

CULINARY NUTRITION FOR HEART HEALTH:

From Science to Plate



Looking for a copy of the slides?

- Check reminder email
- They'll also be in the follow-up email

Will this be recorded?

- Yes!
- The recording & slides will be on USDairy.com within a week

Questions?

- Drop it in the Q&A
- We'll do our best to address as many as we can at the end

Where's my CPEU certificate?

- Will be emailed in the follow-up email within 24 hours

This webinar was approved by CDR for 1 CEU.

Application for CME credit has been filed with the American Academy of Family Physicians. Determination of credit is pending.

Culinary Nutrition for Heart Health

From Science to Plate



Today's Speaker



Amy Myrdal Miller, MS, RDN, FAND

Founder and President, Farmer's Daughter Consulting

Author, *Cooking à la Heart: 500 Easy and Delicious Recipes for Heart-Conscious, Healthy Meal*

Disclosures

Speaker

- Amy Myrdal Miller, MS, RDN, FAND
 - Speaker honorarium
 - All disclosures outlined in her presentation

National Dairy Council Planning Team

- Megan Maisano, MS, RDN: Director, Nutrition & Regulatory Affairs
- Sally Cummins, MS, RD: VP, Nutrition Affairs
- Kerry Hackworth, MS, RD: Director, Nutrition Affairs
- Erin Coffield, RD, LDN, VP, Communications – Health & Wellness

This webinar has been sponsored and approved for continuing education through CDR by National Dairy Council. Credentialed professionals can submit feedback about the quality of this activity directly to the Commission on Dietetic Registration: QualityCPE@eatright.org

Background



Heart disease is the leading cause of death in the U.S.

**Every 33
seconds**

an American dies
from cardiovascular
disease (CVD)¹

1 in 5

U.S. deaths in 2021
was due to CVD¹

~49%

of U.S. adults aged 20
and over have an
indicator of CVD²



1. CDC. [Heart Disease Facts](#). 2023.
2. AHA. [Heart Disease and Stroke Statistics—2023 Update: A Report From the American Heart Association](#). *Circulation* 2023, 147:e93-e621.

Nutrition plays a significant role in risk reduction

Influencing 5 of “Life’s Essential 8”



Americans are seeking heart health benefits from food

But there's room for improvement

Top Benefits Sought from Food¹

1. Energy (40%)
2. Weight management (39%)
3. Healthy aging (34%)
4. Digestive health (32%)
5. Heart/Cardiovascular health (30%)

Percentage of Americans *not* meeting recommendations²



98% whole grains



90% vegetables



90% dairy foods



80% fruit

These foods have “strong” evidence for lower risk of CVD as part of healthy diets³

1. IFIC. [2023 Food and Health Survey](#). 2023
2. USDA and USDHHS. [Dietary Guidelines for Americans](#), 2020-2025. 9th Edition.

3. USDA, ARS. Dietary Guidelines Advisory Committee. [Scientific Report of the 2020 Dietary Guidelines Advisory Committee](#). 2020.

How can we as health professionals help support our patients and clients with evidence-based advice?

DASH

Vegan

Paleo

Pescetarian

Further contributing to consumer misunderstanding is the proliferation of popular diet books, blogs, as well as clinicians with limited understanding of what the dietary patterns entail and the evidence base for promoting cardiometabolic health.

AHA Statement, 2023

Low-fat

Low-Carb

Keto

Mediterranean

Culinary Nutrition for Heart Health: *From Science to Plate*



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EDUCATION

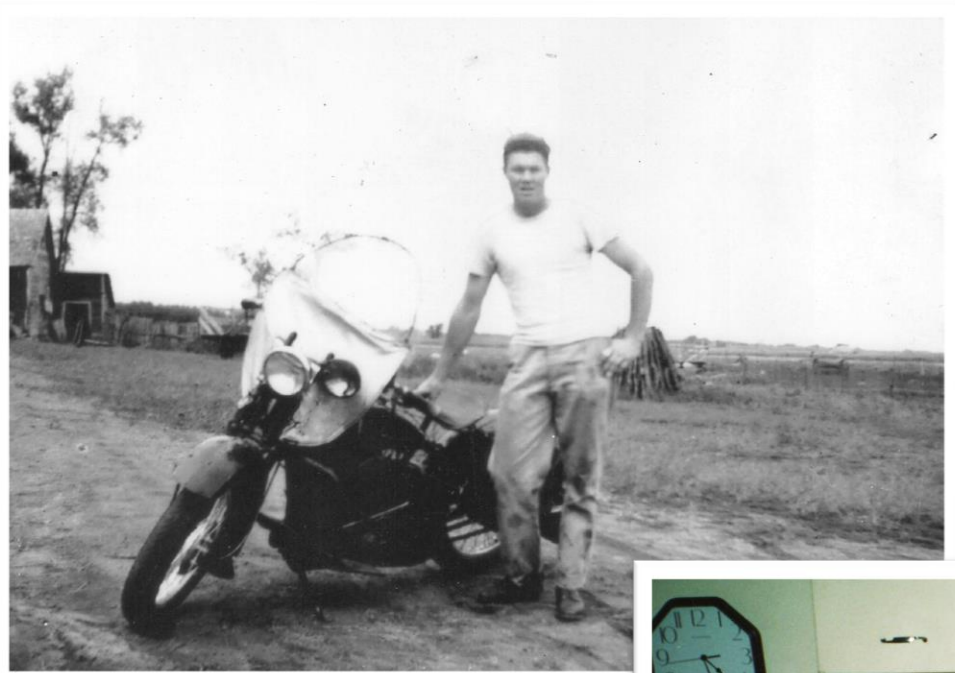
- B.S. in Dietetics, University of California Davis
- Dietetic Internship, University of Minnesota Hospital & Clinics
- M.S. in Nutrition Communication, Tufts University Friedman School of Nutrition Science & Policy

EMPLOYMENT HISTORY

- Fleishman Hillard
- Rippe Lifestyle Institute
- Dole Food Company
- California Walnut Board & Commission
- The Culinary Institute of America

Financial Disclosures

- Bayer Crop Science – *Nutrition Expert Network Member*
- Bayer Vegetable Seeds – *Horticultural Advisory Council Member*
- Beef Checkoff/ National Cattlemen’s Beef Association – *honoraria for speaking, consultant*
- Buy California Marketing Agreement / CA GROWN® – *contractor*
- California Beef Council – *honoraria for speaking, consultant*
- California Milk Advisory Board - *consultant*
- California Olive Oil Council – *consultant*
- California Strawberry Commission – *honoraria for speaking, travel expenses*
- Duda Farm Fresh Foods, Inc. – *consultant*
- HZPC Americas Corp. / Potato Glory™ – *consultant*
- **National Dairy Council** – *Ambassador, consultant, honoraria for speaking, travel expenses*
- Pacific Northwest Canned Pear Service – *consultant*
- Phoenix Media Network / Produce Business Magazine – *columnist, honoraria for speaking, travel expenses*
- Potatoes USA - *consultant*
- Produce for Better Health – *consultant*
- Texas A&M AgriLife Institute for Advancing Health Through Agriculture – *External Advisory Board Member*
- Western United Dairies - *consultant*



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DAUGHTER™
CONSULTING**

Inspired by Farmers, Flavor & Fun!

Learning Objectives

After attending this session participants will be able to:

1. Describe **eating patterns** that promote cardiovascular wellness, including the Mediterranean Diet and the PURE Healthy Eating Index.
2. Discuss **culinary nutrition principles and practices** that promote cardiovascular wellness as well as enjoyment.
3. Identify **specific ingredients** that provide benefits related to cardiovascular outcomes, nutrition, affordability, and convenience.
4. Address **consumer questions** about dairy product-specific myths and misinformation that may hinder a person's ability to make choices that promote cardiovascular wellness.



Suggested Practice Competencies

- 4.1.2 Interprets and integrates evidence-based research and literature in decision-making.
- 8.5.4 Takes into consideration client/patient choices, beliefs, food sensitivities, allergies, and accessibility and affordability of food.
- 12.1.1 Advocates for and promotes food and nutrition programs and resources to address issues of food insecurity, nutritional health and overall health and wellness.



