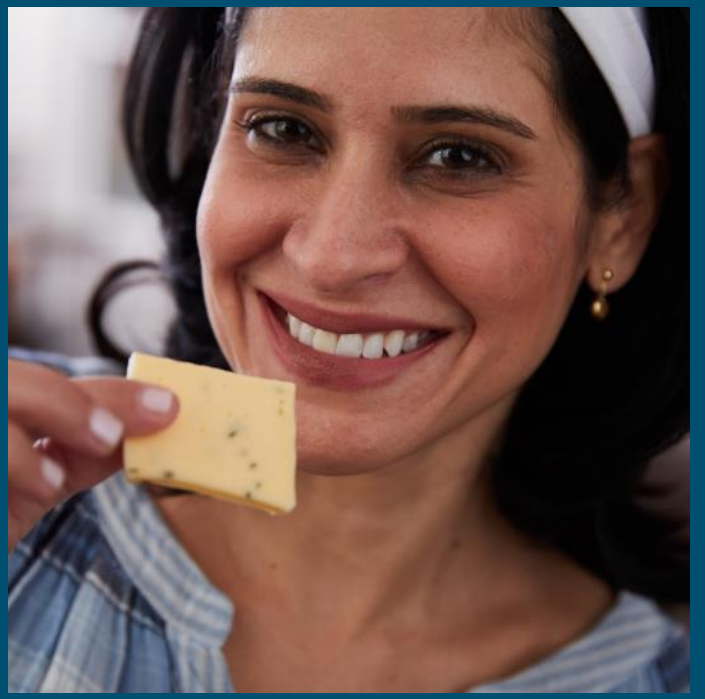
Dairy Council of California® | Let's Eat Healthy®

Let's Eat Healthy Community of Practice

Savor the Science: Functional Health Benefits of Everyday Foods Webinar

March 6, 2024



Solano County Solano Public Health | CalFresh Healthy Living | Sacramento State

Welcome and Overview

Sonia Fernandez Arana, MA
Let's Eat Healthy Program Manager
Dairy Council of California

Dairy Council of California® | Let's Eat Healthy®

Housekeeping

- Audio connection is through your microphone & speakers of your computer of mobile devise.
- If you're having audio difficulty, click on the arrow next to the MUTE button and select TEST SPEAKER AND MICROPHONE. Simply follow the prompts to connect to audio.

- IMPORTANT: Keep your microphone muted to eliminate background noise.

- Time has been reserved at the end of each speaker presentation for Q & A.
- Please use your Chat box to submit questions or comments to the host at anytime.

- A link to the webinar recording and PDF copy of the presentation slides will be emailed.

Dairy Council of California® | Let's Eat Healthy®

Introductions

Please enter your name, agency and response to the question below in the chat.

How do you see food as medicine playing a role in your health?

Dairy Council of California® | Let's Eat Healthy®

Agenda

- Community of Practice Overview
- ***Breaking Down the Science of Functional Foods***

  Nadine Braunstein, PhD, RD, FAND, Associate Professor, California State University, Sacramento
- ***Functional Foods: Community Nutrition Application***

  Rema El-Mahmoud, MPP-D, RDN, Supervising Public Health Nutritionist, Solano County Health and Social Services, Public Health Division
- Let's Eat Healthy Community Discussions and Highlights
- Tools and Resource Spotlight
- Upcoming COP, Evaluation and Closing Remarks

Dairy Council of California® | Let's Eat Healthy®

Objectives

- Explore functional foods and identify sources and health benefits
- Discern between science-based benefits and misleading health claims
- Network to learn strategies to support healthy eating patterns.

Dairy Council of California® | Let's Eat Healthy®

Organizational Statement

Dairy Council of California is a nutrition organization working together with champions to elevate the health of children and communities through lifelong healthy eating patterns.

Focusing on education and advocacy, dairy ag literacy, and collaboration, we advance the health benefits of milk and dairy foods as part of the solution to achieving nutrition security and sustainable food systems.

Dairy Council of California®

Let's Eat Heathy Initiative

Values




1. All children and families deserve equitable access to healthy, culturally diverse, affordable and enjoyable foods as their human right.

2. Food systems ensure the health and well-being of children, families and communities, while protecting the health of the planet.

