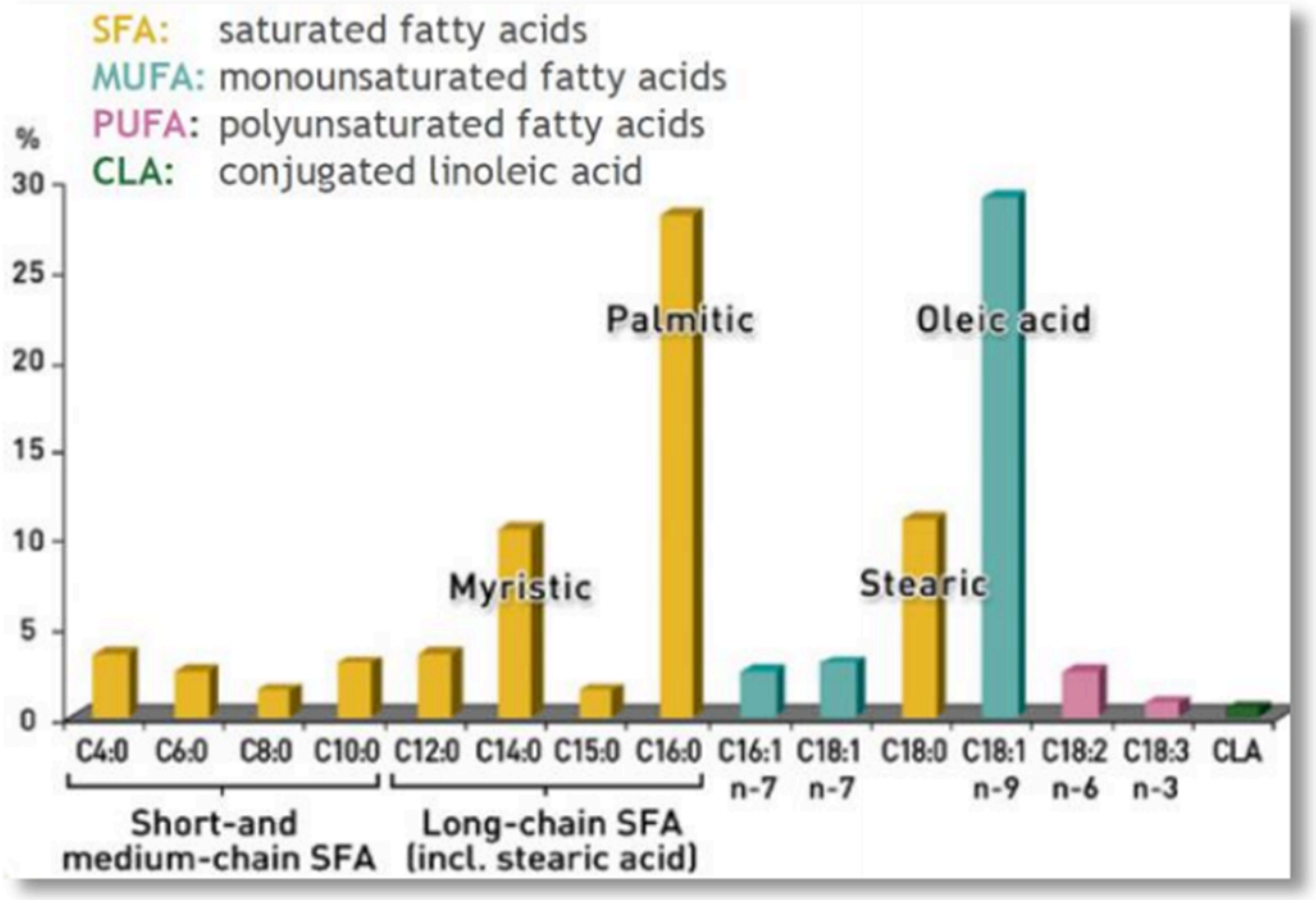
USDA, 2015-2020 Dietary Guidelines for Americans

Dairy Fat is Unique and Complex

Dairy fat contains
>400 different fatty acids

- 65-70% Saturated Fatty Acids
- 30-35% Unsaturated Fatty Acids

General Fatty Acid Composition of Milk



Mansson. Food & Nutrition Research, 2008

Dairy Foods & Cardiovascular Disease and Type 2 Diabetes

Preponderance of Evidence:

Dairy foods have a neutral or beneficial association with reduced risk for CVD, Type 2 Diabetes and lower blood pressure in adults

NDC Science Summaries on Cardiovascular Disease, Blood Pressure and Type 2 Diabetes

Emerging evidence suggests that whole milk dairy is not associated with increased risk for CVD or Type 2 Diabetes

SCIENCE BRIEF: Whole and Reduced-Fat Dairy Foods and CVD Risk

New science supports reassessing the role of dairy foods in healthy eating patterns

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Overview

The 2015-2020 Dietary Guidelines for Americans (DGA) recommend choosing low-fat and fat-free milk, cheese or yogurt as part of healthy eating patterns. Dairy foods (such as milk, cheese, yogurt) make significant nutrient contributions to U.S. diets, including nutrients underconsumed by most Americans—calcium, vitamin D and potassium—as well as magnesium, phosphorus, zinc, vitamin A, vitamin B12, riboflavin (B2), choline, high-quality protein and saturated fat. Recommendations to reduce saturated fat consumption are intended to lower rates of cardiovascular disease (CVD), including coronary heart disease (CHD or heart attack) and cerebrovascular disease (stroke). In recent years, however, emerging research has found that saturated fat consumption may not be directly linked to CVD risk, indicating saturated fat on its own may be a poor metric for identifying healthy foods or diets. In addition, observational and trial evidence has found that dairy food consumption—regardless of fat content—is not associated with higher risk for CVD. The growing evidence base supports reassessing the role of whole and reduced-fat dairy foods in healthy eating patterns to inform future nutrition guidance regarding CVD and other cardiometabolic diseases.

https://www.nationaldairycouncil.org/content/2019/whole-and-reduced-fat-dairy-foods-and-cardiovascular-disease

Eating Dairy Foods May Be Linked to Reduced Risk of CVD

Association of dairy intake with cardiovascular disease and mortality in 21 countries from five continents (PURE): a prospective cohort study

Prospective Study
~136,000 participants; 21 countries, 5 continents

Conclusion: "Dairy consumption was associated with lower risk of mortality and major cardiovascular events in a diverse multinational cohort."

- Higher consumption of total dairy foods – **regardless of the fat content** – (>2 servings per day compared to no consumption) was linked to reduced risk of:
  - total mortality
  - non-cardiovascular mortality
  - cardiovascular disease mortality
  - major cardiovascular disease
  - stroke
- Higher consumption of only whole milk dairy foods (>2 servings/d vs. <0.5 servings/d) was associated with lower total mortality and major CVD.

Dehghan M, et al. 2018. The Lancet

DASH with Whole Milk Dairy Foods = DASH Benefits

Comparison of the DASH (Dietary Approaches to Stop Hypertension) diet and a higher-fat DASH diet on blood pressure and lipids and lipoproteins: a randomized controlled trial[1–3]

*Sally Chiu,[4] Nathalie Bergeron,[4,5] Paul T Williams,[4] George A Bray,[4] Barbara Sutherland,[4] and Ronald M Krauss[4]**

Randomized Control Trial

Key takeaway:
Whole milk dairy foods can be incorporated into a healthy dietary pattern that is calorie-balanced and improves standard biomarkers related to heart disease

Diet Composition	DASH	HF-DASH
Total Fat (% energy)	27	40
Sat Fat (% energy)	8	14
CHO (% energy)	55	43
Protein (% energy)	17	18

Compared to standard DASH, the modified high-fat DASH diet:

- Similar benefit of lowering blood pressure
- Reduced blood triglyceride levels
- No difference in total, LDL-C or HDL-C

Chiu et al. AJCN 2016

Dairy Foods Linked to Reduced Risk of Type 2 Diabetes
Whole milk dairy foods are neutral

The American Journal of CLINICAL NUTRITION

Dairy products and the risk of type 2 diabetes: a systematic review and dose-response meta-analysis of cohort studies[1–3]

Dagfinn Aune, Teresa Norat, Pål Romundstad, and Lars J Vatten

17 Cohort Studies
~426,000 participants

Total dairy intake associated with a 7% reduced risk of type 2 diabetes per 400 g serving daily Beneficial associations also found with low-fat dairy products, low-fat or skim milk, cheese & yogurt

PLOS ONE
A peer-reviewed, open access journal

Dairy Products Consumption and Risk of Type 2 Diabetes: Systematic Review and Dose-Response Meta-Analysis

15 Prospective Cohort Studies + 1 case control study
~527,000 subjects

Total dairy intake associated with a 6% reduced risk of type 2 diabetes per 200 g serving daily

Beneficial associations also found with low fat dairy products (200g/d) cheese (30g/d) and yogurt (50g/d)

*For reference: 8 fl oz (1 cup) fluid milk = 245g; 1 oz (slice) cheese = 28g; 1, 6-oz (container) yogurt = 170g

(US Department of Agriculture (USDA), Agricultural Research Service, Nutrient Data Laboratory. USDA National Nutrient Database for Standard Reference, Legacy. Version Current: April 2018. Internet: http://www.ars.usda.gov/nutrientdata)

Aune D et al. Am J Clin Nutr. 2013; 98(4):1066-83.
Gao D et al. PLoS One. 2013; 8(9):e73965.

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Dairy Products Consumption and Risk of Type 2 Diabetes: Systematic Review and Dose-Response Meta-

case control study

Total dairy intake
of type 2 diabete
associations als
low-fat or

a 6% reduced risk
serving daily
l with low fat dairy
and yogurt (50g/d)

What does 400g of dairy a day look like?

1 cup fluid milk = 245g

1 oz cheese = 28g

1, 6-oz container yogurt =170g

TOTAL = 443g or 3 servings

*For reference: 8 fl oz (1

(US Department of Agriculture (USDA), Agricultural Research Service, Nutrient Data Laboratory. USDA National Nutrient Database for Standard Reference, Legacy. Version Current: April 2018. Internet: http://www.ars.usda.gov/nutrientdata)

Aune D et al. Am J Clin Nutr. 2013; 98(4):1066-83.
Gao D et al. PLoS One. 2013; 8(9):e73965.