The Science & Cultures of Eating Patterns That Promote Health

There is no single dietary pattern best suited to every person, but **there are traits common among eating patterns** from around the world that predict better health outcomes.

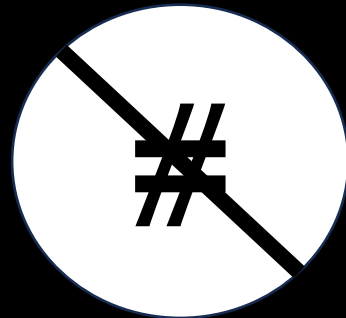
EATING PATTERNS & TRAITS	Mediterranean-Style Eating Pattern ¹	D.A.S.H. Diet ² <i>Dietary Approaches to Stop Hypertension</i>	M.I.N.D. Diet ³ <i>Mediterranean-DASH Intervention for Neurodegenerative Delay</i>	Okinawan-Style Eating Pattern ⁴
Associated with...	<ul style="list-style-type: none"> Reduced risk of CVD Improved cognitive health 	<ul style="list-style-type: none"> Lower BP Lower triglycerides Lower VLDL 	<ul style="list-style-type: none"> Reduced risk of CVD Reduced risk of dementia & cognitive decline 	<ul style="list-style-type: none"> Healthy aging Longevity
Designed by...	<ul style="list-style-type: none"> CULTURE 	<ul style="list-style-type: none"> RESEARCHERS 	<ul style="list-style-type: none"> RESEARCHERS 	<ul style="list-style-type: none"> CULTURE
Foods Associated with Eating Pattern	<ul style="list-style-type: none"> Fruits Vegetables Legumes Fermented Dairy Foods Nuts & Seeds Extra Virgin Olive Oil Seafood 	<ul style="list-style-type: none"> Fruits Vegetables Legumes > beans Dairy Foods 	<ul style="list-style-type: none"> Berries Vegetables (particularly, green leafy vegetables) Extra-virgin olive oil Nuts Whole grains Low-fat sources of protein 	<ul style="list-style-type: none"> Vegetables: sea vegetables Legumes: soy and lentils Fish
Carbohydrate (% calories)	43%	55%		85%
Protein (% calories)	15%	18%		9%
Total Fat (% calories)	37%	27%		6%
Saturated Fat (% calories)	9%	6%		2%
Sodium (mg/day)	--	2,300 mg		1,115 mg
Potassium (mg/day)	~3,600 mg	4,700 mg		5,200 mg

SOURCES:

- Davis C, et al. [Definition of the Mediterranean Diet; A Literature Review](https://doi.org/10.3390/nu7115459). *Nutrients*. 2015; 7(11):9139-9153. <https://doi.org/10.3390/nu7115459>
- Onwuzo et al. [DASH Diet: A Review of Its Scientifically Proven Hypertension Reduction and Health Benefits](https://doi.org/10.7759/cureus.44692). *Cureus*. 2023 Sep 4;15(9):e44692. doi: 10.7759/cureus.44692.
- Xiaoran L, et al. [Mediterranean-DASH Intervention for Neurodegenerative Delay \(MIND\) study: Rationale, design and baseline characteristics of a randomized control trial of the MIND diet on cognitive decline](https://doi.org/10.1016/j.cct.2021.106270), *Contemporary Clinical Trials*, Volume 102, 2021, 106270, ISSN 1551-7144, <https://doi.org/10.1016/j.cct.2021.106270>
- Willcox DC, et al. [Healthy aging diets other than the Mediterranean: a focus on the Okinawan diet](https://doi.org/10.1016/j.mad.2014.01.002). *Mech Ageing Dev*. 2014;136-137:148-162. doi:10.1016/j.mad.2014.01.002

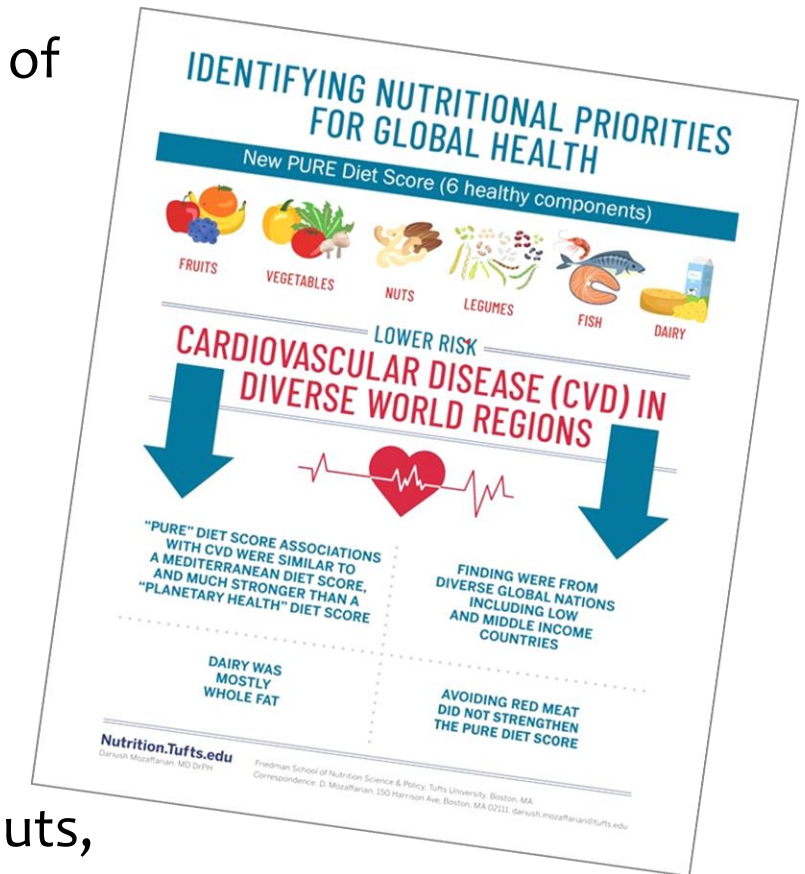
WARNING!

Be wary of reductionist nutrition.



What is “the best” eating pattern?

- The PURE Healthy Eating Index is based on data from studies of 245,000 people from 80 countries.
- The PURE “healthiest” dietary pattern includes:
 - ✓ **5 servings per day of fruits and vegetables**
 - ✓ **2 servings per day of dairy foods (1.4 servings per day from whole-fat dairy)**
 - ✓ **1.2 servings per day of nuts**
 - ✓ **0.5 servings per day of legumes**
 - ✓ **0.3 servings per day of fish**
- A dietary pattern with higher amounts of fruits, vegetables, nuts, legumes, fish and dairy foods (mostly whole milk dairy foods) was associated with lower risk of CVD and mortality in all world regions, especially in lower income countries.



SOURCES: (1) Mente A, et al. [Diet, cardiovascular disease, and mortality in 80 countries](#). *European Heart Journal*, Volume 44, Issue 28, 21 July 2023, pages 2560–2579.

(2) Mozaffarian D. [Identifying nutritional priorities for global health: time for a more PURE focus on protective foods](#). *European Heart Journal*, Volume 44, Issue 28, 21 July 2023, pages 2580–2582.

Important Points from the PURE Study

1

PURE Diet Score associations with CVD were similar to a Mediterranean Diet Score, and much stronger than a Planetary Health Diet Score.

2

Findings were from diverse global nations including low- and middle-income countries.

3

Dairy was mostly full fat dairy.

4

Avoiding red meat did not strengthen the PURE Diet Score.

Healthful dietary patterns
do not have to be low in total fat.