3. Nutrition education, environmental supports and related policies and guidelines are based on the latest evidence-based research and practices.

4. Healthy eating is centered on individual and community diversity and lived experiences to foster nutrition security.

5. High-quality diets that include nutrient-dense under consumed foods such as dairy, vegetables, fruit and whole grains are an essential part of ensuring children are supported to grow healthfully.

Speaker

Breaking Down the Science of Functional Foods

Nadine Braunstein, PhD, RD, FAND
Associate Professor & Dietetic Internship Director
California State University, Sacramento

SACRAMENTO STATE

Breaking Down the Science of Functional Foods

Nadine Braunstein, PhD, RD, FAND
Associate Professor and Dietetic Internship Director
California State University Sacramento

SACRAMENTO STATE

Disclosures

- Employed by Sacramento State University
- Participated in 2023 Dairy Council of CA Food & Nutrition Trends for Education and Health Professionals Advisory Panel
- Recipient 2024 Dairy Council of CA Let's Eat Healthy Leadership Award

SACRAMENTO STATE

Objectives for this Presentation

- Participants can identify at least one food in each of the major food groups that are considered a Functional Food because they contain bioactive compounds that promote health.
- Participants can distinguish between a Probiotic and a Prebiotic and identify at least one food in each.
- Participants can explain why a Food Matrix approach to understanding the benefits of foods is better than focusing on individual nutrients.

SACRAMENTO STATE

Poll 1: Who joining us today?

K-12 School education professional

School food service professional

Food industry professional

Community nutrition professional

Student

Other

SACRAMENTO STATE

Poll 2: What is your current knowledge of Functional Foods?

I have expert knowledge about functional foods

I know a lot about functional foods

I know a little about functional foods

The topic is new to me and I want to learn more

SACRAMENTO STATE

Poll 3: Favorite foods – choose 3

- Berries
- Oats
- Nuts
- Salmon
- Yogurt
- Apples
- Oranges
- Shiitake mushrooms
- Grapes
- Avocados

SACRAMENTO STATE

Defining Functional Food

- FDA – No legal definition

- IFT: ‘Functional foods are conventional foods to which specific essential nutrients and/or food components are added for a targeted physiological function. Because of this, these foods have the potential to provide a health benefit beyond basic nutrition.’

Defining Functional Food


FROM THE ACADEMY
Position Paper

Position of the Academy of Nutrition and Dietetics: Functional Foods

It is the position of the Academy of Nutrition and Dietetics to recognize that although all foods provide some level of physiological function, the term functional foods is defined as whole foods along with fortified, enriched, or enhanced foods that have a potentially beneficial effect on health when consumed as part of a varied diet on a regular basis at effective levels based on significant standards of evidence. . . . All food is essentially functional at some level as it provides energy and nutrients needed to sustain life. However, there is growing evidence that some food components, not considered nutrients in the traditional sense, may provide positive health benefits. Foods containing these food components are called functional foods.

Position expired Dec 31, 2016

SACRAMENTO STATE

Functional Foods and Health

- Lower cholesterol/triglycerides
- Promote heart health
- Reduce Blood Pressure
- Reduce many types of cancers
- Promote immune function
- Promote gut health

Examples of Bioactive Compounds in Food

- Prebiotics
- Probiotics
- Polyphenols
- Beta-glucan
- Flavonoids
- Allicin
- Quercetin
- Phytosterols
- Lycopene
- Omega-3 fatty acids

What are Prebiotics and Probiotics?

Probiotic

The International Scientific Association for Probiotics and Prebiotics defines probiotics as **"live microorganisms that, when administered in adequate amounts, confer a health benefit on the host"** [1].These microorganisms, which consist mainly of bacteria but also include yeasts, are **naturally present in fermented foods**,

Prebiotic

Prebiotics are typically complex carbohydrates (such as inulin and other fructo-oligosaccharides) that **microorganisms in the gastrointestinal tract use as metabolic fuel**

https://ods.od.nih.gov/factsheets/Probiotics-HealthProfessional/

SACRAMENTO STATE

Examples of Probiotic and Prebiotic Foods

Probiotic-containing foods

- **Yogurt**
- **Sauerkraut**
- **Kimchi**
- **Kombucha**
- **Kefir**
- **Labneh**
- **Some aged/soft cheeses**

Prebiotic Foods

- **Oats**
- **Bananas**
- **Blueberries**
- **Asparagus**
- **Spinach**
- **Artichokes**
- **Jerusalem artichokes**
- **Onions**
- **Leeks**
- **Garlic**
- **Flax seed**
- **Chia seed**

SACRAMENTO STATE

Examples of Functional Foods from the Food Groups – What's the Science?