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Higher Levels of Dairy Fat Biomarkers Associated with Reduced Risk Of Type 2 Diabetes

PLOS | MEDICINE

Fatty acid biomarkers of dairy fat consumption and incidence of type 2 diabetes: A pooled analysis of prospective cohort studies

16 Prospective Cohorts from 12 countries
~63,500 participants

Higher circulating levels of fatty acid biomarkers of dairy fat consumption (pentadecanoic [C15:0], heptadecanoic [C17:0] and trans palmitoleic [trans-16:1,n-7] were associated with a lower risk of Type 2 diabetes. For the sum of these fatty acids, it was estimated that people with higher levels had a 29% lower risk of Type 2 diabetes than adults with lower levels.

Imamura F et al., 2018 PLoS Med

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PLOS | MEDICINE

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Imamura F et al., 2018 PLoS Med

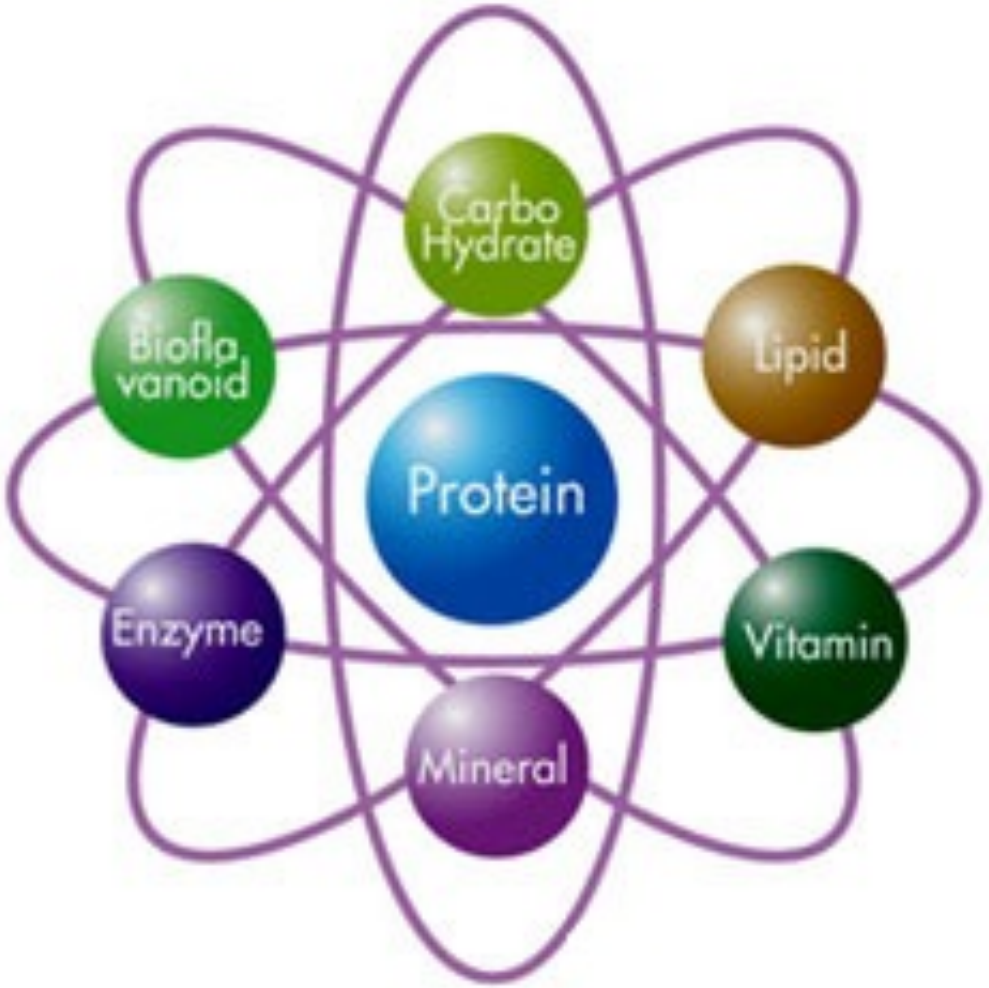
"While dairy foods are recommended as part of a healthy diet, U.S. and international guidelines generally recommend low-fat or non-fat dairy due to concerns about adverse effects of higher calories or saturated fat. Our findings, measuring biomarkers of fatty acids consumed in dairy fat, suggest a need to re-examine the potential metabolic benefits of dairy fat or foods rich in dairy fat, such as cheese."

- Senior author Dariush Mozaffarian, MD, DrPh, Tufts University

Markers of dairy fat consumption linked to lower risk of type 2 diabetes; TuftsNow, May 9, 2019

So, Is There Something Different About Dairy Fat?

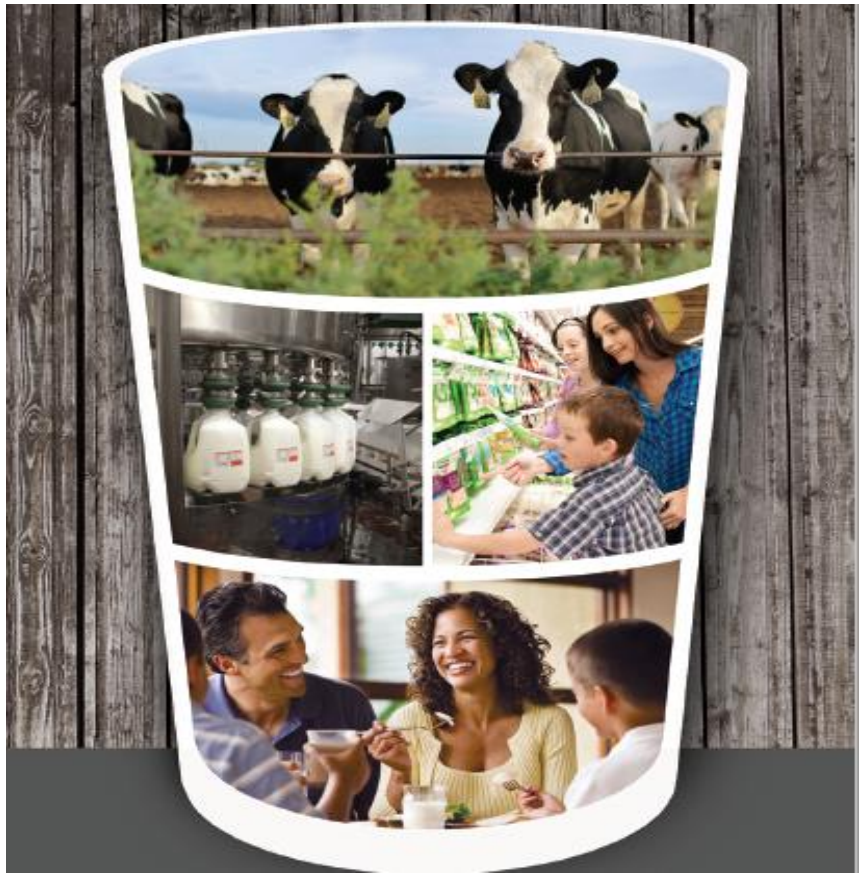
Dairy Foods' Matrix May Impact the Effects of Dairy Fat on CVD and T2D Risks



Food is more than the sum of its nutrients

Dairy Foods Contribute Essential Nutrients to Diets

56% Vitamin D
54% Calcium
29% Vitamin A
28% Phosphorus
27% Vitamin B12
24% Riboflavin
18% Protein
17% Zinc
14% Potassium



Data from NHANES 2011-2014 (n=15,829).
Citation: National Dairy Council. NHANES 2011-2014. Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey Data. Hyattsville, MD: U.S. Department of Health and Human Services. http://www.cdc.gov/nchs/nhanes.htm.

