



# Letting the Science Shine: Debunking Misinformation About Milk and Dairy Foods

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WFAFP

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# Disclosures

- Sponsored by American Dairy Association Mideast
- Ambassador, National Dairy Council
- Member, Dannon Essential Dairy and Plant-Based Advisory Board
- Spokesperson, Pure Protein
- Spokesperson, Tru Niagen
- Nutrition partner, St. Dalfour
- Nutrition partner, General Mills

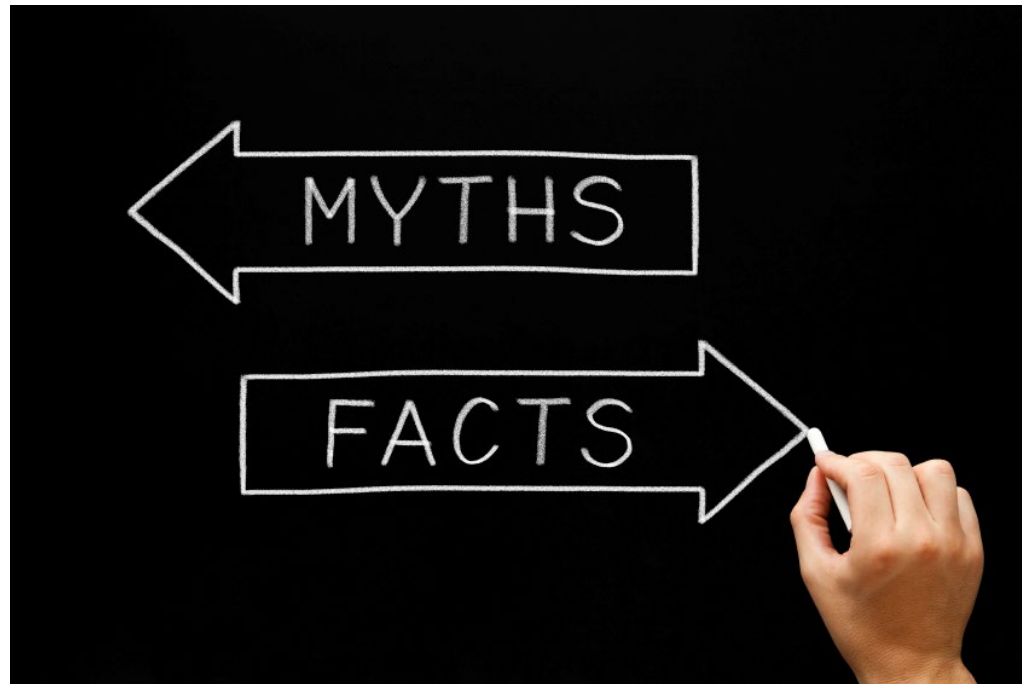


# Session Objectives

After the presentation, participants will be able to:

1. Identify common dairy myths clients may ask about.
2. Understand the science in order to debunk the myths.
3. Help educate clients on ways to enjoy milk and dairy foods in a healthy, well-balanced diet.

# What are you getting asked about milk and dairy?



# Milk and Dairy Basics

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



**\*NOTE:** Recommended daily intake of whole grains is to be at least half of total grain consumption, and the limit for refined grains is to be no more than half of total grain consumption.

**Data Source:** Analysis of What We Eat in America, NHANES 2013-2016, ages 1 and older, 2 days dietary intake data, weighted. Recommended Intake Ranges: Healthy U.S.-Style Dietary Patterns (see [Appendix 3](#)).



# 13 WAYS MILK

## Can help your body

One serving of **milk** contains many of the essential nutrients your body needs, including:



### Calcium

Helps build and maintain strong bones and teeth.



### Protein

Helps provide sustained energy. Helps build and maintain lean muscle. Helps maintain a healthy immune system.



### Vitamin D

Helps build and maintain strong bones and teeth. Helps maintain a healthy immune system.



### Phosphorus

Helps build and maintain strong bones and teeth, supports tissue growth.



### Vitamin A

Helps keep skin and eyes healthy; helps promote growth. Helps maintain a healthy immune system.