- For this presentation – focus on FOOD

SACRAMENTO STATE

Vegetables

https://www.allrecipes.com/what-type-of-onions-best-for-cooking-7498473

SACRAMENTO STATE

Fruits

https://www.health.harvard.edu/heart-health/fruit-of-the-month-berries

https://k1047.com/2020/07/08/trader-joes-is-now-selling-gummy-bear-flavored-grapes/

SACRAMENTO STATE

Dairy

https://www.surlatable.com/euro-cuisine-automatic-yogurt-maker/PRO-645903.html

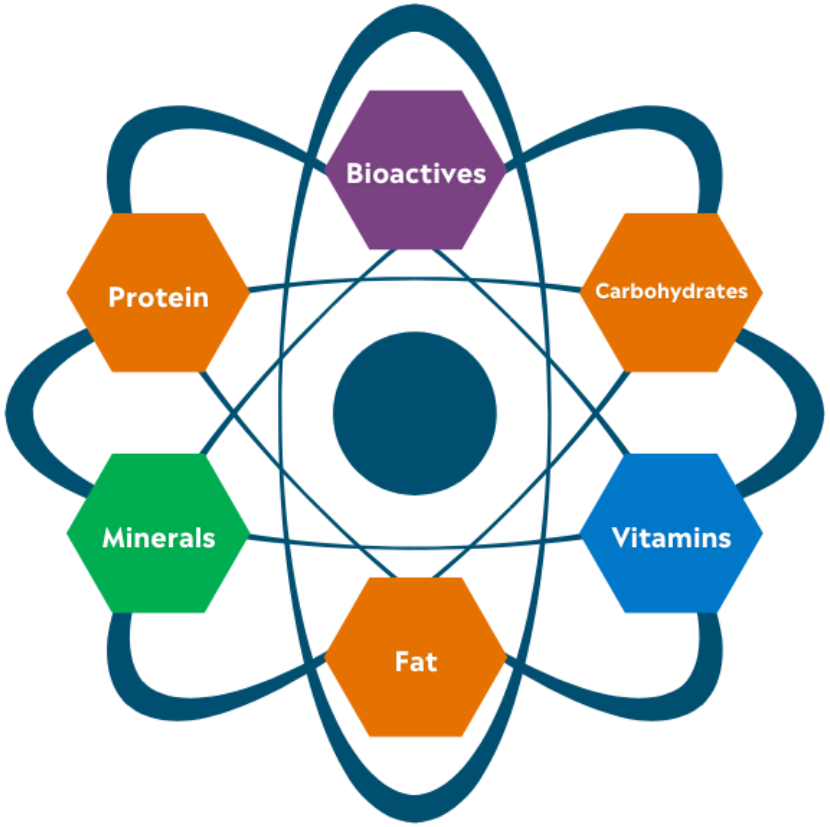
Labneh

Cultured Pasteurized Grade A Milk, Skim Milk & Cream. Contains 6 Live Active Probiotic Cultures: S. Thermophilus, L. Bulgaricus, L. Lactis, L. Casei, L. Acidophilus and Bifidobacterium

https://www.karouncheese.com/product/yogurt-lowfat-plain-32-oz/1054

Photo credits for cheese, labneh, kefir, cottage cheese: Canva

The Dairy Food Matrix



Source: https://www.usdairy.com/getmedia/03080c08-4f29-4918-82c0-b2e1e8f97f01/NDC-Dairy-Matrix-Webinar-Slides.pdf?ext=.pdf

Weaver CM. Nutr Rev. 2021.