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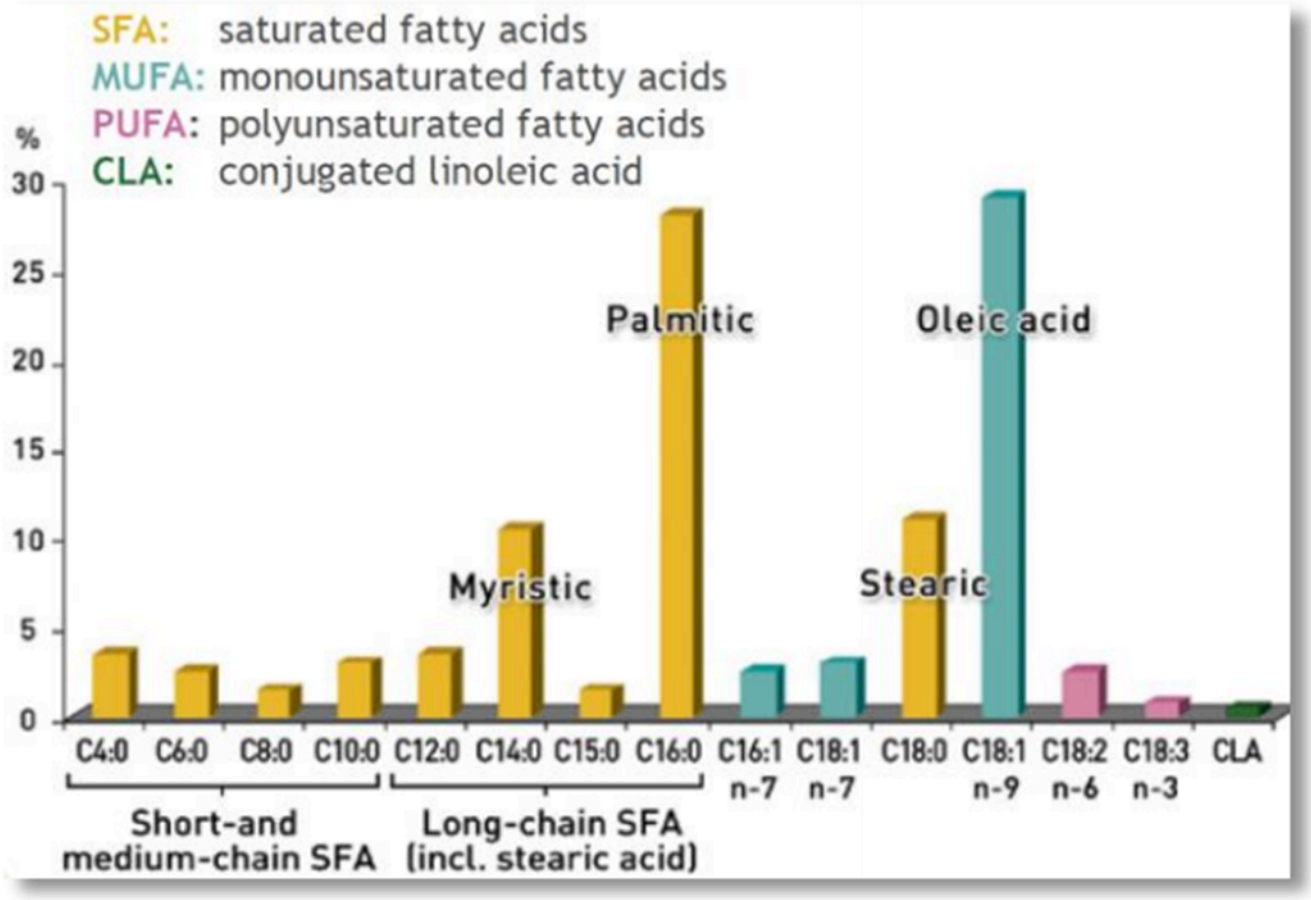
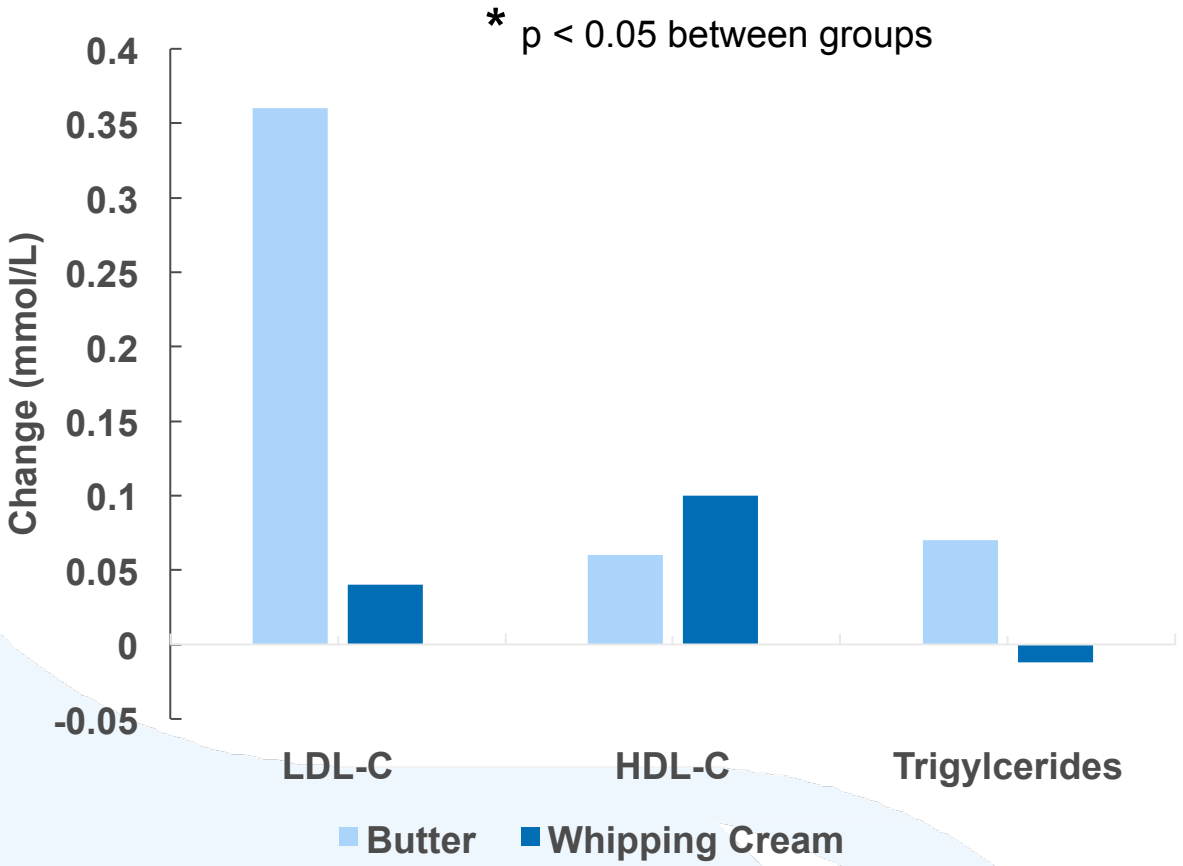
General Fatty Acid Composition of Milk



Mansson. Food & Nutrition Research, 2008

The Packaging of Fat May Matter



- 57 overweight men and women
- 40 g/day of milkfat from either **whipping cream or butter oil** for 8 weeks
  - Equal to about 5 cups of whole milk per day
  - Almost half of a stick of butter
- Dietary macronutrients and calcium were matched
- The only thing that differed was relatively lower milk fat globular membrane (MFGM) and phospholipid content of the diet supplemented with butter.

Butter oil also increased other related CVD risk factors, including non-HDL cholesterol and the apolipoprotein B:apolipoprotein A-I ratio compared with whipping cream.

Rosqvist et al. AJCN 2015

Cheese May Affect Blood Lipids Differently Than Other High-Fat Foods

In a 2015 systematic review of clinical trials on cheese consumption and blood lipids:

- Hard cheese and butter were compared due to their similar ratios of polyunsaturated/saturated fat ratios
- 5 RCTs were identified
- Compared to an equivalent amount of butter, hard cheese consumption:
  - ↓ total cholesterol (5.2%)
  - ↓ LDL-cholesterol (6.5%)
  - ↓ HDL-cholesterol (3.9%)

Conclusion:
The different effect of cheese on cholesterol could be explained by calcium and protein content, specific fatty acids, and/or the food matrix of cheese; further research is warranted

Goede et al. Nutrition Reviews 2015

Fermented Foods May Bring Unique Benefits That Help Reduce Risk for Certain Chronic Diseases

What are fermented foods?

A fermented food or beverage is a type of food made by extensive microbial growth. These foods are nothing new. They've been around for thousands of years. To understand how fermented foods are made, let's look at yogurt.

Yogurt is a fermented food made from milk. During yogurt fermentations, lactic acid-producing bacteria grow on the sugars and other nutrients in milk. As they multiply, the bacteria produce compounds that change the flavor, texture, and nutrients in the milk to give us what we know as yogurt.

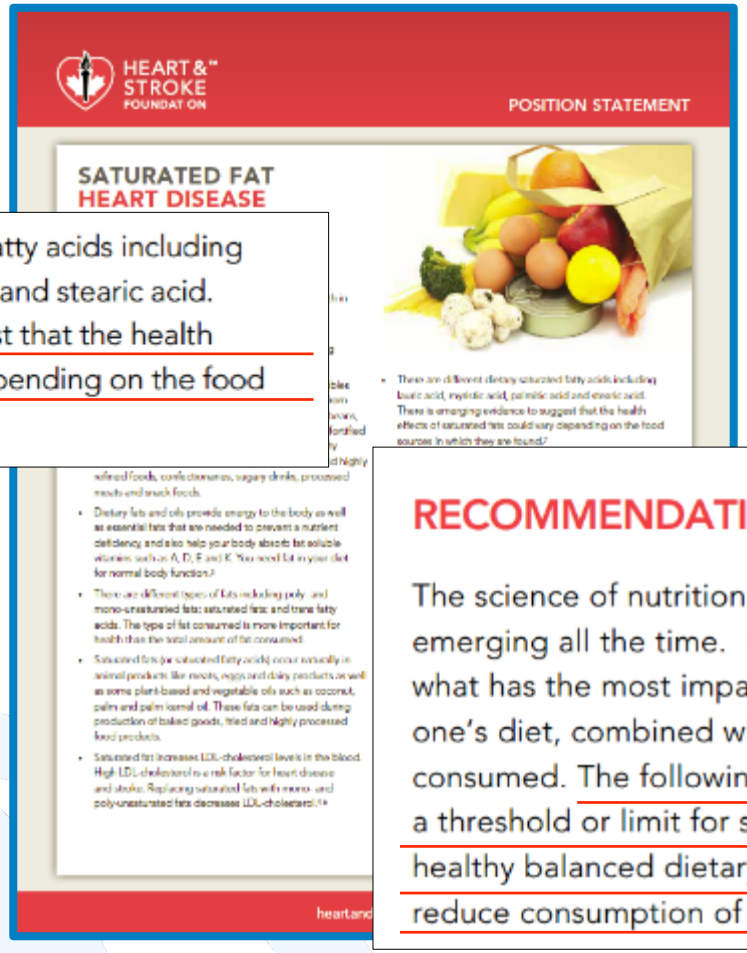
The value of fermented foods

- Source of live, active microbes
- Improve food taste, texture, and food digestibility
- Increase concentrations of vitamins and bioactive compounds in foods
- Remove/ reduce toxic or anti-nutrients in raw foods
- Increase food safety and shelf-life

International Scientific Association for Probiotics and Prebiotics

Evolving Recommendations

Canadian Heart & Stroke Foundation Drops Limits on Saturated Fat



There are different dietary saturated fatty acids including lauric acid, myristic acid, palmitic acid and stearic acid. There is emerging evidence to suggest that the health effects of saturated fats could vary depending on the food sources in which they are found.[7]