### Riboflavin

Helps your body use carbohydrates, fats and protein for fuel.



### Vitamin B12

Helps maintain healthy immune, blood and nervous system function. Supports normal energy metabolism. Necessary for brain development during pregnancy and infancy; linked to cognitive function in childhood.



### Pantothenic acid

Helps your body use carbohydrates, fats and protein for fuel.



### Niacin

Used in energy metabolism in the body.



### Zinc

Helps maintain a healthy immune system, helps support normal growth and development and helps maintain healthy skin.



### Selenium

Helps maintain a healthy immune system, helps regulate metabolism and helps protect healthy cells from damage.



### Iodine

Necessary for proper bone and brain development during pregnancy and infancy; linked to cognitive function in childhood.



### Potassium\*

Helps maintain a healthy blood pressure and supports heart health. Helps regulate body fluid balance and maintain normal muscle function.

\*Source: USDA FoodData Central. FDA's Daily Value (DV) for potassium of 4700 mg is based on a 2005 DRI recommendation. In 2019, NASEM updated the DRI to 3400 mg. Based on the 2019 DRI, a serving of milk provides 10% of the DRI. FDA rule-making is needed to update this value for the purpose of food labeling.



= daily value

10% or higher  
is a good source

20% or higher is  
an excellent source

#### REFERENCES

- USDA FoodData Central online at <https://fdc.nal.usda.gov/>. Mean values calculated from database entries across all fat levels of plain vitamin D-fortified fluid milk in Legacy, Foundation, and Survey (FNDDS) data sources.
- 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.

# Nutrients of Concern

- The 2020-2025 DGAs identified 4 nutrients of concern that all Americans at every life stage under consume:
  - Calcium\*
  - Vitamin D\*
  - Potassium\*
  - Fiber
- 3 servings per day for 9 years and older



\*Milk  
provides 3  
nutrients of  
concern

# Milk and Dairy and Chronic Disease

- Milk and dairy foods have been linked with reduced risk of:

- ✓ CVD
- ✓ Type 2 diabetes
- ✓ Hypertension

...because of its unique nutrient package and **dairy food matrix**.

## The Milk Matrix




FDA's Daily Value (DV) for potassium of 4700 mg is based on a 2005 DRI recommendation. In 2019, NASEM updated the DRI to 3400 mg. Based on the 2019 DRI, a serving of milk provides 10% of the DRI. FDA rule-making is needed to update this value for the purpose of food labeling.




# Milk and Dairy in Every Eating Pattern

**Healthy  
US-style  
Pattern**




3 servings LF/FF  
dairy foods per  
day

**Healthy  
Vegetarian  
Pattern**



3 servings LF/FF  
dairy foods per  
day

**Healthy  
Mediterranean-  
style Pattern**



2 servings LF/FF  
dairy foods per  
day

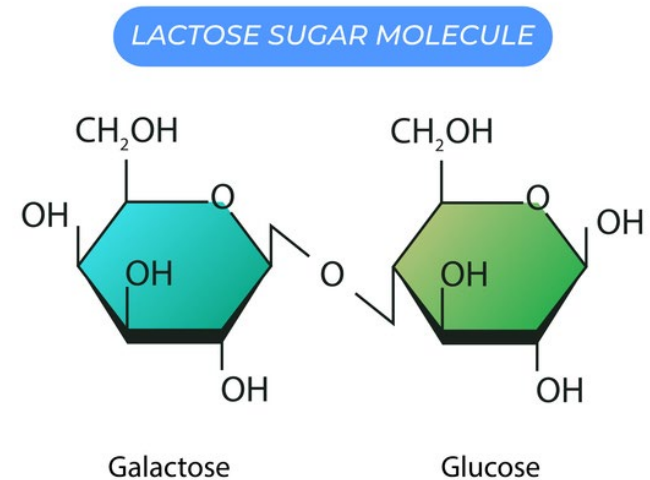
# Myth #1: Those Who Are Lactose Intolerant Can't Eat Dairy

