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Getting Cultured with Fermented Dairy Foods

About Us
Who we are
We're a connected group of experts in dairy farming, education, health and wellness, and business. Dairy MAX is an affiliate of Dairy Management Inc. and National Dairy Council.

Mission
We work for dairy farmers – building understanding around dairy as a healthy, beneficial, everyday food choice; connecting the role of the dairy farmer to American tables.

Vision
To be a trusted, science-based resource for consumers and stakeholders to drive measurable results and sales for farmers.

About Dairy MAX
Representing 900+ dairy farm families across 8 states who work 365 a year to feed millions

On Social Media:

State and Regional Dairy Councils

National Dairy Council
Over 100 Year History
Guiding Principles

- Scientific Integrity
- Transparency
- Leadership and Excellence

Learning Objectives

1. Distinguish between fermented foods and probiotics
2. Discuss the growing body of scientific evidence supporting consumption of fermented dairy foods within healthy dietary patterns and:
   a. Reduced risk of type 2 diabetes (T2DM)
   b. Reduced risk of cardiovascular disease (CVD)
   c. Emerging evidence on yogurt’s role in reducing inflammation
3. Describe the benefits of dairy food / fermented dairy matrix
4. Provide practical examples for building healthy and appealing eating patterns, which incorporate fermented dairy foods

Fermented Foods: What is old is new again

- Americas
  - Hawaii Poi
  - Mexico Pozol
  - Colombia Guarapo
  - Peru Champus

- Asia
  - Korea Kimchi
  - Japan Natto
  - Tibet Jun
  - India Lassi
The History of Yogurt

- **Hardman in the Middle East** kept milk in goatskin bags which transformed into a tangy custard.
- **The Turks** were the first to evaluate yogurt medicinal use in a comprehensive dictionary, *Dewan* Leqhadat Turk.
- **Lactobacillus bulgaricus**, responsible for milk fermentation is discovered.
- **Yogurt is commercialized through pharmacies**.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>~10,000 BC</td>
<td>Herdsman in the Middle East kept milk in goatskin bags which transformed into a tangy custard.</td>
</tr>
<tr>
<td>2,000 BC</td>
<td>Hardman in the Middle East kept milk in goatskin bags which transformed into a tangy custard.</td>
</tr>
<tr>
<td>1072</td>
<td>The Turks were the first to evaluate yogurt medicinal use in a comprehensive dictionary, <em>Dewan</em> Leqhadat Turk.</td>
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<tr>
<td>1208</td>
<td><strong>Lactobacillus bulgaricus</strong>, responsible for milk fermentation is discovered.</td>
</tr>
<tr>
<td>1919</td>
<td>Yogurt is commercialized through pharmacies.</td>
</tr>
</tbody>
</table>

Fermented Foods: Topping the Trends Lists

- **Fermented Foods**
  - Made with microorganisms
  - May or may not contain live active cultures at a level to confer a health benefit
  - Most cheeses are fermented foods

- **Probiotics**
  - Should meet FAQ definition: “Probiotics are live microorganisms that, when administered in adequate amounts confer a health benefit”
  - Yogurts can be considered probiotic for people with lactose intolerance because traditional cultures, Lactobacillus bulgaricus and Streptococcus thermophilus, have been well studied for their ability to help with lactose digestion

Fermented Food or Probiotic?

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The voluntary Live & Active Culture seal indicates a significant amount of the good bacteria remain alive after the fermentation process is complete.
Fermented Foods and Gut Health

- The human digestive tract contains approximately 100 trillion bacterial cells = gut microbiota
- An imbalance between "good" bacteria and "bad" bacteria = dysbiosis
- Factors influencing the gut microbiota composition:
  - Vaginal birth vs. Cesarean
  - Breast vs. formula feeding infants
  - Diet and intake of fiber
  - Antibiotic use
  - Hygiene levels
  - Genetic background
- Some diseases are characterized by microbial colonization patterns that differ from healthy controls
- Fermented foods may contain living cultures that can add beneficial bacteria to the digestive tract
- Eating fermented foods helps maintain a balance between good and bad bacteria → contributing to a healthier microbiota

Dairy Foods and Health Outcomes

Dietary Guidelines
Recommend 3 Daily Servings of Dairy Foods for Those ≥9 years

Cheese: 6 essential nutrients
- Protein
- Calcium
- Phosphorus
- Vitamin B12
- Niacin
- Vitamin A

Milk: 9 essential nutrients
- Protein
- Calcium
- Vitamin D
- Phosphorus
- Niacin
- Vitamin B12
- Riboflavin
- Pantothenic acid
- Zinc

Yogurt: 7 essential nutrients
- Protein
- Calcium
- Phosphorus
- Vitamin B12
- Pantothenic Acid
- Riboflavin
- Zinc

Dairy Foods and Health Outcomes

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.

Dietary Guidelines for America, 2015-2020

Fermented Dairy Foods and Health Outcomes
Dairy Foods are Linked to Reduced Risk of Type 2 Diabetes and Neutral Outcomes

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

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Cheese Consumption does NOT Impact Cholesterol Levels

2 or more risk factors for MetS:

<table>
<thead>
<tr>
<th>Regular Cheese</th>
<th>Reduced Fat Cheese</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>14% kcal from SFA</td>
<td>17% kcal from SFA</td>
<td>19% kcal from SFA</td>
</tr>
<tr>
<td>1 oz cheese = 28g</td>
<td>80g cheese = ~3 oz</td>
<td></td>
</tr>
</tbody>
</table>

Results: No differences in total, LDL, and HDL cholesterol

Conclusions: "A high daily intake of regular-fat cheese for 12 weeks did not alter LDL cholesterol or metabolic syndrome risk factors."