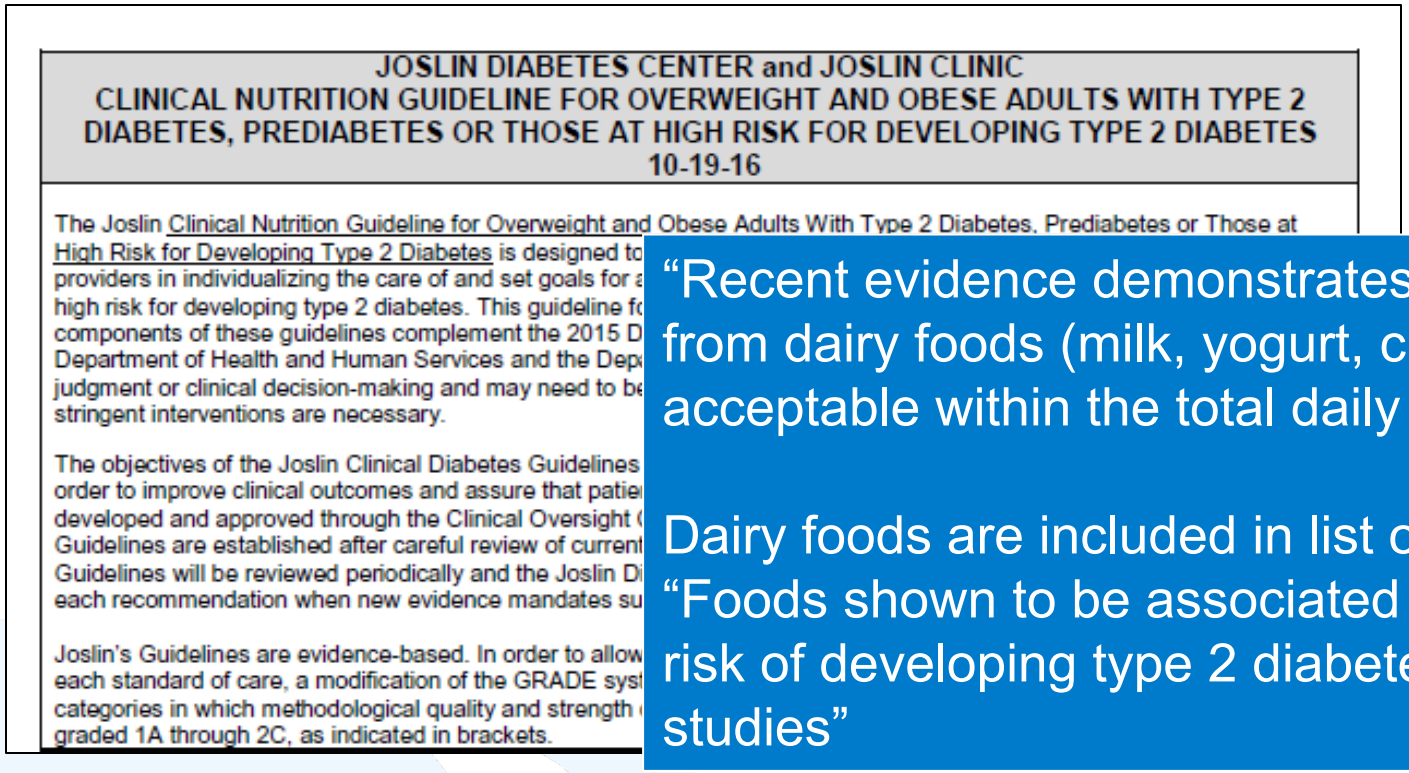
RECOMMENDATIONS

The science of nutrition is ever-evolving with new evidence emerging all the time. It is becoming increasingly clear that what has the most impact on health is the overall quality of one's diet, combined with the types and quantity of food consumed. The following recommendations do not include a threshold or limit for saturated fat and instead focus on a healthy balanced dietary pattern, which can help Canadians reduce consumption of saturated fats.

Heart and Stroke Foundation of Canada Position Statement, 2015

Joslin Guidelines Reflect New Evidence on Saturated Fat from Dairy Foods

Joslin Diabetes Center



JOSLIN DIABETES CENTER and JOSLIN CLINIC
CLINICAL NUTRITION GUIDELINE FOR OVERWEIGHT AND OBESE ADULTS WITH TYPE 2 DIABETES, PREDIABETES OR THOSE AT HIGH RISK FOR DEVELOPING TYPE 2 DIABETES
10-19-16

The Joslin Clinical Nutrition Guideline for Overweight and Obese Adults With Type 2 Diabetes, Prediabetes or Those at High Risk for Developing Type 2 Diabetes is designed to
providers in individualizing the care of and set goals for a
high risk for developing type 2 diabetes. This guideline fo
components of these guidelines complement the 2015 D
Department of Health and Human Services and the Dep
judgment or clinical decision-making and may need to be
stringent interventions are necessary.

The objectives of the Joslin Clinical Diabetes Guidelines
order to improve clinical outcomes and assure that patie
developed and approved through the Clinical Oversight
Guidelines are established after careful review of current
Guidelines will be reviewed periodically and the Joslin Di
each recommendation when new evidence mandates su

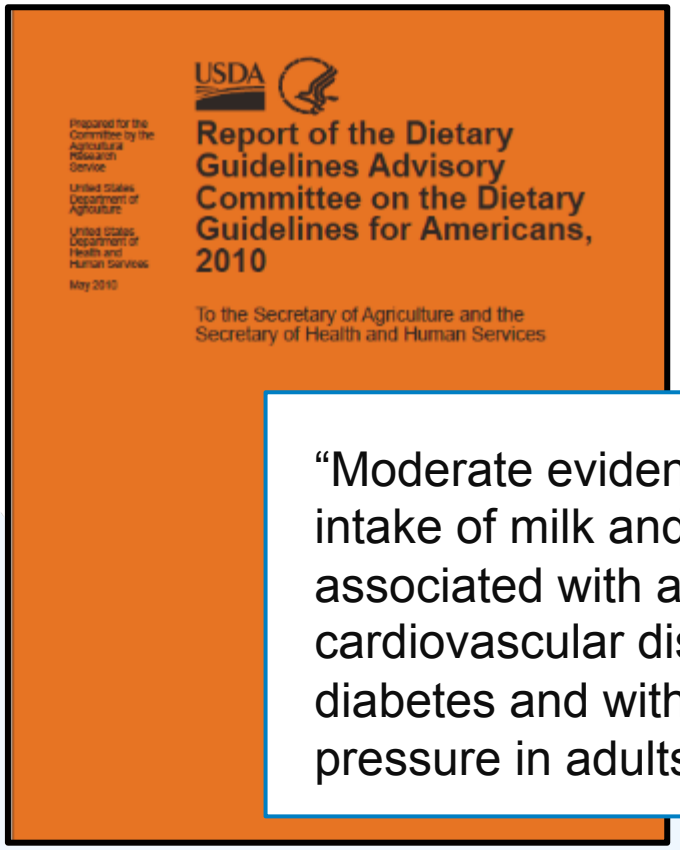
Joslin's Guidelines are evidence-based. In order to allow
each standard of care, a modification of the GRADE syst
categories in which methodological quality and strength
graded 1A through 2C, as indicated in brackets.

"Recent evidence demonstrates saturated fat from dairy foods (milk, yogurt, cheese) may be acceptable within the total daily caloric intake"

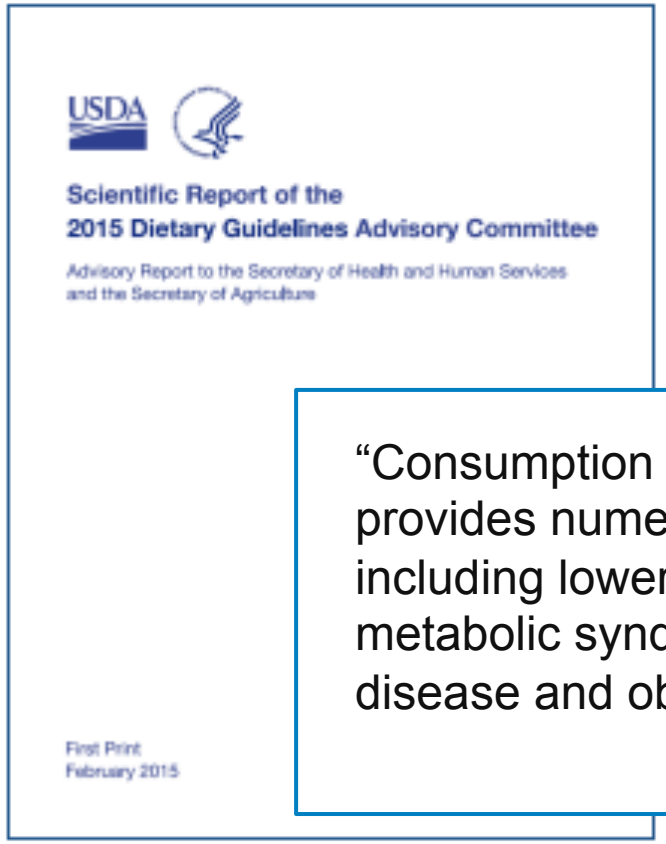
Dairy foods are included in list of:
"Foods shown to be associated with a reduced risk of developing type 2 diabetes in some studies"

Joslin Diabetes Center and Joslin Clinic: Clinical Nutrition Guideline for Overweight and Obese Adults with Type 2 Diabetes, Prediabetes, or those at High Risk for Developing Type 2 Diabetes, 2016

Dairy's Role in Cardiovascular Disease and Metabolic Health Has Been Recognized by the DGAC



"Moderate evidence…indicates that intake of milk and milk products is associated with a reduced risk of cardiovascular disease and type 2 diabetes and with lower blood pressure in adults."



"Consumption of dairy foods provides numerous health benefits, including lower risk of diabetes, metabolic syndrome, cardiovascular disease and obesity."

2005, 2010, 2015* Dietary Guidelines recommend 3 daily servings of dairy foods for those >9 years

The 2015 DGA states that healthy eating patterns, including low-fat or fat-free dairy foods, are associated with **reduced risk for several chronic diseases, including cardiovascular disease** (strong evidence) and **type 2 diabetes** (moderate evidence). Research has also linked dairy intake to **improved bone health**, especially in children and adolescents.