ORIGINAL ARTICLE

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

Ramón Estruch, M.D., Ph.D., Emilio Ros, M.D., Ph.D., Jordi Salas-Salvadó, M.D., Ph.D., Maria-Isabel Covas, D.Pharm., Ph.D., Dolores Corella, D.Pharm., Ph.D., Fernando Arós, M.D., Ph.D., Enrique Gómez-Gracia, M.D., Ph.D., Valentina Ruiz-Gutiérrez, Ph.D., Miquel Fiol, M.D., Ph.D., José Lapetra, M.D., Ph.D., Rosa M. Lamuela-Raventos, D.Pharm., Ph.D., Lluís Serra-Majem, M.D., Ph.D., [et al.](#), for the PREDIMED Study Investigators*

[Article](#) [Figures/Media](#)

[Metrics](#)

June 21, 2018

N Engl J Med 2018; 378:e34

DOI: 10.1056/NEJMoa1800389

Chinese Translation [中文翻译](#)

[33](#) References [1659](#) Citing Articles [Letters](#)

Table 1. Summary of Dietary Recommendations to Participants in the Mediterranean-Diet Groups and the Control-Diet Group.

Food	Goal
Mediterranean diet	
Recommended	
Olive oil*	≥4 tbsp/day
Tree nuts and peanuts†	≥3 servings/wk
Fresh fruits	≥3 servings/day
Vegetables	≥2 servings/day
Fish (especially fatty fish), seafood	≥3 servings/wk
Legumes	≥3 servings/wk
Sofrito‡	≥2 servings/wk
White meat	Instead of red meat
Wine with meals (optionally, only for habitual drinkers)	≥7 glasses/wk
Discouraged	
Soda drinks	<1 drink/day
Commercial bakery goods, sweets, and pastries§	<2 servings/wk
Spread fats	<1 serving/day
Red and processed meats	<1 serving/day
Low-fat diet (control)¶	
Recommended	
Low-fat dairy products	≥3 servings/day
Bread, potatoes, pasta, rice	≥3 servings/day
Fresh fruits	≥3 servings/day
Vegetables	≥2 servings/day
Lean fish and seafood	≥3 servings/wk
Discouraged	
Vegetable oils (including olive oil)	≤2 tbsp/day
Commercial bakery goods, sweets, and pastries§	≤1 serving/wk
Nuts and fried snacks	≤1 serving/wk
Red and processed fatty meats	≤1 serving/wk
Visible fat in meats and soups	Always remove
Fatty fish, seafood canned in oil	≤1 serving/wk
Spread fats	≤1 serving/wk
Sofrito‡	≤2 servings/wk



Table 2. Baseline Characteristics of the Participants, According to Intervention Group.*

Characteristic	Mediterranean Diet with EVOO (N=2543)	Mediterranean Diet with Nuts (N=2454)	Control Diet (N=2450)
Female sex — no. (%)†	1493 (58.7)	1326 (54.0)	1463 (59.7)
Age — yr†	67.0±6.2	66.7±6.1	67.3±6.3
Race or ethnic group — no. (%)‡			
White, from Europe	2470 (97.1)	2390 (97.4)	2375 (96.9)
Hispanic, from Central or South America	35 (1.4)	29 (1.2)	38 (1.6)
Other	38 (1.5)	35 (1.4)	37 (1.5)
Smoking status — no. (%)			
Never smoked	1572 (61.8)	1465 (59.7)	1527 (62.3)
Former smoker	618 (24.3)	634 (25.8)	584 (23.8)
Current smoker	353 (13.9)	355 (14.5)	339 (13.8)
Body-mass index†§	29.9±3.7	29.7±3.8	30.2±4.0
Waist circumference — cm	100±10	100±10	101±11
Waist-to-height ratio†¶	0.63±0.06	0.63±0.06	0.63±0.07
Hypertension — no. (%)	2088 (82.1)	2024 (82.5)	2050 (83.7)
Type 2 diabetes — no. (%)†**	1282 (50.4)	1143 (46.6)	1189 (48.5)
Dyslipidemia — no. (%)††	1821 (71.6)	1799 (73.3)	1763 (72.0)
Family history of premature CHD — no. (%)‡‡	576 (22.7)	532 (21.7)	560 (22.9)
Medication use — no. (%)			
ACE inhibitors	1236 (48.6)	1223 (49.8)	1216 (49.6)
Diuretics†	534 (21.0)	477 (19.4)	562 (22.9)
Other antihypertensive agents	725 (28.5)	710 (28.9)	758 (30.9)
Statins	1039 (40.9)	964 (39.3)	983 (40.1)
Other lipid-lowering agents	121 (4.8)	145 (5.9)	126 (5.1)
Insulin	124 (4.9)	126 (5.1)	134 (5.5)
Oral hypoglycemic agents†	768 (30.2)	680 (27.7)	757 (30.9)
Antiplatelet therapy	475 (18.7)	490 (20.0)	513 (20.9)
Hormone-replacement therapy§§	42 (2.8)	35 (2.6)	39 (2.7)

1 ounce
(2 tablespoons)
240 calories
27 grams fat
+ phenolic
compounds



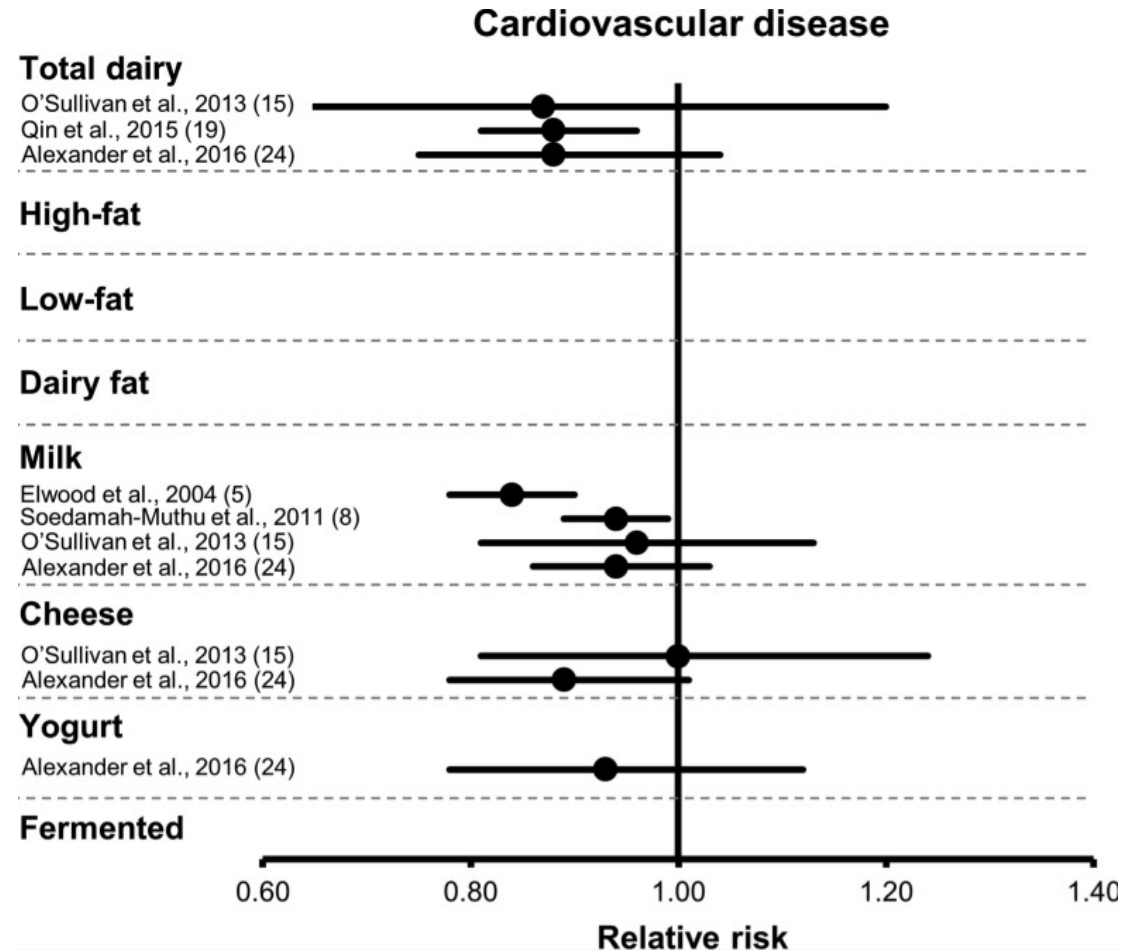
**4 grams
saturated
fat**

1 ounce
(3 tablespoons)
95 calories
8 grams fat
+ protein, calcium,
potassium, bioactive
compounds, and
more



**5 grams
saturated
fat**

What is the relationship between full-fat dairy and cardiovascular disease risk?