- Lactose intolerance is real and affects many Americans
  - 36% U.S. adults are affected by LI<sup>1,2</sup>
- By ethnic group:
  - 20-30% white adults
  - 70% Mexican descent
  - 70% Ashkenazi Jews
  - 80% African Americans
  - 99% Chinese adults
  - 100% Native Americans
  - 100% Native Alaskans
- Not common in children



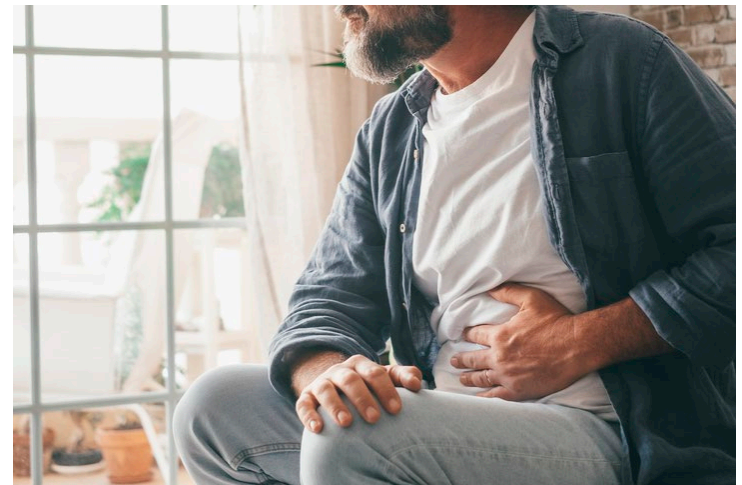
# Defining Lactose Intolerance

- GI disturbances that may be experienced following intake of an amount of lactose greater than the body's ability to absorb it



# Common Symptoms

- Symptoms vary on the individual and may include:
  - Gas/flatulence
  - Bloating
  - Abdominal pain
  - Diarrhea
- Symptoms following lactose consumption vary based on:
  - Level of lactase enzyme activity
  - Gastric emptying rates
  - Fecal bacterial metabolites
  - Colonic mucosal absorptive capacity
  - Intestinal transit time
- Severity of LI discomfort differ:
  - Perception of abdominal pain
  - Psychological impact of pain
  - Perceived social discomfort



# Testing for Lactose Intolerance



- **Hydrogen Breath Test**

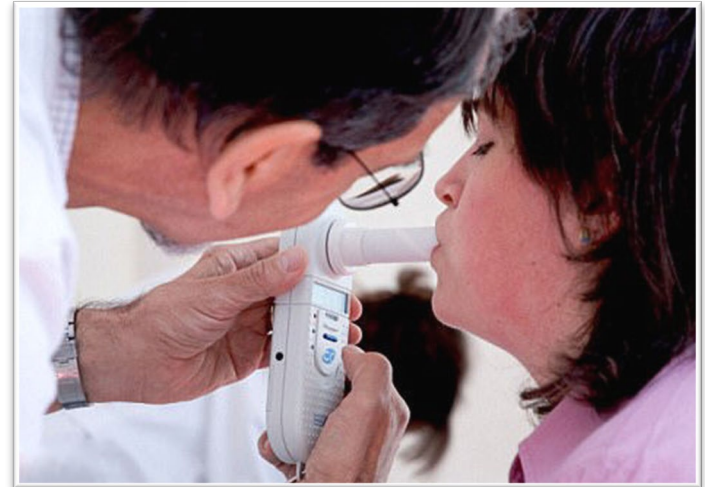
- Measures ability of the intestines to break down lactose
  - Measures the amount of hydrogen in the air breathed out
- *Normal:* Very little hydrogen in breath

- **Lactose Tolerance Test**

- Blood test
- Looks for glucose in your blood
  - Your body creates glucose when lactose breaks down

- **Stool Acid Test**

- Result from bacteria in large intestines breaking down lactose



# Recommendations for Management

- The National Institute of Health (NIH)
  - Expert panel suggests that adults & adolescents diagnosed with LI can tolerate  $\sim 12$  g of lactose in a single dose = 1 cup of milk or yogurt
- NMA & NIH
  - Expert panel recommend folks with lactose intolerance try to keep dairy foods in their diet