Dairy Council of California® | Let's Eat Healthy®

Protein-rich foods

https://www.flickr.com/photos/74105777@N00/30956824

https://www.quora.com/What-are-the-pros-and-cons-of-eating-almonds-and-walnuts-on-an-empty-stomach

.flickr.com/photos/7364580

SACRAMENTO STATE

Grains

https://www.drweil.com/diet-nutrition/cooking-cookware/cooking-with-grains-oats/

SACRAMENTO STATE

Other foods

https://www.jessicagavin.com/how-to-cut-an-avocado/

https://www.taste.com.au/healthy/articles/garlic/lh3qfkza

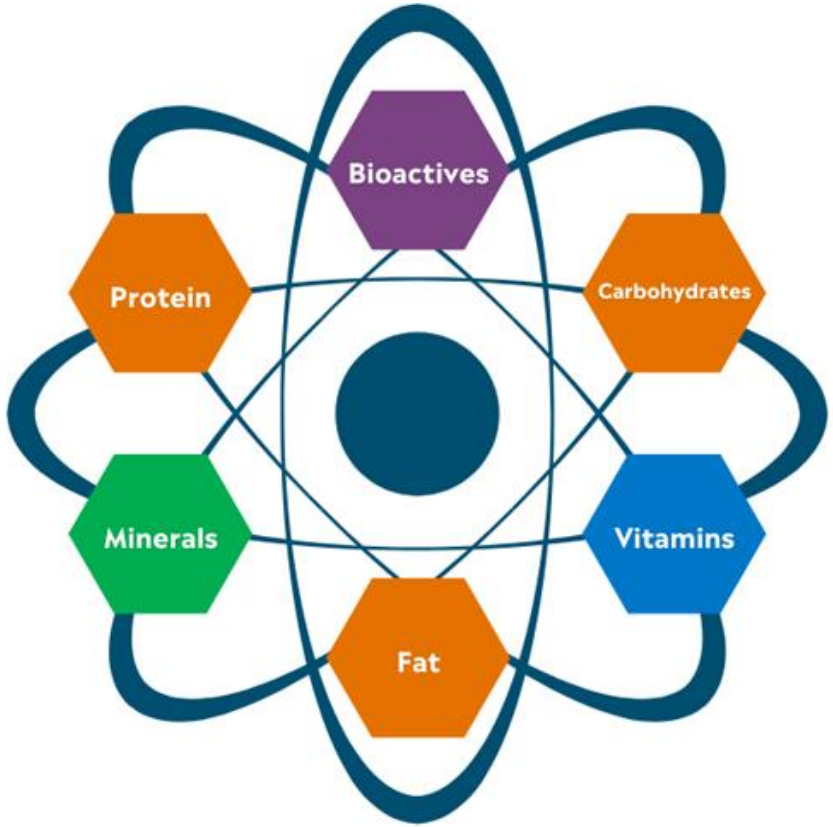
https://charlotteoptometry.com/wp-content/

SACRAMENTO STATE

Myths vs. Facts

- An apple a day keeps the doctor away
- Eggs are bad for your health
- Eating a low fat diet is best for heart health

Benefits of a Meal Pattern Approach to Healthy Eating vs. Individual Nutrients



Source: https://www.usdairy.com/getmedia/03080c08-4f29-4918-82c0-b2e1e8f97f01/NDC-Dairy-Matrix-Webinar-Slides.pdf?ext=.pdf

SACRAMENTO STATE

Summary

- People eat food, they don't eat nutrition!
- A diet that contains a variety of foods that are minimally processed promotes health – gut, cardiovascular, immune function, cancer prevention.
- Foods contain bioactive compounds in addition to the macro- and micro-nutrients. The Matrix Approach.
- **Probiotics** are in fermented foods/**prebiotics** feed the probiotics

Some resources about Functional Foods

- Functional Foods for Heath – Colorado Cooperative Extension https://extension.colostate.edu/topic-areas/nutrition-food-safety-health/functional-foods-for-health-9-391/
- The Food Matrix: More Than The Sum of its Nutrients https://www.usdairy.com/getmedia/2c7e3fa8-db5b-4b74-b2e6-1ac750e06d1c/Food-Matrix-More-Than-the-Sum-of-its-Nutrients_FINAL.pdf?ext=.pdf
- NIH Office of Dietary Supplements Consumer fact sheet about Probiotics https://ods.od.nih.gov/factsheets/Probiotics-Consumer/

SACRAMENTO STATE

Thank you!!