SOURCE: Drouin-Chartier JP, et al. [Systematic Review of the Association between Dairy Product Consumption and Risk of Cardiovascular-Related Clinical Outcomes](#). Adv Nutr. 2016 Nov 15;7(6):1026-1040. doi: 10.3945/an.115.011403. PMID: 28140321; PMCID: PMC5105032.

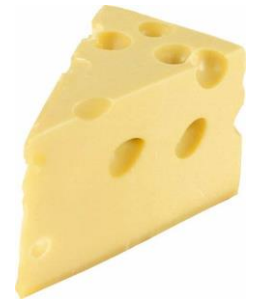
Can full-fat dairy reduce risk of heart disease and Type 2 diabetes?

- A systematic review of meta-analyses of prospective population studies associating dairy consumption with cardiovascular disease (CVD), coronary artery disease (CAD), stroke, hypertension, metabolic syndrome (MetS), and type 2 diabetes.
- **Full-fat dairy had no impact on the risk of heart disease.**
- Certain full-fat dairy choices—including yogurt and cheese—may protect against heart disease and type 2 diabetes.



What is the relationship between full-fat dairy, cholesterol, and blood pressure?

- RCT, 72 participants with metabolic syndrome
- 4-wk run-in period, dairy intake limited to ≤ 3 servings/week of nonfat milk
- Randomly assigned to 1 of 3 diets:
 1. **Control Diet:** ≤ 3 servings/week of nonfat milk for 12 weeks
 2. **Low-fat Dairy Diet:** 3.3 servings/day of low-fat milk, yogurt, and cheese for 12 weeks
 3. **Full-fat Dairy Diet:** 3.3 servings/day of full-fat milk, yogurt, and cheese for 12 weeks
- Full-fat dairy diet had no effects on fasting lipid profile or blood pressure compared with diets limited in dairy or rich in low-fat dairy.
- Dairy fat, **when consumed as part of whole foods with a complex matrix**, does not adversely impact classic CVD risk factors.

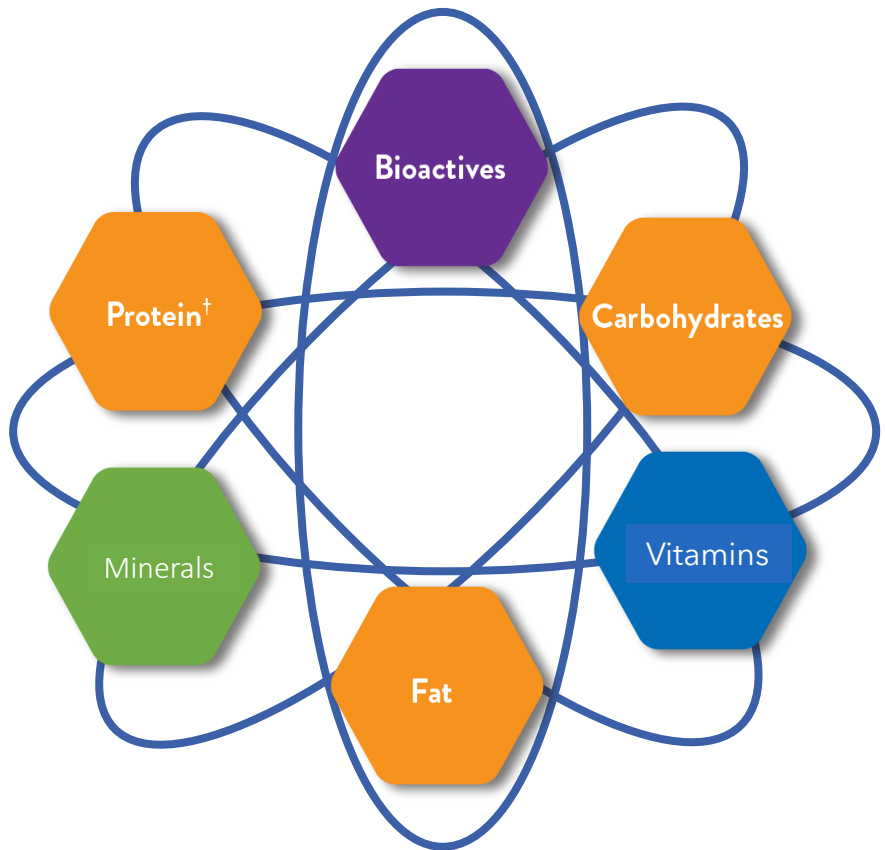


The Food Matrix

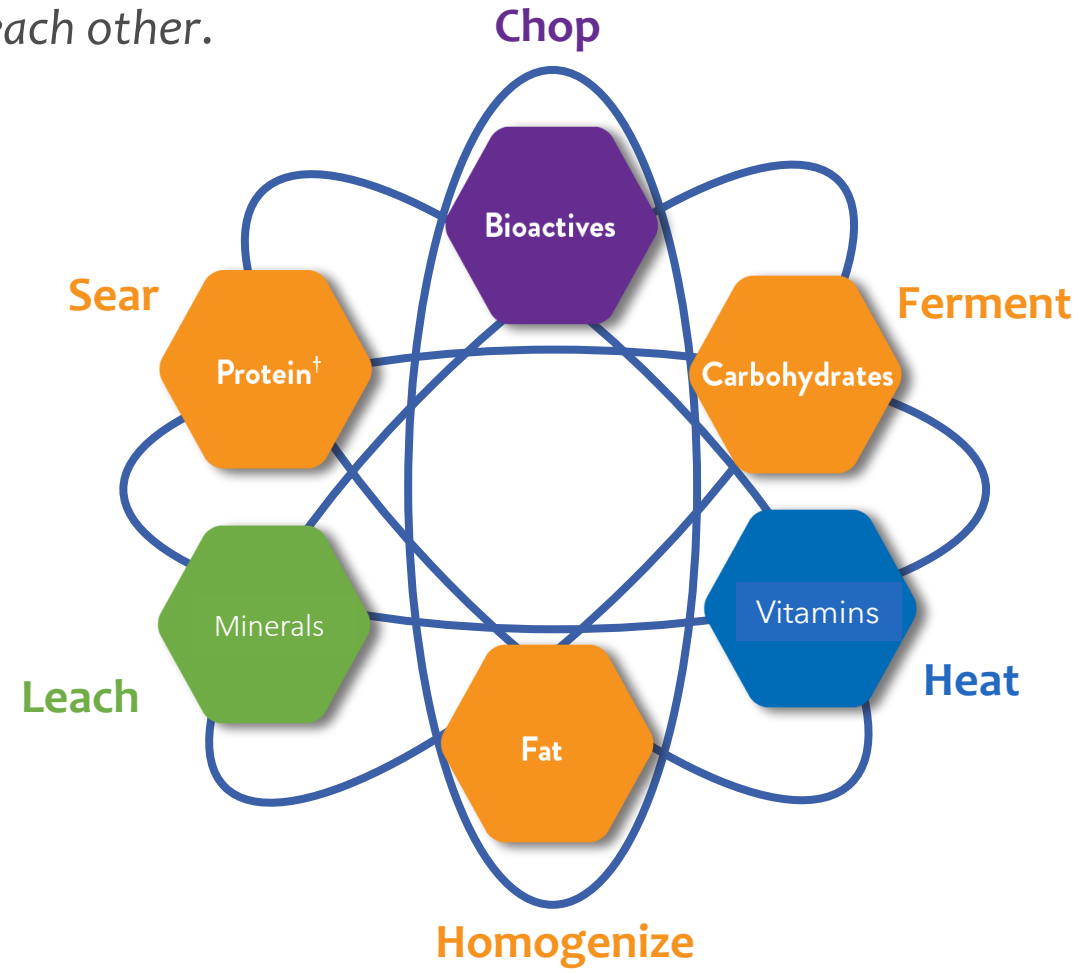
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The nutrient and non-nutrient components of foods and their molecular relationships (i.e., chemical bonds) to each other.