# Lactose Intolerance

- ~70-75% of Black Americans are lactase non-persistent but not necessarily lactose intolerant.
- NIH recognizes that dairy avoidance due to self-diagnosis of lactose intolerance is a public health problem.
- Unnecessary dairy avoidance is a critical issue for the health and well-being of Black Americans since most of this population are chronically under consuming
- Multiple nutrients of public health concern that are most prominently found in dairy foods

# Amount of Lactose in Common Dairy Foods

Product	Lactose (grams)
Lactose- Free Milk, low-fat, lactose-free (1 cup)	0
Cheddar Cheese, sharp (1 oz)	<0.1
Swiss Cheese, Cheddar Cheese (sharp), Mozzarella (1 oz)	<0.1
American Cheese, pasteurized, processed (1 oz)	1
Cottage Cheese (1/2 cup)	3
Yogurt, Greek-style (6 oz)	4
Ice Cream (1/2 cup)	4
Butter (1 tablespoon)	0.01
Whole, 2%, 1%, Skim Dairy Milk (1 cup)	12
Yogurt, low-fat (6 oz)	13
1 cup kefir	8.5



# Strategies for Dietary Management

- *Slice It*
  - Top sandwiches/crackers with natural cheeses
  - Cheddar, Colby, Monterey Jack, Swiss, mozzarella
- *Shred It*
  - Shred natural cheeses onto veggies, pastas, salads, soups
- *Spoon It*
  - Enjoy yogurt (Greek, plain, flavored).
  - Its live and active cultures help digest lactose
- *Try It*
  - Opt for lactose-free dairy & milk products
- *Sip It*
  - Start with small amounts of milk daily
  - Increase slowly over several days/weeks
- *Stir It*
  - Mix milk with other foods to help slow digestion
  - Allows the body more time to digest lactose

# Lactose Free Dairy Products

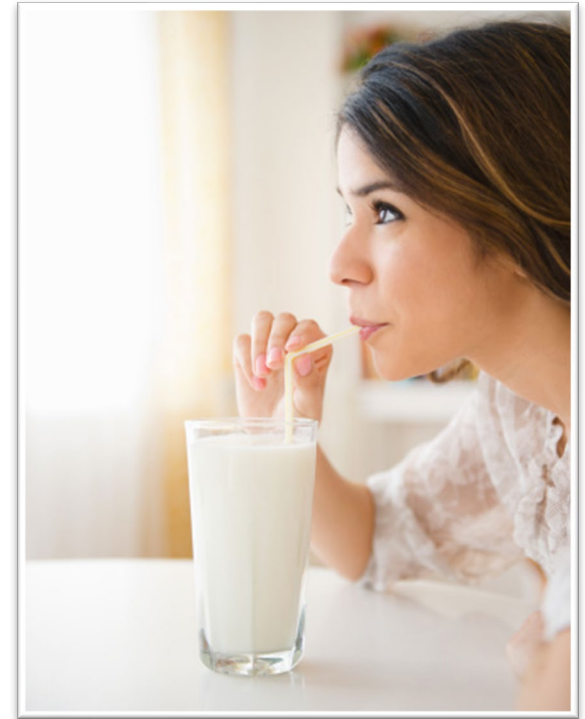
- Milk
  - low fat, fat free, low fat chocolate, half-and-half
- Ice cream
- Cottage cheese
- Yogurt
- Eggnog



# How is Lactose-Free Milk/Dairy Produced?

Can be several ways including:

- A natural lactase enzyme is added to help breakdown lactose into its monosaccharide components
- Ultrafiltration (i.e. Fairlife) where lactose is reduced by filtration
- May have a slightly sweeter taste due to the process of breaking down the sugars via lactase



# Lactose Free $\neq$ Dairy Free

- Lactose-free milk/dairy are made from cow's milk
- Lactose-free dairy provides the same essential nutrients as traditional dairy products
- Cooks just like cow's milk
  - Puddings
  - Oatmeal



# Lactose Intolerance Friendly Recipes



Grilled Asian Shrimp Skewers with  
Dipping Sauce



Soba Noodle Salad with Peanut Sauce

## Myth #2: Raw milk is a healthier alternative to pasteurized milk

- **Raw milk:** Milk from cows, sheep or goats — or any animal — that has not been pasteurized to kill harmful bacteria.