Nadine Braunstein, PhD, RD, FAND

braunstein@csus.edu

SACRAMENTO STATE

Redefine the Possible™

Questions & Answers

Please type questions, comments and/or compliments in the chat.

Dairy Council of California® | Let's Eat Healthy®

Speaker

Functional Foods: Community Nutrition Application

Rema El-Mahmoud, MPP-D, RDN

Supervising Public Health Nutritionist Solano County Health and Social Services, Public Health Division

SOLANO PUBLIC HEALTH

CalFresh HEALTHY LIVING

Functional Foods: Community Nutrition Application

REMA EL-MAHMOUD, MPP-D, RDN

Family Health and Behavioral Health Services

- Provide nutritional counseling and support to individuals from diverse backgrounds with a variety of health conditions including eating disorders, diabetes and heart disease.

Women Infants and Children (WIC)

- Perform health and nutrition assessments of WIC applicants. Identify and document risk factors according to program requirements. Provides nutrition and health counseling based on participant need. Makes appropriate referrals.

CalFresh Healthy Living (CFHL)

- Empowers Cal-Fresh eligible communities to lead healthy and active lifestyles by providing nutrition education, and supporting policy, system and environmental changes.

Audience Considerations

- Socio-economics
  - Budget constraints
- Literacy Levels
  - Communicating the science
- Language Barriers
  - Resources
- Culture
  - Competence vs. Humility
- Trauma – Informed Education
  - Relationships between adversity, chronic disease and nutrition

CalFresh Healthy Living (SNAP-Ed)

- Evidence-based nutrition education and physical activity promotion
- Evidence-Based Policy, Systems, and Environmental (PSE) Changes
- Direct Education

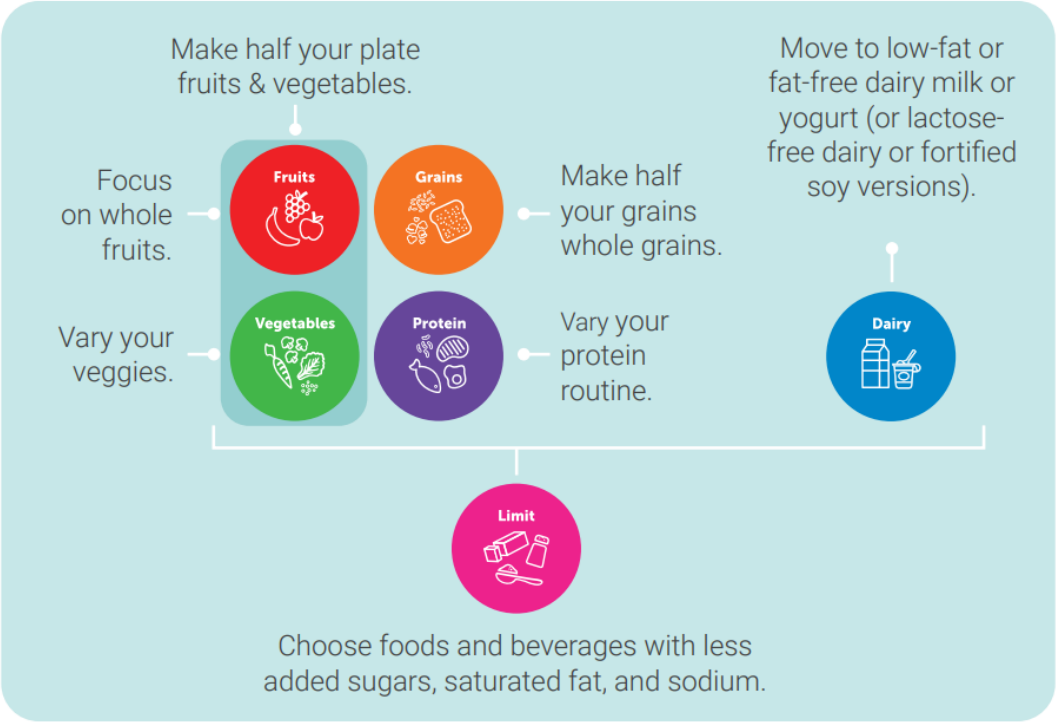
Dietary Guidelines for Americans (DGA) 2020-2025