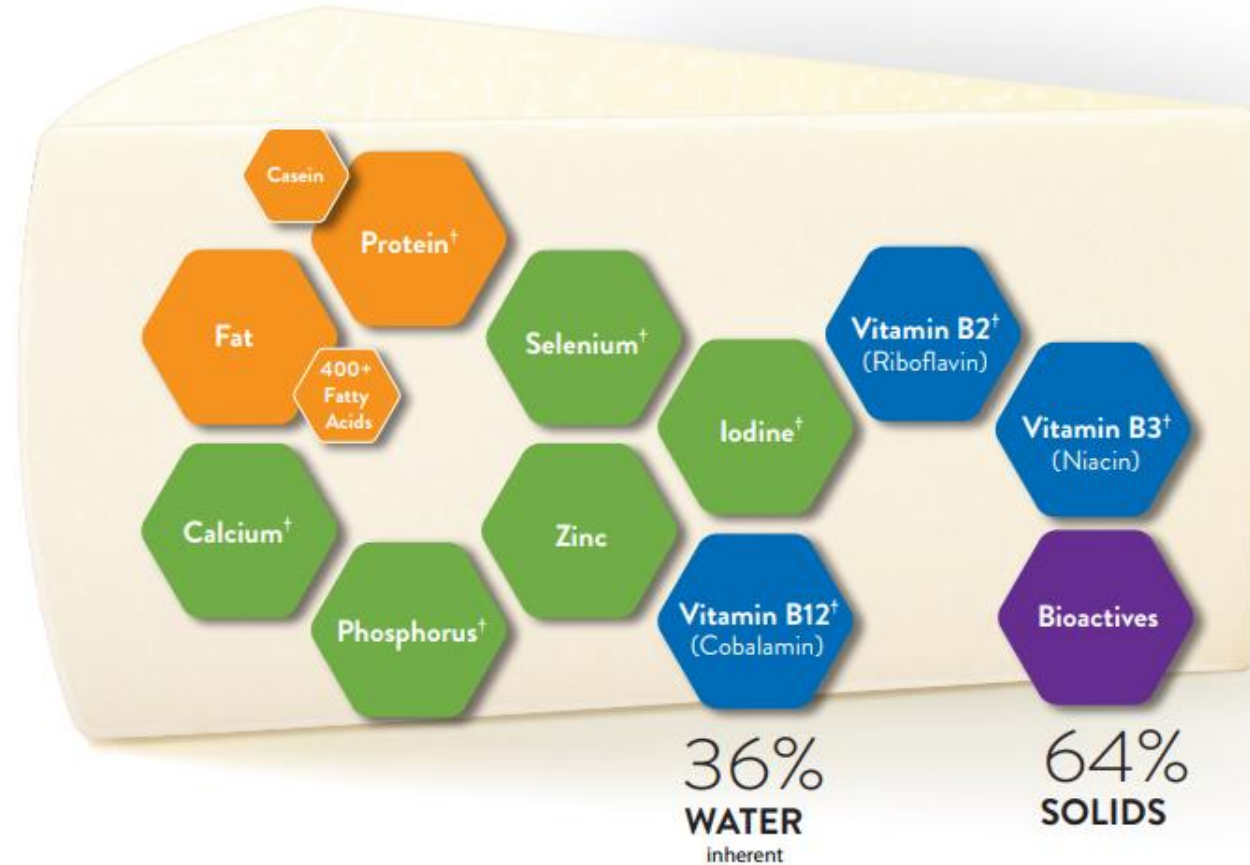
-USDA



The Food Matrix Transformation



The Cheese Matrix



- Macronutrients
- Minerals
- Vitamins
- Bioactives

⁺ Cheese is a good or excellent source of 8 essential nutrients

Cheese Consumption & Health Effects

- Umbrella review of prospective studies on the diverse health effects of cheese consumption
- Cheese consumption was inversely correlated (highest compared with lowest category) with:
 - **all-cause mortality** (RR ¼ 0.95; 95% CI: 0.92, 0.99)
 - **cardiovascular mortality** (RR ¼ 0.93; 95% CI: 0.88, 0.99)
 - **incident cardiovascular disease (CVD)** (RR ¼ 0.92; 95% CI: 0.89, 0.96)
 - **coronary heart disease (CHD)** (RR ¼ 0.92; 95% CI: 0.86, 0.98)
 - **stroke** (RR ¼ 0.93; 95% CI: 0.89, 0.98)
 - **estrogen receptor-negative (ER) breast cancer** (RR ¼ 0.89; 95% CI: 0.82, 0.97)
 - **type 2 diabetes** (RR ¼ 0.93; 95% CI: 0.88, 0.98)
 - **total fracture** (RR ¼ 0.90; 95% CI: 0.86, 0.95)
 - and **dementia** (RR ¼ 0.81; 95% CI: 0.66, 0.99)
- **Bottomline? These findings suggest that cheese consumption (~ 1 – 1 ½ oz/day) has neutral to moderate benefits for human health.**





Cheese Pizza with Mozzarella, Ricotta, and Parmesan Cheese

What should we be telling patients and clients about full-fat dairy foods?

Whole milk, yogurt, and cheese do not increase your risk of cardiovascular disease.

Whole milk, yogurt, and cheese may reduce your risk of developing Type 2 diabetes.

Whole milk, yogurt, and cheese *can be enjoyed* as part of an overall healthful eating pattern.

Health-promoting eating patterns never need to eliminate entire food groups; eating a broad variety of foods across all food groups promotes greater nutrient intake, which can in turn promote better health outcomes.

Figure 1-6

Dietary Intakes Compared to Recommendations: Percent of the U.S. Population Ages 1 and Older Who Are Below and At or Above Each Dietary Goal



- 9 out of 10 people aren't eating enough **VEGETABLES**.

- 8 out of 10 people aren't eating enough **FRUIT**.

- Nearly 9 out of 10 people aren't getting enough **DAIRY** or **SEAFOOD**.

The Four Nutrients of Public Health Concern

**DIETARY
FIBER**



**CALCIUM
POTASSIUM
VITAMIN D**



SOURCE: 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](#)



Table 1-1

Healthy U.S.-Style Dietary Pattern at the 2,000-Calorie Level, With Daily or Weekly Amounts From Food Groups, Subgroups, and Components

FOOD GROUP OR SUBGROUP ^a	Daily Amount ^b of Food From Each Group (Vegetable and protein foods subgroup amounts are per week.)
Vegetables (cup eq/day)	2 ½
	Vegetable Subgroups in Weekly Amounts
Dark-Green Vegetables (cup eq/wk)	1 ½
Red and Orange Vegetables (cup eq/wk)	5 ½
Beans, Peas, Lentils (cup eq/wk)	1 ½
Starchy Vegetables (cup eq/wk)	5
Other Vegetables (cup eq/wk)	4
Fruits (cup eq/day)	2
Grains (ounce eq/day)	6
Whole Grains (ounce eq/day)	≥ 3
Refined Grains (ounce eq/day)	< 3
Dairy (cup eq/day)	3
Protein Foods (ounce eq/day)	5 ½
	Protein Foods Subgroups in Weekly Amounts
Meats, Poultry, Eggs (ounce eq/wk)	26
Seafood (ounce eq/wk)	8
Nuts, Seeds, Soy Products (ounce eq/wk)	5
Oils (grams/day)	27
Limit on Calories for Other Uses (kcal/day)^c	240
Limit on Calories for Other Uses (%/day)	12%

Adding just 1 more daily serving of dairy can help fill shortfall nutrient gaps. →

SOURCES: (1) Hess JM, Fulgoni VL, Radlowski EC. Modeling the Impact of Adding a Serving of Dairy Foods to the Healthy Mediterranean-Style Eating Pattern Recommended by the 2015-2020 Dietary Guidelines for Americans.