### Is raw milk safe?

- The FDA, CDC, AAP, American Veterinary Medical Association (AVMA) recommend drinking **only pasteurized milk**.
- Raw milk can contain harmful disease-causing pathogens such as **Salmonella, E. coli, Listeria, Campylobacter**, and others.
- Issue at any age, and especially with high risk populations.



# Raw Milk: Pasteurization

- ***Pasteurization:*** The process of heating milk to a specific temperature for a specific length of time to kill pathogenic microorganisms that could be in the milk.
  - Listeriosis
  - Typhoid fever
  - Tuberculosis
  - Diphtheria
  - Q fever
  - Brucellosis
- For more than a century, pasteurization has been recognized around the world as an essential tool for protecting public health.



# Raw Milk:

## Are there benefits that outweigh the risk?

- No demonstrated benefits to consuming raw milk in place of pasteurized milk.
  - Raw milk does not cure lactose intolerance.
  - Raw milk does not cure or treat asthma or allergies.
  - No beneficial bacteria in raw milk for GI health.
  - Raw milk is not an immune system building food and is particularly unsafe for children.
  - There are no immunoglobulins in raw milk that enhance the human immune system.



## Raw Milk:

### Why some people drink raw milk and have never gotten sick

- The presence of harmful bacteria in raw milk is unpredictable.
- The amount of harmful bacteria in raw milk may be too low to make a person sick, and later high enough to make the same person seriously ill.
- For some people, drinking contaminated raw milk just once could make them sick.
- Even if you trust the farmer or the store, raw milk is never a guaranteed safe product.

## Myth #3: Dairy causes inflammation

- Emerging evidence indicates that consuming dairy foods, including whole- and reduced fat dairy foods, is not linked to increased levels of inflammatory markers.
- Some research indicates that consuming **certain dairy foods may be linked to lower levels of some inflammatory markers.**
- Chronic, low-grade inflammation results from a continuously out-of-balance immune system, which contributes to the development of various metabolic disorders, such as cardiovascular disease and type 2 diabetes.

# Evidence That Dairy Does Not Cause Inflammation

- A study published in *Nutrition Epidemiology* that ranked foods based on their inflammatory potential indicated that dairy foods, fruits and vegetables – especially dark, leafy greens and deep-orange vegetables – tend to be anti-inflammatory.

## JOURNAL ARTICLE

### Development and Validation of Novel Dietary and Lifestyle Inflammation Scores

Doratha A Byrd, Suzanne E Judd, W Dana Flanders, Terryl J Hartman, Veronika Fedirko, Robert M Bostick 

*The Journal of Nutrition*, Volume 149, Issue 12, December 2019, Pages 2206–2218,

<https://doi.org/10.1093/jn/nxz165>


**Published:** 02 August 2019    **Article history** ▼

# Dairy and Inflammation

- A study published in the *Journal of the American College of Nutrition*, funded by National Dairy Council, evaluated 27 randomized control trials and found that dairy foods (i.e., milk, cheese and yogurt) and dairy proteins (i.e., whey, casein) have neutral to beneficial effects on inflammation.


Review


## The Effects of Dairy Product and Dairy Protein Intake on Inflammation: A Systematic Review of the Literature

Kristin M. Nieman , Barbara D. Anderson & Christopher J. Cifelli

Pages 571-582 | Received 26 Mar 2020, Accepted 19 Jul 2020, Published online: 01 Sep 2020

 Download citation

 <https://doi.org/10.1080/07315724.2020.1800532>

 Check for updates

# Dairy and Inflammation

- A systematic review of over 50 clinical trials published in 2017 showed that **dairy foods were associated with anti-inflammatory activity** in study participants with metabolic disorders such as heart disease, stroke and type 2 diabetes.
- Further, both low- and full-fat dairy products, as well as fermented dairy foods (e.g., yogurt and cheese), displayed anti-inflammatory activity.