** 3 servings for Americans 9 years and older in the Healthy U.S.-Style and Healthy Vegetarian Eating Patterns.*

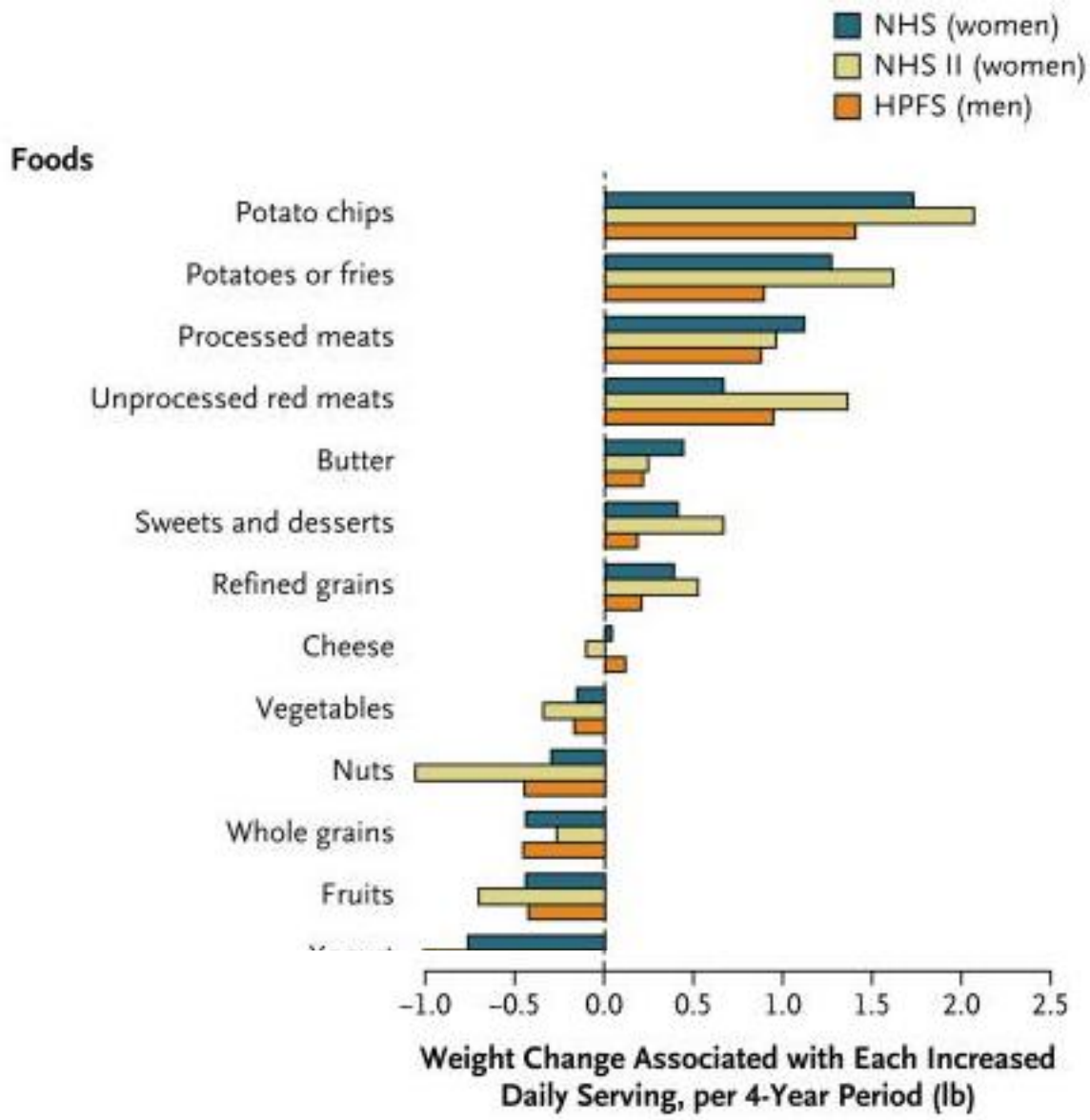
The NEW ENGLAND JOURNAL of MEDICINE

Changes in Diet and Lifestyle and Long-Term Weight Gain in Women and Men

Dariush Mozaffarian, M.D., Dr.P.H., Tao Hao, M.P.H., Eric B. Rimm, Sc.D., Walter C. Willett, M.D., Dr.P.H., and Frank B. Hu, M.D., Ph.D.

3 Cohort Studies (NHS I & II, HPFS)
>120,000 women and men

Each serving of yogurt/d was associated with -0.82 lb. weight change over a 4 year period



Mozaffarian D et al. NEJM; 2011. 364:2392-2404.

The NEW ENGLAND JOURNAL of MEDICINE

Changes in Diet and Lifestyle and Long-Term Weight Gain in Women and Men

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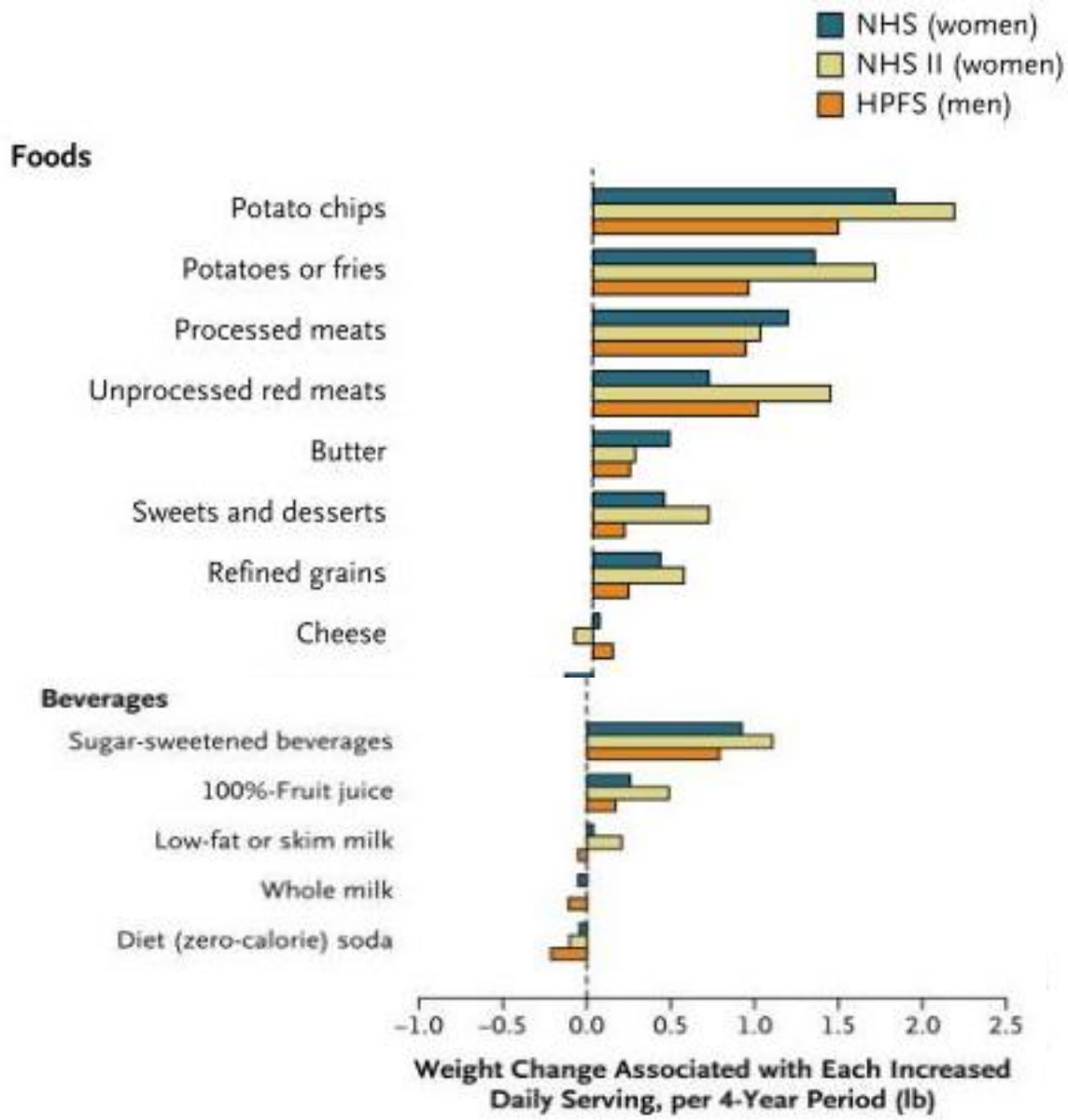
3 Cohort Studies (NHS I & II, HPFS)
>120,000 women and men

Each serving of yogurt/d was associated with -0.82 lb. weight change over a 4 year period



Mozaffarian D et al. NEJM; 2011. 364:2392-2404.

Whole Fat Dairy Foods and Obesity: Review of Observational Data

Study	Year	Type	FA marker?	Country	Adiposity
Smedman et al.	1999	Cross-sectional	Yes	Sweden	↓
Pereira et al.	2003	Prospective	No	USA	↓
Phillips et al.	2003	Prospective	No	USA	↔
Rosell et al.	2004	Cross-sectional	Yes	Sweden	↓
Warensjo et al.	2004	Prospective	Yes	Sweden	↓
Barba et al.	2005	Cross-sectional	No	Italy	↓
Berkey et al.	2005	Prospective	No	USA	↔
Rajpathak et al.	2006	Prospective	No	USA	↓
Rosell et al.	2006	Prospective	No	Sweden	↓
Snijder et al.	2007	Cross-sectional	No	Netherlands	↓
Beydoun et al.	2008	Cross-sectional	No	USA	↔
Mozaffarian et al.	2010	Prospective	Yes	USA	↓
Warensjo et al.	2010	Prospective	Yes	Sweden	↓
Duffey et al.	2010	Prospective	No	USA	↔
Te Velde et al.	2011	Retrospective	No	Netherlands	↓
Noel et al.	2011	Prospective	No	England	↓

Kratz M et al.; Eur. J. Nutr. 2013; 52: 1-24

Dietary Guidelines allow flexibility for nutrient-dense foods that contain small amounts of saturated fat within healthy dietary patterns

"Healthy eating patterns can accommodate nutrient-dense foods with small amounts of saturated fats, as long as calories from saturated fats do not exceed 10 percent per day, intake of total fats remains within the AMDR, and total calorie intake remains within limits."

USDA, 2015-2020 Dietary Guidelines for Americans

Summary

- Emerging evidence from population studies and meta-analyses shows that saturated fat consumption is not associated with cardiovascular disease risk
- Dairy foods have a neutral or beneficial association with reduced risk for CVD, Type 2 Diabetes and lower blood pressure in adults
- Emerging research suggests the fat in dairy foods may have unique properties that differentiate it from other food sources of saturated fat
- Some professional organizations have begun to evolve recommendations to deemphasize saturated fat and/or recognize that not all food sources of saturated fat are equal

Summary

- Although the science is evolving, there are still limits to saturated fat consumption in dietary recommendations, with recommendations set at <10% of total calories, in the case of the Dietary Guidelines for Americans

- Whole milk dairy foods can be a part of healthy eating styles outlined by the Dietary Guidelines; be mindful of other food choices to balance saturated fat and calorie intake to stay within recommended amounts

- The research on dairy fat and cardio-metabolic health is unfolding and promising; however, it's important to conduct more research to better understand the link

Fat Flexibility: Enjoying Whole Milk, 2%, 1% and Fat-Free Dairy Foods as Part of a Healthy Eating Pattern

Leslie Bonci, MPH, RDN, CSSD, LDN
Owner, Active Eating Advice by Leslie
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Regardless of Fat Level, Dairy Foods Provide a Powerful Nutrient Package