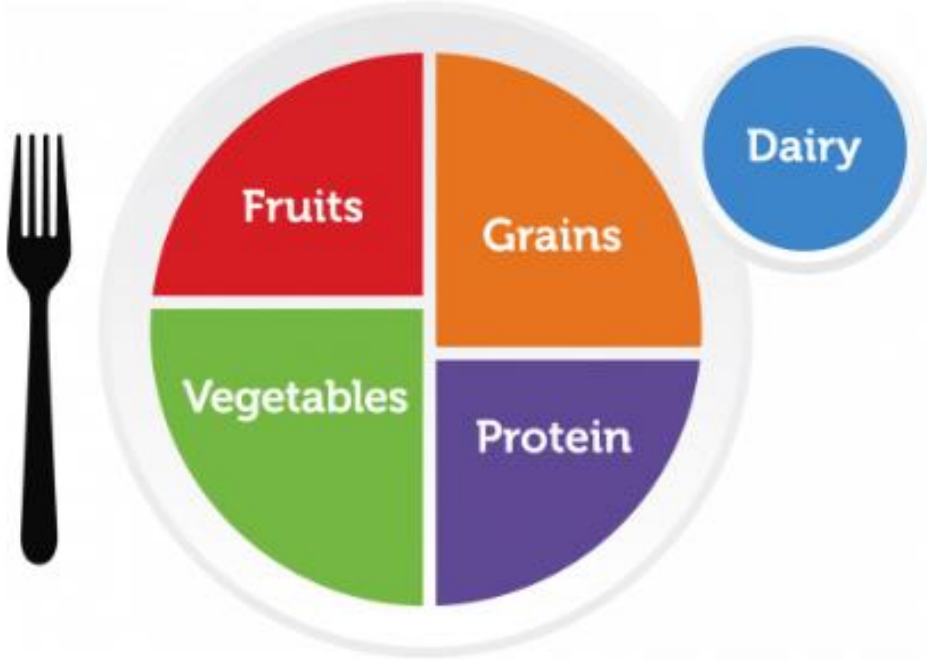
- Updated every 5 years by USDA and HHS
- Tool for health professionals and policy makers
- Make food choices that are enjoyable, affordable and promote health and help prevent chronic disease

CalFresh HEALTHY LIVING

DGA in 4 Steps

- Follow a healthy dietary pattern at every life stage
- Customize and enjoy nutrient-dense food and beverage choices that reflect personal preference, cultural traditions, and budgets
- Focus on meeting food group needs with nutrient-dense foods and beverages, and stay within calorie limits
- Limit foods and beverages higher in added sugars, saturated fat, and sodium, and limit alcoholic beverages





Consumer Messaging

Poll

Have you incorporated information on functional foods into your nutrition education?

- Yes
- No
- Not sure

Make Every Bite Count

Functional Foods:

- “Enhanced” nutrition profile
- Promote growth & development
- Protect against disease
- Minimally processed

Functional Foods & MyPlate

Nutrient/Component	Benefits	Examples	Food Group(s)
Omega-3 fatty acids	Cognitive/brain function, joint health, lower risk of heart disease	Fatty fish: salmon, trout	Protein
Anti-oxidants	Reduce risk of disease (including heart disease and certain cancers), reduce oxidative stress	Berries, dark chocolate, kale, pecans, spices and herbs (such as ginger, turmeric, garlic), legumes	F/V, protein
Pre-biotics, Pro-biotics and Synbiotics	Supporting gut health	Pro: yogurt, kefir, kimchi Pre: oats, bananas, tomatoes, artichokes, garlic	F/V, dairy, grains
Dietary fiber	Digestive health, heart health, appetite regulation	Nuts, seeds, whole grains, legumes, pears, berries, avocado, beets, kale, carrots	F/V, protein, grains
Modified*	Help close daily nutrient gap, address deficiencies	Fortified and enriched foods: fortified milk (Vit. D), fortified OJ (Calcium), fortified cereals	Various

Health Claims: 2 Types

- Authorized
- Qualified

Health Claims: Authorized

- There must be **significant scientific agreement** (SSA) and scientific evidence for a substance/disease relationship
- Thorough review by FDA
- Cannot quantify the degree of risk reduction; must use terms such as ***may*** or ***might***
- FDA has full list of approved authorized claims

Example:
"Adequate calcium and vitamin D as part of a healthful diet, along with physical activity, **may reduce the risk** of osteoporosis in later life."