Articles

## Dairy products and inflammation: A review of the clinical evidence

Alessandra Bordonì, Francesca Danesi, Dominique Dardevet, Didier Dupont, Aida S. Fernandez, Doreen Gille, ...show all

Pages 2497-2525 | Accepted author version posted online: 19 Aug 2015, Published online: 01 May 2017

Download citation

<https://doi.org/10.1080/10408398.2014.967385>

Check for updates

# Dairy and Inflammation

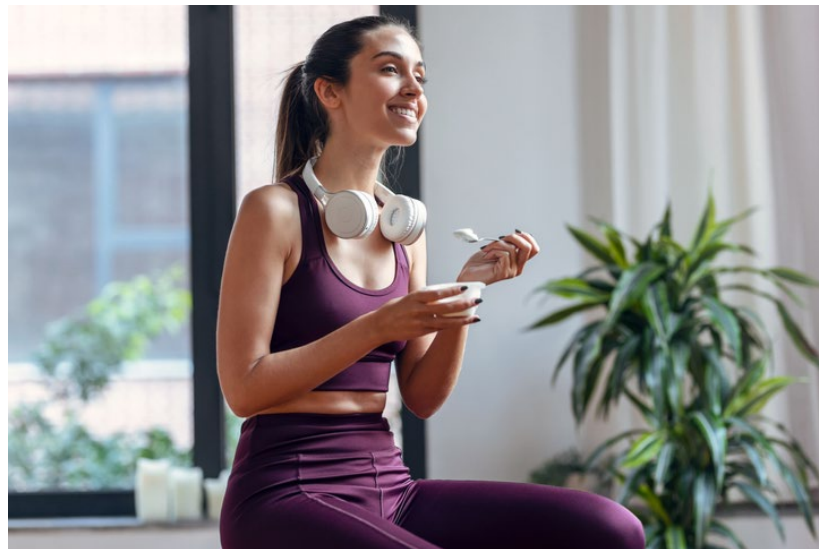
- A systematic review of randomized clinical trials published in 2019 reported similar results.
- Consuming milk or dairy products was not linked to inflammation in healthy subjects or those with metabolic abnormalities.
- The authors of this review stated regarding dairy foods that “the majority of the studies documented a significant anti-inflammatory effect in both healthy and metabolically abnormal subjects.”

## **Milk and Dairy Product Consumption and Inflammatory Biomarkers: An Updated Systematic Review of Randomized Clinical Trials**

Stine M Ulven <sup>1</sup>, Kirsten B Holven <sup>1 2</sup>, Angel Gil <sup>3 4 5 6</sup>, Oscar D Rangel-Huerta <sup>1</sup>

# Inflammation and Lifestyle

- Ways to help reduce risk of chronic inflammation:
  - 1) A healthy diet that includes dairy foods
  - 2) Regular exercise
  - 3) Managing stress levels
  - 4) Smoking cessation for those who smoke



## Myth #4: Plant Based Beverages are just as nutritious as dairy milk

“For individuals who choose dairy alternatives, fortified soy beverage (commonly known as “soy milk”) and soy yogurt – which are fortified with  $\text{Ca}^{+}$ , vit A, and vit D – are included as part of the dairy group because they are similar to milk and yogurt based on nutrient composition and in their use in meals.”