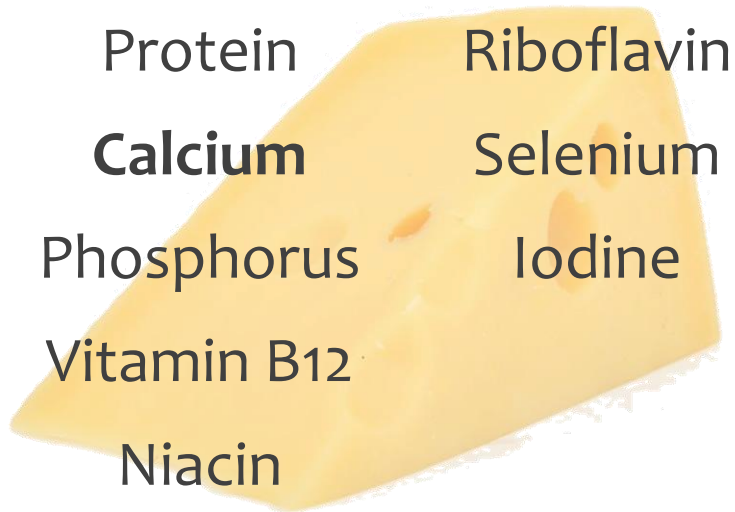
J Am Coll Nutr. 2019 Aug 38:1, 59-67.

(2) Quann EE, Fulgoni VL & Auestad N. Consuming the daily recommended amounts of dairy products would reduce the prevalence of inadequate micronutrient intakes in the United States: diet modeling study based on NHANES 2007–2010. Nutr J 14, 90 (2015).

DAIRY FOODS PROVIDE A POWERFUL NUTRIENT-PACKAGE

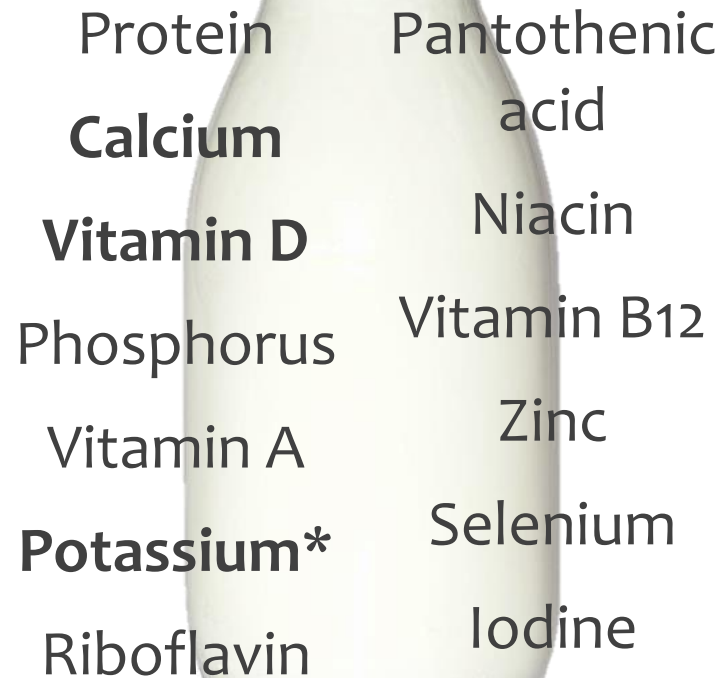
Cheese:

8 essential nutrients



Milk:

13 essential nutrients



Yogurt:

9 essential nutrients





Mashed Potatoes: A Gateway to Greater Nutrient Intake

If you want to focus on a single nutrient
to limit to promote better health,
focus on limiting your sodium intake.

Sodium in the American Diet



2,300 mg/day
RECOMMENDED
INTAKE

**~3,400
mg/day**
AVERAGE INTAKE
~70% comes from
restaurant and
processed foods

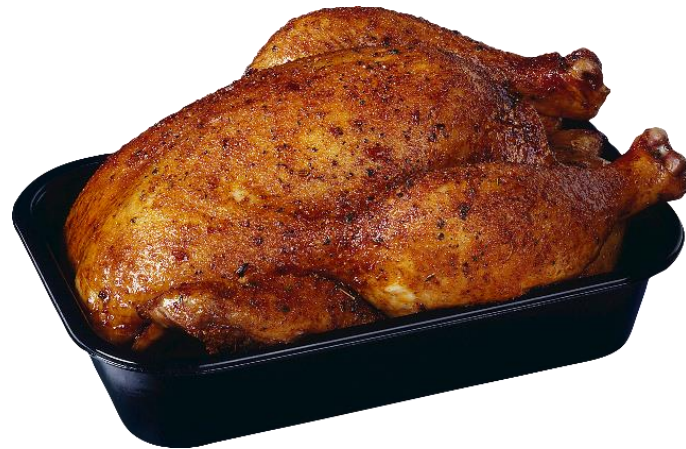
According to the Centers for Disease Control and Prevention (CDC), **about 40% of the sodium consumed by Americans comes from the following foods:**

- Deli Meat Sandwiches
- Pizza
- Burritos and Tacos
- Soups
- Savory Snacks (e.g., chips, crackers, popcorn)
- Poultry
- Pasta Mixed Dishes
- Burgers
- Egg Dishes and Omelets

Balancing Sodium, Convenience & Sensory Properties



Fried Chicken
770 mg/100 g
NDB#21444



Rotisserie Chicken
350 mg/100 g
NDB#5348



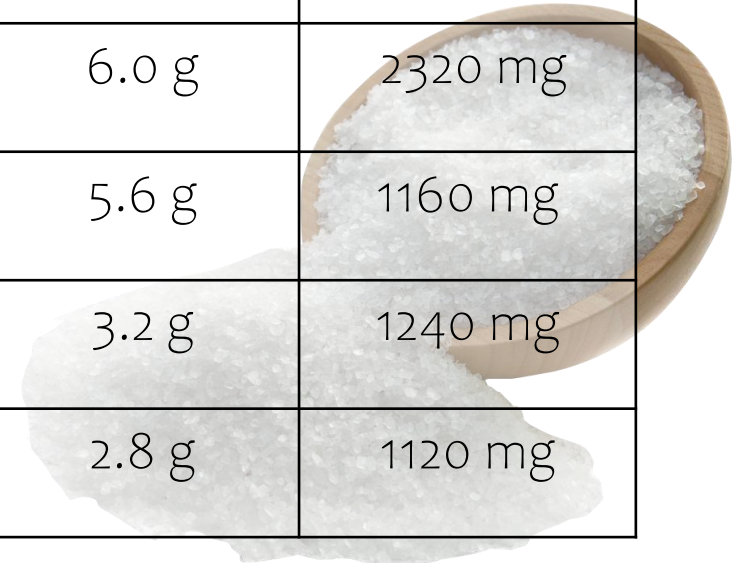
Frozen Chicken
175 mg/100 g
NDB#5314



Fresh Chicken
45 mg/100 g
NDB#5062

Crystalline Structure & Density Influence the Sodium Content of Various Types of Salt

Type of Salt	FoodData Central ID	Weight of 1 teaspoon	Sodium in 1 teaspoon
Fine Grain Iodized Table Salt	FDC ID: 173468	6.0 g	2330 mg
Fine Grain Sea Salt	FDC ID: 2545768	5.6 g	2200 mg
Designer Sea Salt From a Specific Location	FDC ID: 1904115	6.0 g	2320 mg
Potassium Chloride Salt	FDC ID: 2573378	5.6 g	1160 mg
Kosher Salt	FDC ID: 2302584	3.2 g	1240 mg
Kosher Salt with a diamond crystal structure	FDC ID: 2571981	2.8 g	1120 mg



Draining & Rinsing Canned Beans Can Reduce Sodium Content by ~30%



SOURCE: Roberta L. Duyff, John R. Mount & Joshua B. Jones (2011) Sodium Reduction in Canned Beans After Draining, Rinsing, Journal of Culinary Science & Technology, 9:2, 106-112, DOI: [10.1080/15428052.2011.582405](https://doi.org/10.1080/15428052.2011.582405)

CHEESE:

The Inverse Relationship Between
Water Content, Sodium Content
& Flavor Impact



Fresh Cheeses

Lots of water, less sodium



Soft-ripened Cheeses

Moderate water, moderate sodium



Hard, Aged Cheeses

Little water, more sodium, LOTS of umami





Cheese Pizza with Mozzarella, Ricotta, and Parmesan Cheese

There are no superfoods,
only super eating patterns.