Health Claims: Qualified

- Supported by some scientific evidence, but do not meet the SSA standard
- Evidence of health benefits is still emerging
- FDA has a list of all approved qualified health claims

Example:
"Scientific evidence **suggests, but does not prove**, that whole grains (three servings or 48 grams per day), as part of a low saturated fat, low cholesterol diet, may reduce the risk of diabetes mellitus type 2."

Red Flag Messaging

1. Quick fixes
2. “Good” vs. “Bad” foods
3. Too good to be true
4. Dire warnings
5. Dramatic statements
6. Recommendations based on one study
7. No peer reviews
8. Ignores differences among groups

Tips on responding

- Health promotion not disease treatment
  - Not providing MNT
  - Acknowledge group/class setting
- Media reports vs. peer-reviewed science
- Sustainability and long-term effects

Affirm and reflect
Offer correct information
Thank and move on

Resources

- Trauma-Informed Nutrition: https://keltyeatingdisorders.ca/wp-content/uploads/2021/10/Trauma-Informed-Nutrition.pdf
- CFHL: https://calfresh.dss.ca.gov/healthyliving/home
- DGA: https://www.dietaryguidelines.gov/resources/2020-2025-dietary-guidelines-online-materials
- FDA approved health claims:
  - Authorized: https://www.fda.gov/food/food-labeling-nutrition/authorized-health-claims-meet-significant-scientific-agreement-ssa-standard
  - Qualified: https://www.fda.gov/food/food-labeling-nutrition/qualified-health-claims

SOLANO COUNTY 1850

SOLANO PUBLIC HEALTH

Accredited Health Department • PHAB Advancing Public Health Performance • Public Health Accreditation Board

Questions & Answers

Please type questions, comments and/or compliments in the chat.

Dairy Council of California® | Let's Eat Healthy®

Let's Eat Healthy Community Discussion

Breakout Session Directions

1. Your breakout room will be assigned.
2. Discuss the following question: **How do you currently incorporate or plan to incorporate the benefits of functional foods in your work?**
3. A facilitator will summarize your discussion and report back.
4. The breakout session will be approximately 15 mins.