--2020-2025 Dietary Guidelines for Americans



# Dairy in the 2020-2025 DGA



**Dairy remains its own food group**



**Healthy dietary patterns that include dairy are linked to positive health across the lifespan**



**Dairy milk has a unique nutrient package**



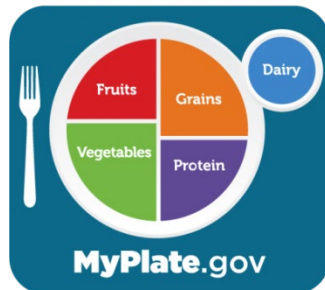
**First ever recommendations for birth-23 months include yogurt and cheese as complementary foods**



**“Most choices” for dairy foods should be low-fat and fat-free**

# Daily Dairy Recommendations

Daily Recommendation					
Children	2-3 yrs	2 cups	Women	19-30 yrs	3 cups
	4-8 yrs	2½ cups		31-50 yrs	3 cups
Girls	9-13 yrs	3 cups		51+ yrs	3 cups
	14-18 yrs	3 cups	Men	19-30 yrs	3 cups
Boys	9-13 yrs	3 cups		31-50 yrs	3 cups
	14-18 yrs	3 cups		51+ yrs	3 cups



# Nutritional content of most milk alternatives doesn't measure up to cow's milk

July 24, 2023 by ASN Staff

Presented at  
ASN 2023

*Analysis of 200+ plant-based milk alternatives finds few contain the calcium, vitamin D, and protein of cow's milk*

- Plant-based beverages often are **not nutritionally equivalent** to dairy milk and aren't included in the dairy group in the DGAs, with exception of soy beverage.
- Milk contains 8 grams of high-quality protein per cup while some alternatives may contain 1 gram or less.

# Myth #5: Milk causes acne

- Acne is particularly multifaceted and is affected by:
  - Diet quality
  - Hormones
  - Age
  - Genetics
  - Hygiene practices
  - Cosmetics
  - The environment.



# Milk and Acne

According to the clinical guidelines published by the American Academy of Dermatology:

- When it comes to diet, emerging evidence suggests that high glycemic index foods and dietary patterns may be linked to acne.
- For dairy foods, there is limited data evidence (no RTC only observation data) to suggest skim milk may influence acne.
  - Guidelines state that the quality and strength of evidence is limited and inconsistent.
- No evidence yogurt or cheese can increase acne breakouts.
- Based on the evidence, AAD concluded there are no specific dietary changes recommended for the management of acne.

*“Milk consumption can generate an increase in IGF-1 production by the liver and an increase in circulating insulin levels – which can promote the development of acne.”*

# Conclusion

- There are many myths about dairy that are barriers to consumption of key nutrients, including under consumed nutrients.
- Providing science-based evidences can help people understand how milk and dairy can fit into a healthy, well-balanced dietary eating pattern.