Can red meat be included in a Mediterranean-style eating pattern?

- Investigator-blinded, randomized, crossover, controlled feeding trial
- 41 adult subjects with mean BMI of 30.5
- Compared two diets:
 1. **MED-RED**: Mediterranean Pattern with Red Meat (unprocessed lean beef & pork)
 2. **MED-CONTROL**: Mediterranean Pattern without Red Meat
- Results:
 - Total cholesterol decreased more on **MED-RED** compared to **MED-CONTROL** (p=0.045)
 - LDL decreased on **MED-RED** but not on **MED-CONTROL** (p=0.038)
 - HDL decreased similarly on both diets
 - TG, TC:HDL, glucose, and insulin did not change on either diet
 - BP improved on both diets.

Sesame Seeds



Mushrooms

Cheese

Lean Beef



**Spicy Shredded Beef Street Tacos
with Creamy Cilantro Coleslaw**

Italian-Inspired Beef & Farro Bowls



What is “the best” dark green leafy vegetable?

Vegetable	Serving Size	Calories	Effort	Price*
FRESH Baby Spinach, triple washed, in a bag	1 cup	7	Low	\$0.75
FROZEN Spinach, chopped	¾ cup	25	Low	\$0.38
FROZEN Spinach, chopped, steam in box	¾ cup	25	Low	\$1.00
FRESH Broccoli, whole head	1 cup	30	Moderate	\$0.40
FRESH Broccoli, florets, in a bag	1 cup	30	Low	\$0.63
FROZEN Broccoli, frozen, steam in bag	1 cup	30	Low	\$0.96
FRESH Broccolini, fresh	1 cup	25	Moderate	\$1.20
FRESH Kale, chopped, in a bag	1 cup	25	Low	\$1.05
FROZEN Kale, chopped, in a bag	1 cup	25	Low	\$0.25
FRESH Collard Greens, whole leaves	1 cup	10	Moderate	\$0.27
FRESH Collard Greens, chopped, in a bag	1 cup	10	Low	\$0.35
CANNED Collard Greens, chopped	½ cup	30	Low	\$0.92

*Prices were obtained for Raleys.com on August 7, 2023, and have been included for educational and comparative purposes only.

What are “the best” dairy foods?

Dairy Food	Serving Size	Calories	Carbs	Protein	Potassium	Price
Whole Milk	1 cup	150	12 g	8 g	320 mg	\$0.24
Organic Whole Milk	1 cup	150	12 g	8 g	320 mg	\$0.72
Lactose Free Whole Milk	1 cup	160	13 g	8 g	410 mg	\$0.56
Ultra-filtered Whole Milk	1 cup	150	6 g	13 g	400 mg	\$0.80
Low-Fat 1% Chocolate Milk	1 cup	160	26 g	9 g	410 mg	\$0.48
Ultra-filtered 2% Chocolate Milk	1 cup	140	13 g	13 g	550 mg	\$0.80
Whole Milk Ricotta Cheese	¼ cup	110	2 g	5 g	125 mg	\$0.71
Part-skim Ricotta Cheese	¼ cup	80	6 g	4 g	170 mg	\$0.71
Whole Milk Cottage Cheese	½ cup	110	4 g	12 g	110 mg	\$0.62
Plain non-fat yogurt	¾ cup	95	13 g	10 g	430 mg	\$0.93
Plain non-fat Greek yogurt	¾ cup	100	6 g	17 g	240 mg	\$0.93
String cheese	1 oz.	80	1 g	8 g	25 mg	\$0.50

*Prices were obtained for Raleys.com on August 7, 2023, and have been included for educational and comparative purposes only.

Enjoy Dairy Foods with Confidence

Everyone tolerates lactose differently. The good news is there are a variety of lactose-free and lower-lactose choices that deliver on taste and nutrition.



Lactose-free Dairy Milk

1 CUP (8 OZ) SERVING

Lactose-free dairy milk is real milk, just without lactose.



Natural Cheeses

1.5 OZ SERVING

Due to the steps in cheese making and natural aging, natural cheese contains minimal amounts of lactose. Natural cheeses like Cheddar and mozzarella have less than 1 gram of lactose.



Ricotta Cheese

1/4 CUP SERVING

This soft, natural cheese contains minimal amounts of lactose.



Ice Cream

2/3 CUP SERVING

There are lactose-free dairy milk ice creams available.



Yogurt

3/4 CUP SERVING

The live cultures in yogurt help digest some of the lactose.



Buttermilk

1 CUP (8 OZ) SERVING

Due to the steps in making buttermilk and its acidity, it naturally contains less lactose than regular milk.

Amount of Lactose per Serving
From Lowest to Highest



Butter

1 TBSP SERVING

Butter is made by separating milk from butter fat, so there are only trace amounts of lactose, if any.



American Cheese

1 SLICE SERVING

American cheese is made from natural cheese, which contains minimal lactose.



Cottage Cheese

1/2 CUP SERVING

Due to the steps in cheese making and curd separation, cottage cheese has a fraction of the lactose in milk. Lactose-free options are also available.



Greek Yogurt

3/4 CUP SERVING

There is less lactose in Greek yogurt because the straining process removes some of the lactose.



Kefir

1 CUP (8 OZ) SERVING

The live cultures in fermented milk products help digest some of the lactose.



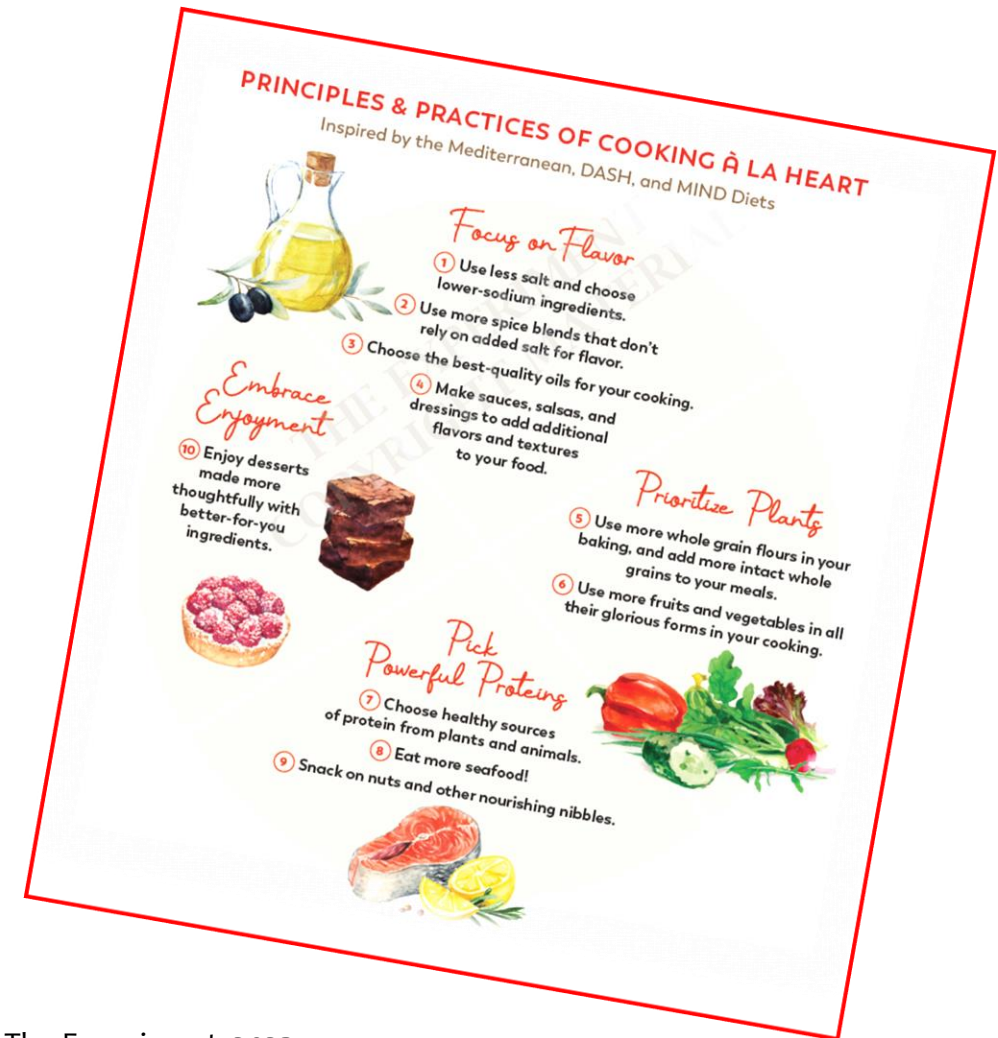
Dairy Milk

1 CUP (8 OZ) SERVING

Try small amounts of dairy milk in smoothies, on cereal or with meals. Having milk with solid foods helps slow digestion, which can mean it's better tolerated.