Cheese*:
6 essential nutrients

Protein

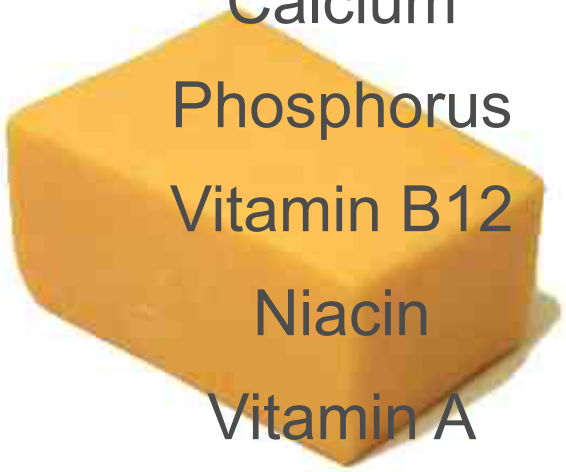
Calcium

Phosphorus

Vitamin B12

Niacin

Vitamin A



Milk:
9 essential nutrients

Protein

Calcium

Vitamin D

Phosphorus

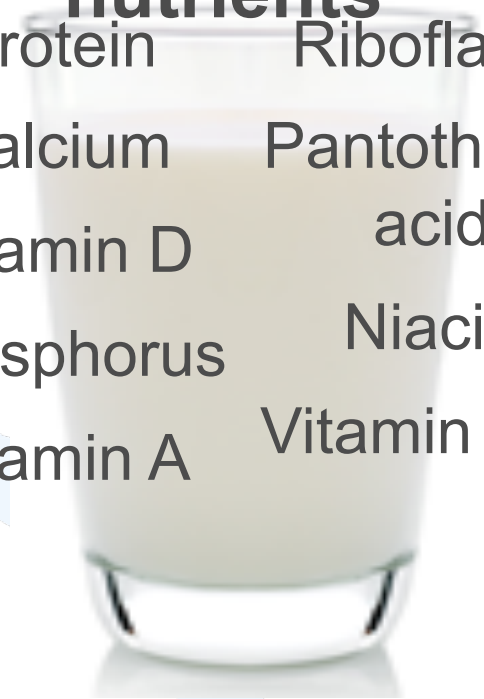
Vitamin A

Riboflavin

Pantothenic acid

Niacin

Vitamin B12



Yogurt:
7 essential nutrients

Protein

Calcium

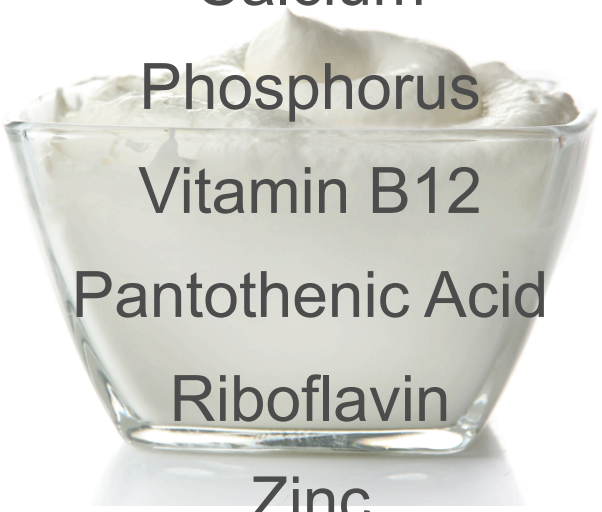
Phosphorus

Vitamin B12

Pantothenic Acid

Riboflavin

Zinc



Nutrients based on USDA Database for Cheddar #01009

Dairy is So Very…

CALCIUM
Helps build and maintain strong bones and teeth

PROTEIN
Helps build and repair muscle tissue

VITAMIN D
Helps build and maintain strong bones and teeth

VITAMIN B_3 (NIACIN)
Used in energy metabolism in the body

VITAMIN A
Helps keep skin and eyes healthy; helps promote growth

VITAMIN B_5 (PANTOTHENIC ACID)
Helps your body use carbohydrates, fats, and protein for fuel

VITAMIN B_{12} (COBALAMIN)
Helps with normal blood functions; helps keep the nervous system healthy

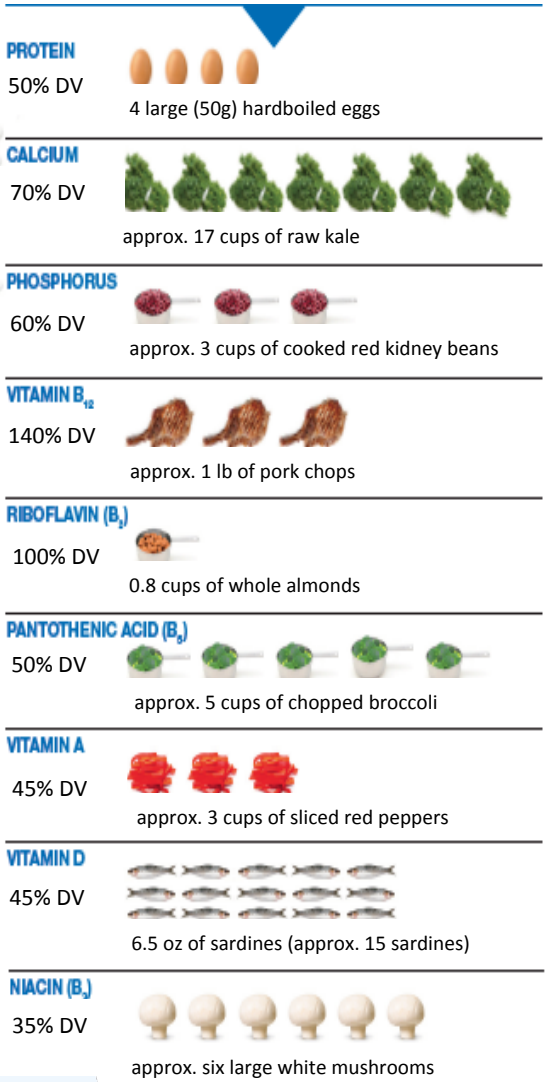
VITAMIN B_2 (RIBOFLAVIN)
Helps your body use carbohydrates, fats, and protein for fuel

PHOSPHORUS
Helps build and maintain strong bones and teeth; supports tissue growth

https://dairygood.org/content/2018/the-importance-of-milks-9-essential-nutrients

3 Servings of Milk Deliver a Unique Nutrient Package

Three servings of milk provide the same level of nutrients found in these foods



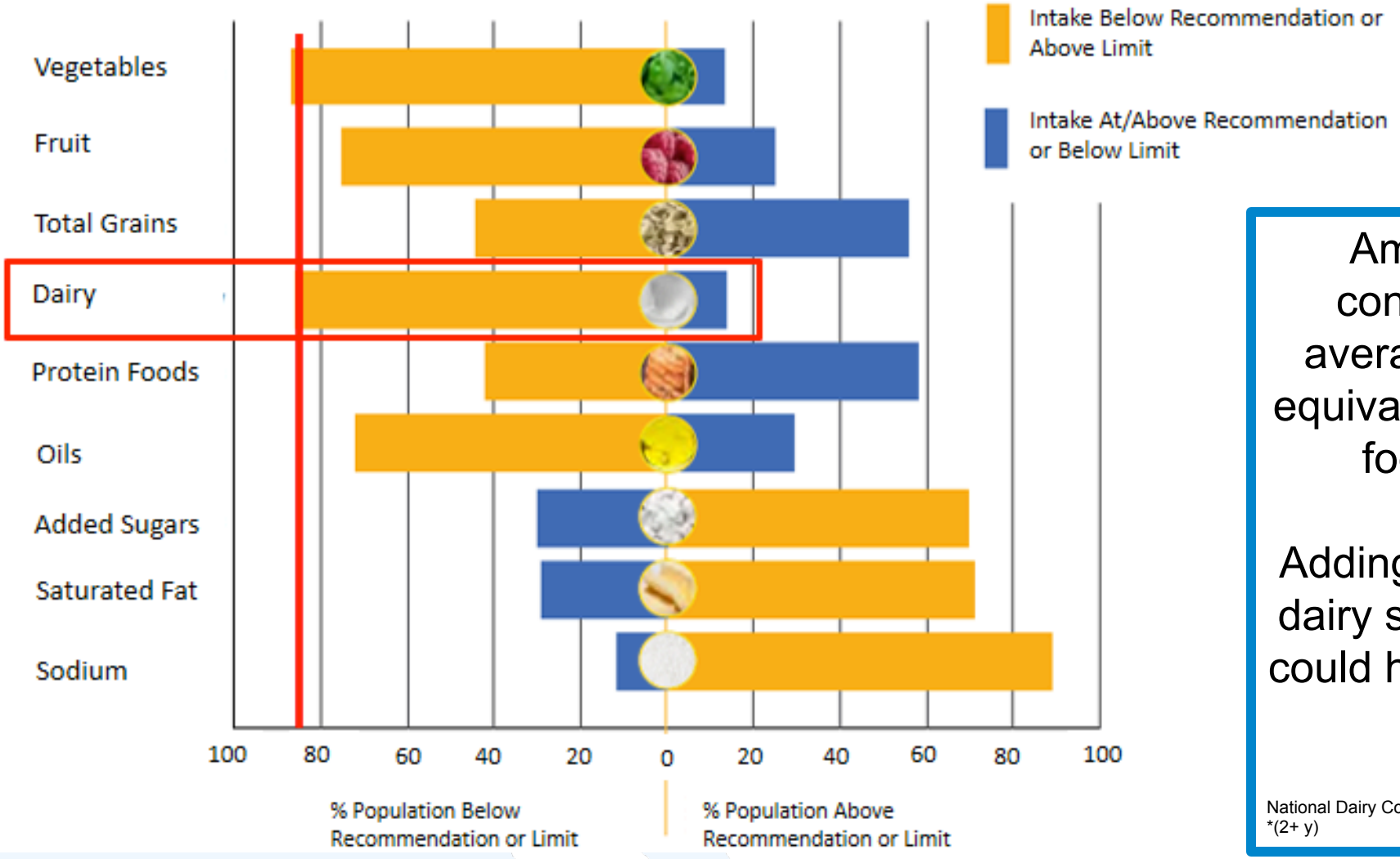
"… the **amount** of many potential alternatives to provide sufficient calcium would provide **too many calories** and/or **be a large amount to consume daily**."

"…**bioavailability** of the calcium in vegetable products has not been addressed and **could pose a concern**."

- 2015 Dietary Guidelines Advisory Committee Report. Appendix E3.6

https://www.nationaldairycouncil.org/content/2018/three-servings-of-milk-deliver-a-unique-nutrient-package

Nearly 9 in 10 Americans Fall Short on Dairy Recommendations



Americans* consume, on average, ≤2 cup equivalents of dairy foods/day.