Meta-Analysis: Cheese Consumption is Associated with Reduced CVD Risk

Decreased risk

- CVD 10% reduced risk
- CHD 14% reduced risk
- Stroke 10% reduced risk

Increased risk

- "This meta-analysis of prospective studies suggests a nonlinear inverse association between cheese consumption and risk of CVD."
- "...the largest risk reductions observed at the consumption of approximately 40 g/d (~1.3 oz)"

Hypertension Results: Yogurt and DASH Scores

Hypertensive men and women who consumed ≥2 servings/week of yogurt, especially in the context of a healthy diet, were at lower risk for developing CVD.


"Higher total dairy intake (3 to <6 servings/day), especially in the form of yogurt (at least 5 servings/week), was associated with lower risk of incident HBP in middle-aged and older adult men and women."


Fermented Dairy Foods & Inflammation

- Eating dairy foods does not seem to be linked to increased inflammation
- In some cases eating dairy foods has been linked to reduced indicators of systemic inflammation

Eating Yogurt Linked to Reduced Inflammation and Improved Markers of Gut Integrity

- "Low-fat yogurt consumption reduces biomarkers of chronic inflammation and improves markers of gut integrity in healthy premenopausal women: a randomized controlled trial."

Dairy Foods Matrix

Dairy Foods' Matrix is Unique: Whole is Greater than the Sum of its Parts

For full list of references, visit:

Fermented Dairy Foods Matrix

From Research to Resources and Recipes

Safety & Storage to Minimize Food Waste

Cheese
- Do not leave at room temperature for >2 hours, 1 hour if >90°F
- Keep refrigerator at 35-40°F
- Factor 20-30 minutes to come to room temp
  - Soft Cheeses: Toss after 2 hours
  - Hard Cheeses: Can sit out for 2 hours then wrap well; refrigerate to use again
  - Mold?
    - Soft Cheeses: Don't eat
    - Hard Cheeses: Cut 1” around and below the mold spot, re-cover the cheese in fresh wrap
What about freezing?
- Soft cheese freeze well when shredded
- Aged cheese may become crumbly
- Thaw 24-28 hours in refrigerator

Yougurt
- Do not leave at room temperature for >2 hours, 1 hour if >90°F
- Keep refrigerator at 35-40°F
- Stored properly, shelf-life: 7-14 days
  - Store tightly covered in original container on top shelf of refrigerator
  - Eating only a portion of a carton?
    - Spoon out what you intend to eat and return the carton to the refrigerator
  - If separation occurs, stir the liquid (aka: whey) back into the yogurt
  - What about freezing?
    - Changes texture; may lose active cultures
    - Won't significantly impact nutritional value

Safety & Storage to Minimize Food Waste

Yogurt

https://dairygood.org/content/2017/how-long-can-cheese-sit-out
https://dairygood.org/content/2016/can-you-freeze-cheese
https://dairygood.org/content/2018/can-you-eat-moldy-cheese
Quick Tips for Adding More Fermented Dairy to Your Plate

Breakfast
• Add yogurt, kefir or buttermilk to your smoothies, granola or oatmeal
• Create a savory breakfast bowl and top with yogurt and shredded cheese

Lunch/Dinner
• Use yogurt in place of mayonnaise on your sandwiches
• Try a yogurt-based salad dressing or make your own ranch using buttermilk
• Top salads with flavorful cheeses to add depth

Snacks
• Create your own dips using buttermilk or yogurt as the base
• Create yogurt parfaits by layering yogurt with granola & fresh fruit

Bringing Science to the Table
Visit www.dairydiscoveryzone.com/recipes for inspiration on how to bring the benefits of fermented dairy foods to the table

Lasagna Soup  Harvest Oatmeal with Apple-Cinnamon Yogurt  Classic Cheese Sauce

People are Asking…
Is this good for my body?  Is this good for the animals?  Is this good for the planet?

Ensuring Milk, Cheese and Yogurt are Free of Antibiotics
• FDA prohibits antibiotics in milk
• Numerous checkpoints in place as milk moves from farm to dairy case
• Any milk that tests positive is rejected and does not enter the food supply

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

Recombinant Bovine Somatotropin (rbST): A Safety Assessment

"...food products from cows treated with rbGH are safe for consumption by humans."

"The FDA’s review of rbGH has been scrutinized by both the Department of Health and Human Services’ Office of Inspector General (OIG) and by GAO, as well as by JECFA."

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Conclusions

▪ Current Dietary Guidelines for American 9 years and older recommend 3 daily servings of dairy foods as part of healthy diet patterns

▪ Fermented dairy food consumption is on the rise and is associated with lower risk of type 2 diabetes and cardiovascular disease as part of healthy diet patterns

▪ Emerging evidence suggest a reduction in chronic inflammation may be one of the mechanisms mediating these beneficial effects

▪ Foods are more than just the sum of their individual nutrients; the dairy foods/fermented dairy matrix is unique and needs to be considered collectively when looking to understand these health benefits

Questions?

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