Eating for Health & Enjoyment

1. Focus on flavor.
2. Prioritize plants.
3. Pick powerful proteins.
4. Embrace enjoyment.



Greek-Inspired Baked Chickpeas with Tomatoes & Cow's Milk Feta

- DAIRY: Cow's milk feta cheese
- VEGETABLES: Tomatoes
- LEGUMES: Chickpeas



Peach Caprese Salad with Burrata

- DAIRY: Burrata
- FRUIT: Peaches



Recipe credit: Linda Hachfeld and Amy Myrdal Miller. *Cooking à la Heart*. 4th ed. New York City: The Experiment; 2023.

Shiitake & Spinach Quiche

- **DAIRY:** Parmesan cheese & milk
- **VEGETABLES:** Mushrooms, onions, garlic, spinach



Recipe credit: Linda Hachfeld and Amy Myrdal Miller. *Cooking à la Heart*. 4th ed. New York City: The Experiment; 2023.

Smoked Salmon Flatbread with Dill

- **WHOLE GRAIN:** Whole wheat flour in the flatbread
- **DAIRY:** Sour cream or whole milk yogurt for the base
- **SEAFOOD:** Smoked salmon
- **VEGETABLES:** Onions, cucumbers, capers & dill



Berries with Cannoli Cream

- DAIRY: Ricotta
- FRUIT: Strawberries, raspberries, blueberries



Culinary Nutrition for Heart Health: *From Science to Plate*



Amy Myrdal Miller, MS, RDN, FAND
President | Farmer's Daughter Consulting | Carmichael, California

Thank you!



Helpful Resources

IS IT TIME TO SEE WHOLE MILK DAIRY FOODS DIFFERENTLY?

When it comes to heart health, growing research indicates more room for fat flexibility

LANDMARK PURE STUDY FINDS DAIRY FOODS, INCLUDING WHOLE MILK DAIRY FOODS, BENEFIT HEART HEALTH*

Fruit
2-3 SERVINGS DAILY

Vegetables
2-3 SERVINGS DAILY

Dairy
14 SERVINGS WEEKLY

Nuts
7 SERVINGS WEEKLY

Legumes
3-4 SERVINGS WEEKLY

Fish
2-3 SERVINGS WEEKLY

THE PURE HEALTHY EATING PATTERN

Researchers developed a healthy diet score using data from the Prospective Urban Rural Epidemiology (PURE) cohort and explored its effectiveness on nearly 245,000 adults from 80 countries, and identified six food groups that were linked to health and longevity: fruits, vegetables, legumes, nuts, fish and dairy foods. Specifically, **diets that included 14 servings of dairy per week (mainly whole milk dairy foods) were linked to reduced risk of cardiovascular disease (CVD), heart attack, stroke and mortality.** The PURE diet's beneficial effects were stronger when compared to other healthy dietary patterns like the Mediterranean and DASH diets.

SUPPORTING STUDIES SHOW...

MILK, CHEESE AND YOGURT AT A VARIETY OF FAT LEVELS MAY HAVE PROTECTIVE EFFECTS AGAINST CVD AND CVD MORTALITY:¹⁻⁴

- Research has shown that a daily serving of cheese, regardless of fat level, was linked to reduced risk of multiple health outcomes including mortality and heart disease.²
- Consuming more than 2 servings of dairy foods per day has been linked to a 26% reduced risk of death from heart disease.³

THE PURE DIET* WAS LINKED TO


30% LOWER RISK OF DEATH	19% LOWER RISK OF STROKE
18% LOWER RISK OF CVD	14% LOWER RISK OF HEART ATTACK

*Risk reductions based on 9.3-year follow-up comparing greatest adherence to the PURE diet to lowest adherence to the PURE diet.


BENEFITS OF DAIRY FOODS GO BEYOND THEIR INDIVIDUAL NUTRIENTS^{5*}

Emerging research suggests it's the whole food — not just the individual nutrients within — that affect health outcomes. That's because foods like milk, cheese and yogurt are made up of not only nutrients, but also bioactive compounds and physical components, all of which influence how a food is digested, absorbed and metabolized. Thus, the fat content of one food may impact health differently than fat from a different food. This whole-food effect may help explain why research increasingly shows that whole milk dairy foods may have protective heart health effects.

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Research Roundup: Whole Milk Dairy and CVD



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State of the Science Dairy Foods and Health

NDC State of the Science: Dairy Foods and Health

7 Dairy Nutrition Questions Answered

Article • 5 min read • October 17, 2023

Does lactose intolerance mean no more dairy?


Simply put, **lactose intolerance** is the inability to digest **lactose**, a natural sugar found in dairy foods. Symptoms can vary but usually include abdominal pain, bloating, diarrhea or gas.

Lactose intolerance is **different than a milk allergy**, where all **dairy foods** need to be avoided. So, with lactose intolerance, it's not all or nothing. Think of it as a spectrum, where many people can still confidently **enjoy dairy foods**. And there are options in the dairy aisle that can help:

- Lactose-free dairy products:** These are dairy products that have lactose removed. For example, **lactose-free milk** is real milk without lactose. It has all the same nutrients as regular milk and can be used the same way in your favorite **food or drink recipes**.
- Low-lactose foods:** Natural **cheeses**, **cottage cheese**, **Greek yogurt** and **ice cream** all have less than 5 grams of lactose per serving, making them easier for people to digest and incorporate in a variety of recipes.

If you have questions or concerns about your tolerance, we encourage you to reach out to your healthcare provider.

If you want to learn more, visit our article [Lactose Intolerant? Try These 12 Tips To Enjoy Dairy](#).



7 Dairy Nutrition Questions Answered

Craving more webinars?

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and sustainability*

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What's the Deal With Dairy?](#)



[Protein: Plant? Animal?
Health? Planet?](#)



[The Ethics of Hunger.
Nourishing Communities in Need](#)



[The Dairy Matrix:
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[Taming The Flame—
Dairy And Inflammation](#)



[Prenatal Nutrition: Dairy's
Building Blocks for Baby's Brain
Development](#)



[Talk Dairy To Me—
Facts, Fiction And
FAQs](#)



[Gut Check—Nutrition
For Digestive Health
And Beyond](#)

Q&A Session

Please enter your questions into the Q&A chat window.

Continuing education certificates and a copy of the slides will be sent via email within 24 hours of this webinar.

The full webinar recording will be available next week on USDairy.com.





How do you communicate the benefits of whole milk dairy foods while also providing guidance around energy balance?



When it comes to cardiometabolic health, how do we address questions regarding dairy foods versus non-dairy alternatives?



For people with lactose intolerance, dairy food allergy or a vegan diet, what do you recommend?



**As a nutrition communicator,
what advice do you have to
help us address misinformation
and promote evidence-based
advice?**



When it comes to culinary nutrition, what's a common misconception/something you wish people knew?

Q&A Session

Please enter your questions into the Q&A chat window.

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