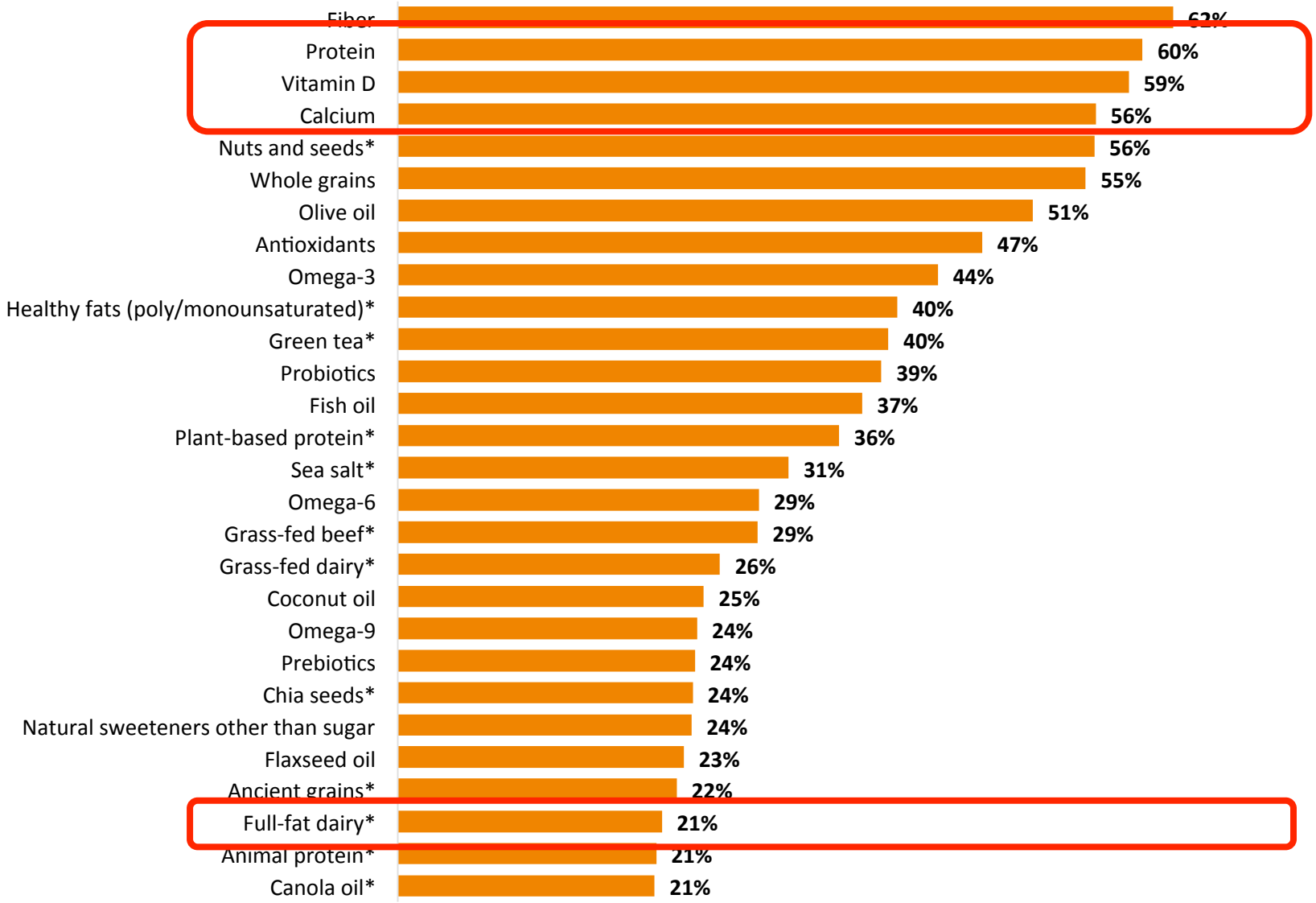
Adding just 1 more dairy serving a day could help close the gap.

National Dairy Council. NHANES 2011-2014.
*(2+ y)

2015-2020 Dietary Guidelines for Americans
Dietary Intakes Compared to Recommendations. Percent of US Population Ages 1 & Older Who Are Below, At or Above Each Dietary Goal

21% of Consumers Say They are Adding or Increasing Full-fat Dairy in Their Diets

Ingredients Adding to Diet

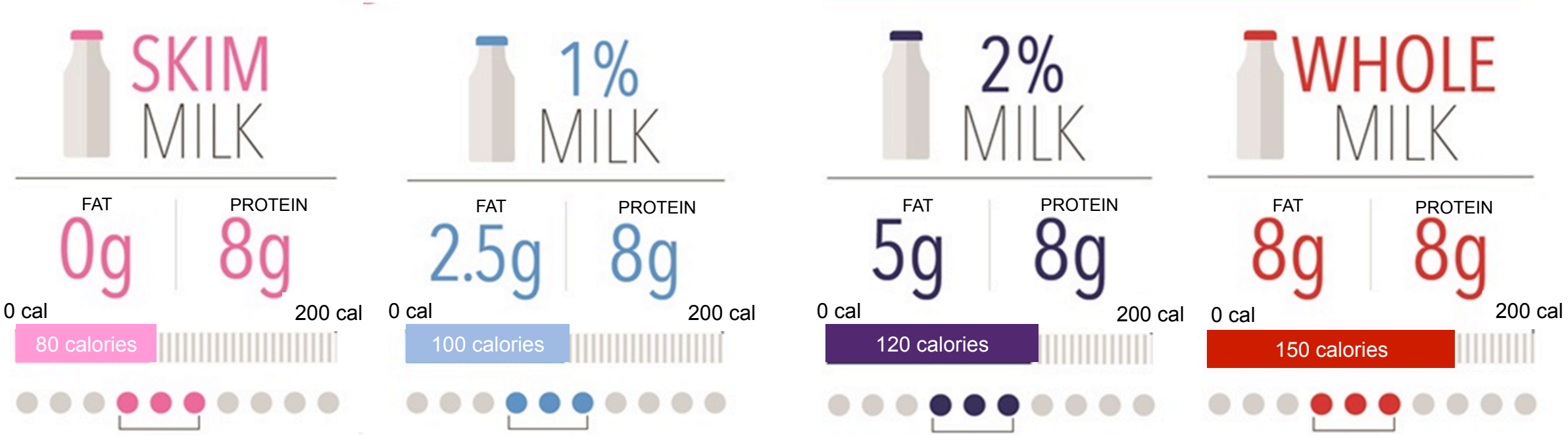


Source: The Hartman Group; Health & Wellness, 2019

Fat Flexibility is the Name of Game

Make your plate great by allocating nutrient-dense foods with saturated fat to stay within 10% of calories/day and recommended calorie limits

What's in Your Pour?



Calcium 30%
Plus 7 other essential nutrients

Calcium 30%
Plus 7 other essential nutrients

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Plus 7 other essential nutrients

Whole fat dairy: A question of calories?

Difference of 70 kcal/serving

70 x 3 servings = 210 kcal/day

Whole Milk
Serving Size 8 fl oz (240mL)
Servings Per Container 2

Amount Per Serving	
Calories 150	Calories from Fat 70
	% Daily Value*
Total Fat 8g	12%
Saturated Fat 5g	25%
Cholesterol 35mg	12%
Sodium 125mg	5%
Total Carbohydrate 12g	4%
Dietary Fiber 0g	0%
Sugars 11g	
Protein 8g	

Skim Milk
Serving Size 8 fl oz (240mL)
Servings Per Container 2

Amount Per Serving	
Calories 80	Calories from Fat 0
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol less than 5mg	1%
Sodium 130mg	5%
Total Carbohydrate 12g	4%
Dietary Fiber 0g	0%
Sugars 11g	
Protein 8g	

SET Yourself Up for Fat Flexibility

To Stay Within Your Calorie & Sat Fat Cap:

Swap less nutritious sources of fat for fuller-fat, nutrient-rich dairy foods

Ensure your snacks stack up

Think about portions

Guiding Clients with a Fat Flexible Approach

Milk

Whole Milk

Dairy Matrix + Taste and Texture Seeker

- Enjoy straight up and cold! (8 oz)
- Blend with berries, veggies or herbs for creamy, refreshing smoothies (4-8 oz)
- Use in place of cream in recipes:
  For every 1 cup of milk, whisk 1 Tbsp all-purpose flour or 2 tsp cornstarch into the milk before cooking
- Temper spicy foods
  (capsaicin binds to fat globules)
- Freeze into cubes and blend with coffee or tea for frappes (~1 oz/2 Tbsp per cube)
- Splash a dash into black coffee

2%, 1% or Skim Milk

Dairy Matrix + Calorie Conserver

- Wise choice if milk as a beverage is your go-to choice for 3 servings/day (8 oz/svg)
- Smart default for lighter smoothies
- Make the most out of oatmeal by cooking with milk vs water (¼ cup)
- Perfect pour for cold cereal or granola
- Incorporate into a sauce or soup
- Fond of foam? 2%, 1% and skim are great options for lattes and cappuccinos

Yogurt

Whole Milk Yogurt

Dairy Matrix + Taste and Texture Seeker

Creamy Texture + Lactose Friendly + Lactic Acid

- Thin with lemon juice or balsamic vinegar to make a salad dressing (2 Tbsp)
- Think tzatziki or raita: Mix with herbs, spices and aromatics to make a savory dip for veggies or whole grain pitas (¼ – ½ cup)
- Blend with fruit for a breakfast smoothie or snack (6-8 oz)
- Add a dollop to lend creamy texture to vegetarian stews
- Temper spicy foods
  (capsaicin binds to fat globules)

2%, 1% or Fat-Free Yogurt

Dairy Matrix + Calorie Conserver

Creamy Texture + Lactose Friendly + Lactic Acid

- Marinate meat, poultry or fish
  (lactic acid tenderizes)
- Masquerade as mayonnaise
- Freeze for creamy, dreamy dessert
- Ease up an Alfredo
- Use as sour cream replacement to top potatoes, tacos or fajitas, stir into in a stroganoff or create a delicious dip
- Go Greek: Thicker texture & a protein boost

Cheese

Whole Milk Cheeses

Dairy Matrix + Taste and Melt Lover

- Pair flavorful cheeses, like cheddar and Gouda, with sweet, yet mild fruits, like apples, pears and figs
- Shred and sprinkle hard cheeses on veggie pizza, veggie burger, pasta primavera or beans and rice
- Sprinkle flavorful cheeses, like Blue, on a bed of spinach and berries