# Questions?

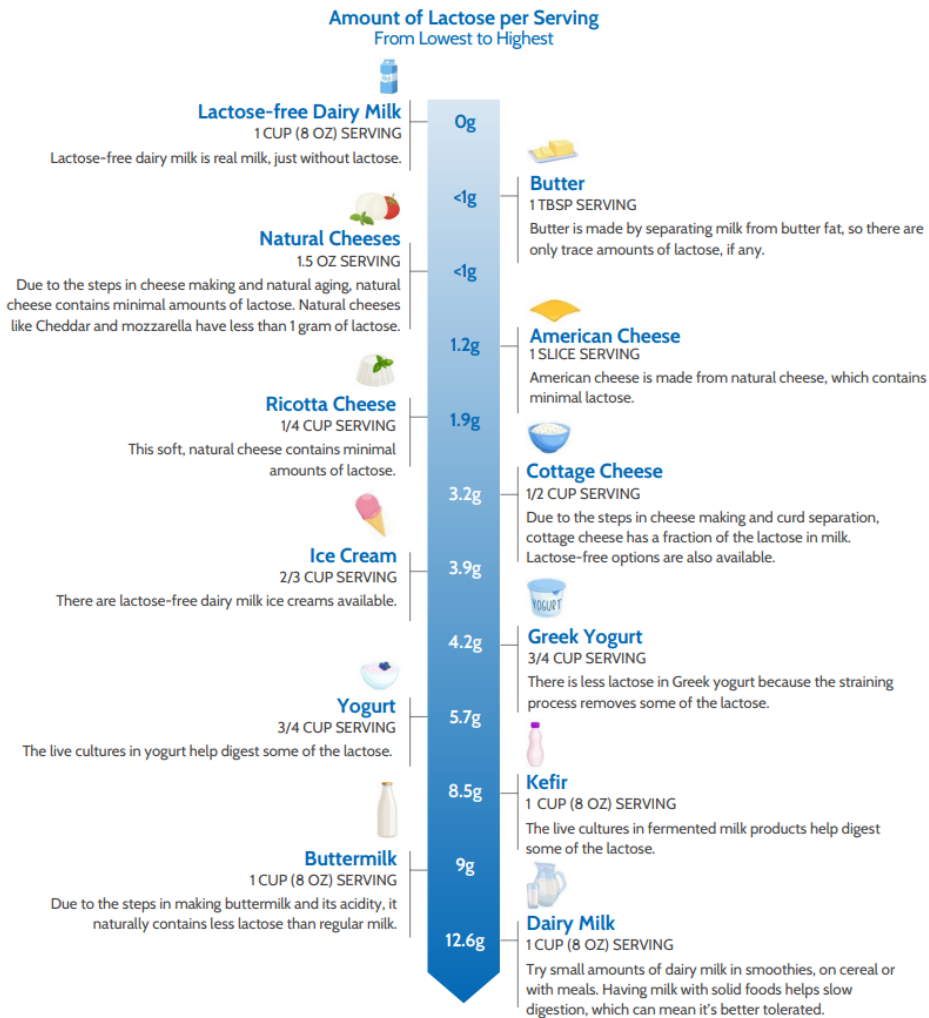
## Contact Information

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# 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 content based on the Reference Amount Customarily Consumed (RACC) and data from FoodData Central: <https://fdc.nal.usda.gov/>. Accessed October 2022. Ricotta lactose content based on Facioni MS et al. 2020, Di Costanzo M et al. 2020 and Food Standards Australia New Zealand. Detailed data is on file and available upon request.

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	<b>CALCIUM</b> 25% DAILY VALUE		<b>PROTEIN</b> 16% DAILY VALUE
Helps build and maintain strong bones and teeth.		Helps build and repair tissue. Helps maintain a healthy immune system.	
	<b>VITAMIN D</b> 15% DAILY VALUE		<b>PHOSPHORUS</b> 20% DAILY VALUE
Helps build and maintain strong bones and teeth. Helps maintain a healthy immune system.		Helps build and maintain strong bones and teeth, supports tissue growth.	
	<b>VITAMIN A</b> 15% DAILY VALUE		<b>RIBOFLAVIN</b> 30% DAILY VALUE
Helps keep skin and eyes healthy; helps promote growth. Helps maintain a healthy immune system.		Helps your body use carbohydrates, fats and protein for fuel.	
	<b>VITAMIN B12</b> 50% DAILY VALUE		<b>PANTOTHENIC ACID</b> 20% DAILY VALUE
Helps with normal blood function, helps keep the nervous system healthy.		Helps your body use carbohydrates, fats and protein for fuel.	
	<b>NIACIN</b> 15% DAILY VALUE		<b>ZINC</b> 10% DAILY VALUE
Used in energy metabolism in the body.		Helps maintain a healthy immune system, helps support normal growth and development and helps maintain healthy skin.	
	<b>SELENIUM</b> 10% DAILY VALUE		<b>IODINE</b> 60% DAILY VALUE
Helps maintain a healthy immune system, helps regulate metabolism and helps protect healthy cells from damage.		Necessary for proper bone and brain development during pregnancy and infancy; linked to cognitive function in childhood.	
	<b>POTASSIUM*</b> 10% DRI		
Helps maintain a healthy blood pressure and supports heart health. Helps regulate body fluid balance and helps maintain normal muscle function.			

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.

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Source: USDA FoodData Central online at <https://fdc.nal.usda.gov/>. Mean values calculated from database entries across all fat levels of plain vitamin D-fortified fluid milk in Legacy, Foundation, and Survey (FNIDS) data sources.

\*Percent DVs based on Canada's DVs for potassium (2,600 mg) instead of a 2,000 mg DV as recommended by the FDA. National Council on Dairy and Food Fortification (NDFDF) is working to update this value for the purpose of food labeling.