Reduced-Fat or Part-Skim Cheeses

Dairy Matrix + Calorie Conserver

- Pair with other healthy fats – think part-skim mozzarella sticks with almonds for an on-the-go snack
- Stir up a creamy, light quiche with low-fat Swiss and evaporated skim milk
- Lighten up macaroni and cheese with shredded reduced-fat cheddar and cauliflower
- Top a tasty pizza with part-skim mozzarella or low-fat provolone and favorite vegetables
- Spread a thin layer of whipped cottage cheese on whole grain bread and top with sliced strawberries for a delicious breakfast

Fat Flexing for a Delicious Day

Breakfast

Overnight Oats:
½ cup rolled oats, **½ cup reduced-fat plain Greek yogurt**, 2 Tbsp slivered almonds, ½ cup sliced strawberries, ½ cup sliced banana

Lunch

Portobello Mushroom Sandwich
1 grilled Portobello mushroom cap, whole wheat pita pocket, **1.5 ounces of cow's milk feta cheese,** ½ cup of hummus**,** sliced tomato, a handful of spinach and an orange on the side

Afternoon Snack

1.5 Tbsp peanut butter on an apple

Dinner

Pasta Caprese
1 cup of pasta, 1 cup zucchini noodles, ½ cup sliced grape tomatoes, **1.5 ounces of bocconcini,** ½ cup shrimp, 1 Tbsp pesto

Evening Snack

Popsicle made with **½ cup 2% milk** and ¼ cup frozen berries

Dairy is So Very…

- Delicious
- Nutritious
- Convenient
- Easy
- Ready to use
- A go-to or go-with
- Heightens the flavor of foods we savor
- Enjoyable
- No waste with fabulous taste
- Choose the dairy foods you enjoy

Fat Flexibility Gives More Options for Enjoying Dairy Foods as Part of Healthy Eating Patterns

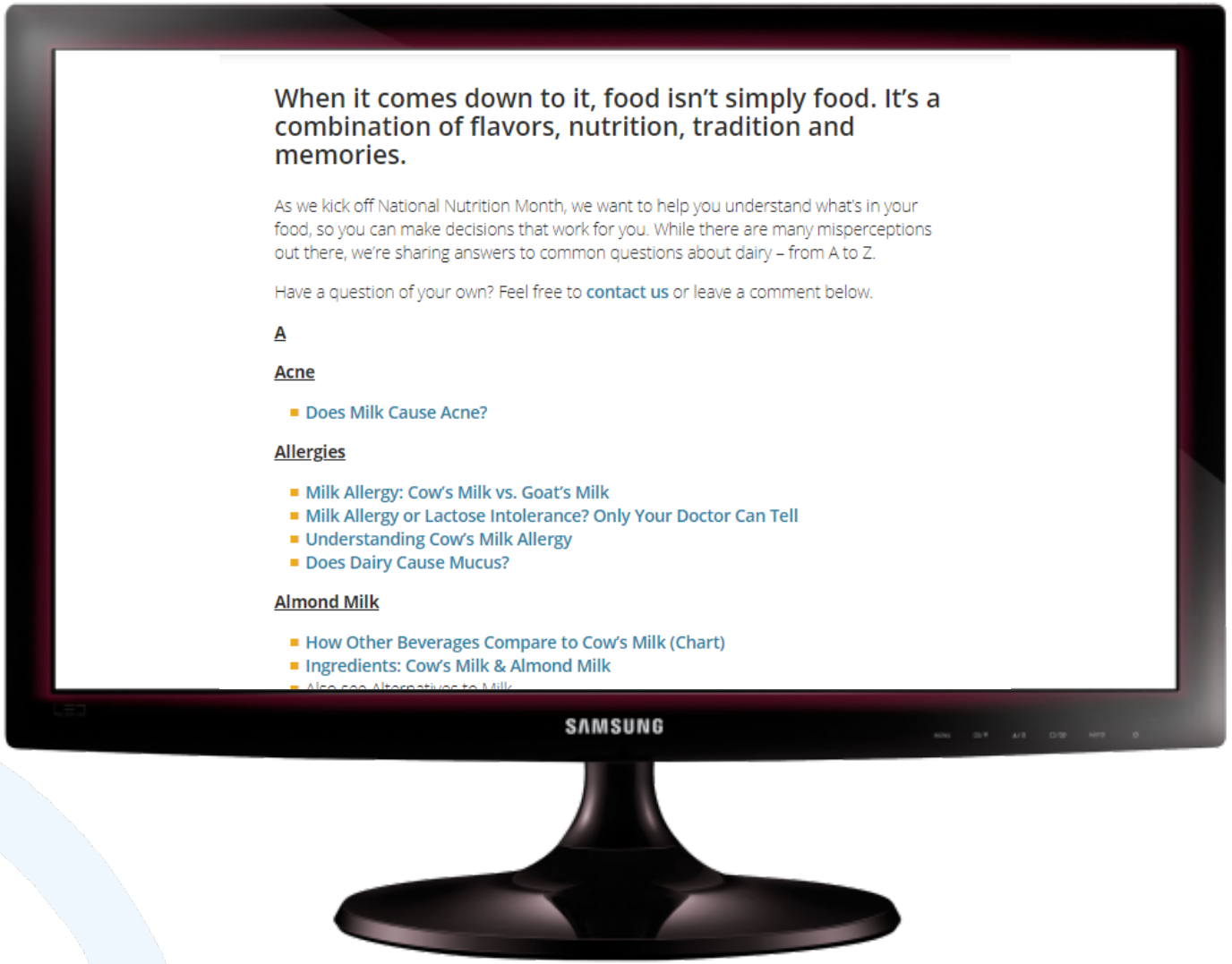
- Dairy foods - of all fat levels - offer a unique nutrient package
- Whole milk and whole milk dairy foods can fit into a healthy eating pattern
  - Consider reducing less nutrient-rich sources of fat in the diet for fuller-fat, nutrient-rich dairy foods to stay within recommended calorie and saturated fat limits
- Choosing dairy foods across the fat spectrum provides variety, satiety and creativity to the palate and the plate
- When choosing among dairy foods with varying fat content, consider:
  - ❑ taste
  - ❑ texture
  - ❑ mouthfeel
  - ❑ palatability
  - ❑ personal preferences
  - ❑ function in recipes or meals

Enjoy a flexible approach to create delicious, nourishing meals and snacks!

Host of Resources on www.nationaldairycouncil.org

10+ Science Summaries

Recipes

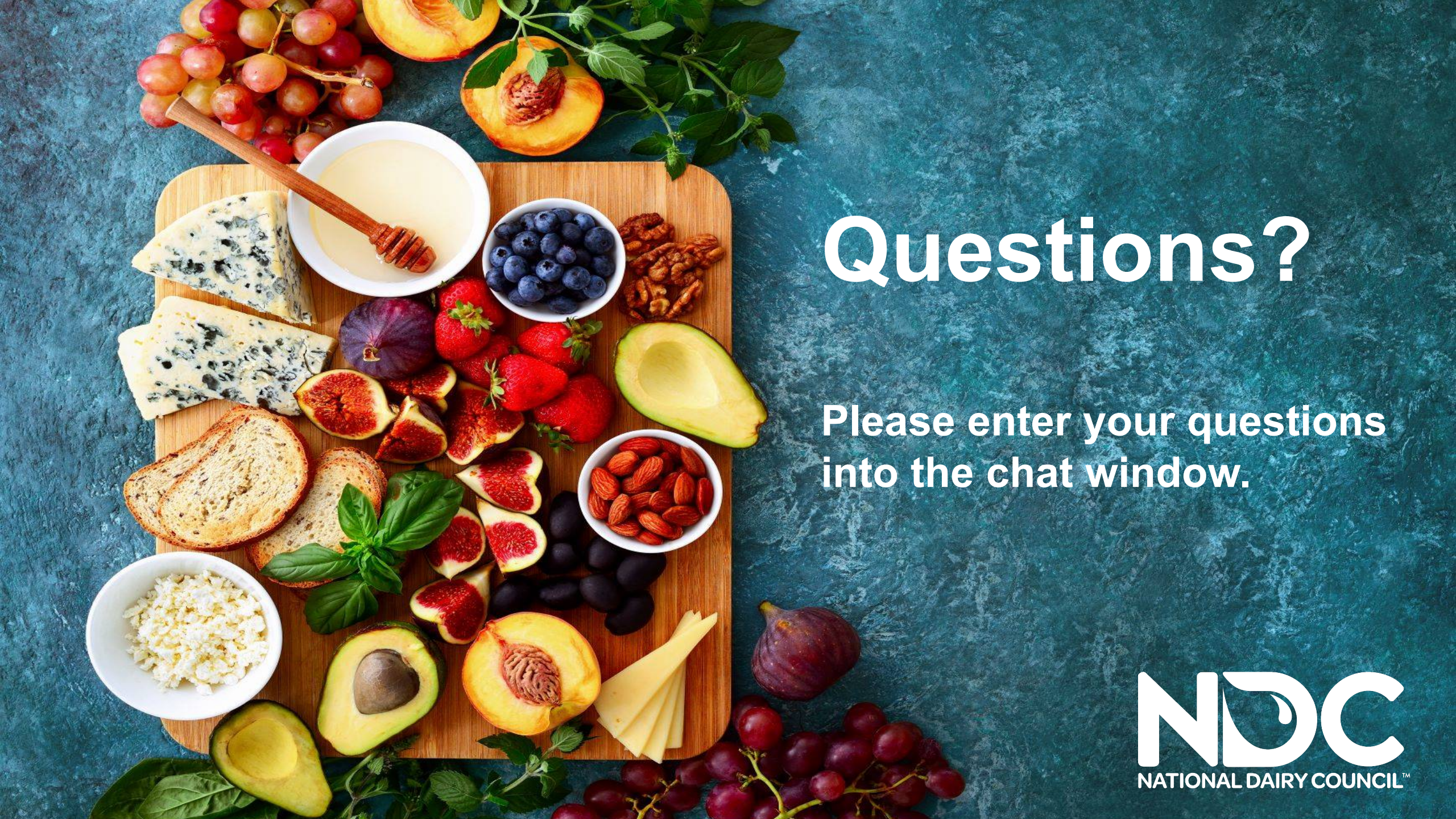


Dairy Nourishes Network Members receive:

- Quarterly updates
- Advance notice of webinars
- Recipe ideas/meal tips
- Engaging contests
- Opportunities to be highlighted on NDC's social
- In-person educational and networking events

Dairy Nourishes
NETWORK

To join,
visit NationalDairyCouncil.org


Questions?
Please enter your questions into the chat window.
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