Dairy Council of California® | Let's Eat Healthy®

Discussion Facilitator
Let's Eat Healthy Champion

Cesar Sauza, RD

Clinical Nutrition Manager

AltaMed

AltaMed

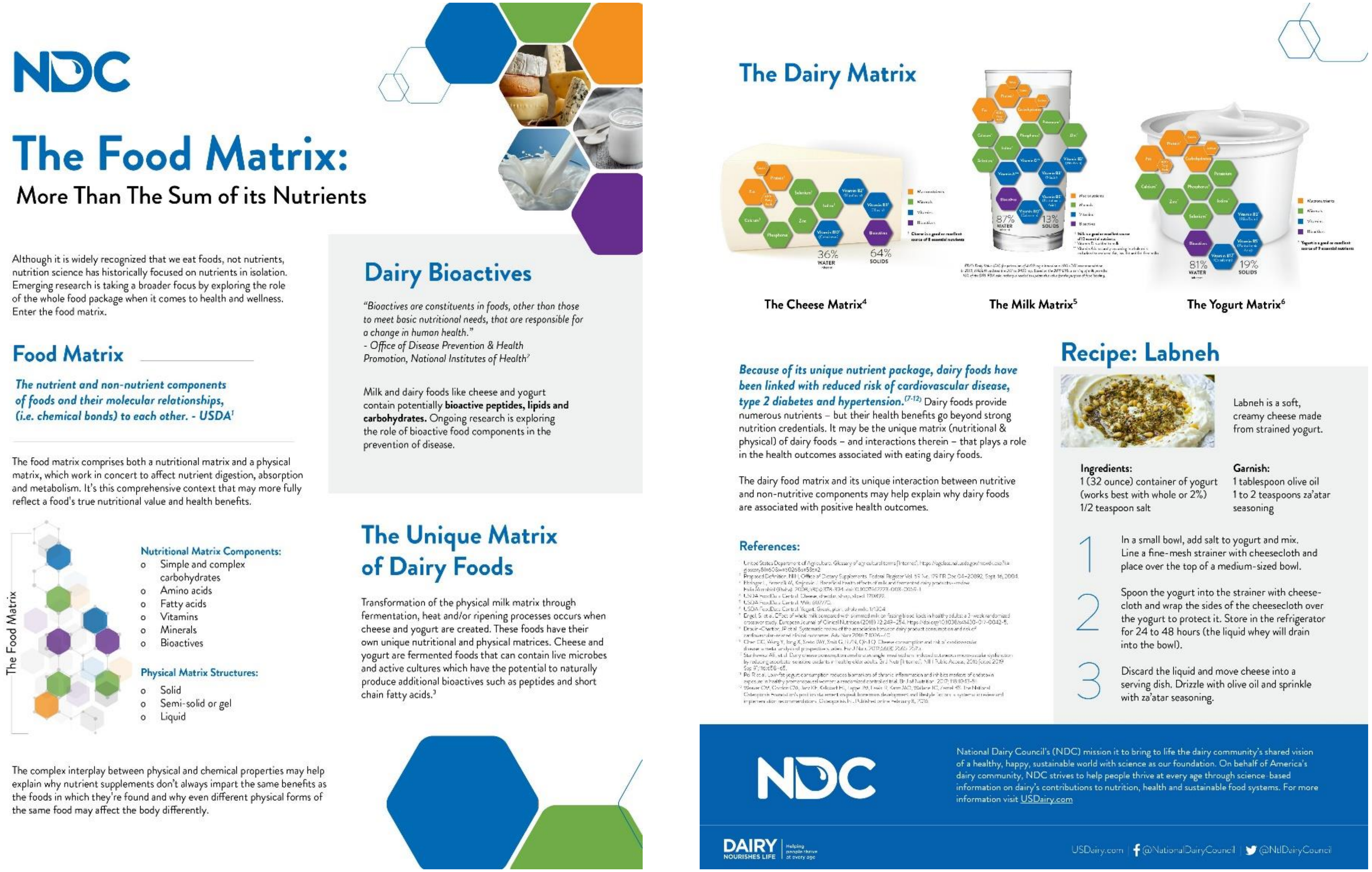
Dairy Council of California® | Let's Eat Healthy®

Discussion Highlights

Please provide 1 to 2 key takeaways per breakout room.

Dairy Council of California® | Let's Eat Healthy®

Resource Spotlight


NDC

The Food Matrix:

More Than The Sum of its Nutrients

Although it is widely recognized that we eat foods, not nutrients, nutrition science has historically focused on nutrients in isolation. Emerging research is taking a broader focus by exploring the role of the whole food package when it comes to health and wellness. Enter the food matrix.

Food Matrix

The nutrient and non-nutrient components of foods and their molecular relationships, (i.e. chemical bonds) to each other. - USDA[1]

The food matrix comprises both a nutritional matrix and a physical matrix, which work in concert to affect nutrient digestion, absorption and metabolism. It's this comprehensive context that may more fully reflect a food's true nutritional value and health benefits.

The Food Matrix

Nutritional Matrix Components:

- Simple and complex carbohydrates
- Amino acids
- Fatty acids
- Vitamins
- Minerals
- Bioactives

Physical Matrix Structures:

- Solid
- Semi-solid or gel
- Liquid

The complex interplay between physical and chemical properties may help explain why nutrient supplements don't always impart the same benefits as the foods in which they're found and why even different physical forms of the same food may affect the body differently.

Dairy Bioactives

"Bioactives are constituents in foods, other than those to meet basic nutritional needs, that are responsible for a change in human health."
- Office of Disease Prevention & Health Promotion, National Institutes of Health[2]

Milk and dairy foods like cheese and yogurt contain potentially **bioactive peptides, lipids and carbohydrates.** Ongoing research is exploring the role of bioactive food components in the prevention of disease.

The Unique Matrix of Dairy Foods

Transformation of the physical milk matrix through fermentation, heat and/or ripening processes occurs when cheese and yogurt are created. These foods have their own unique nutritional and physical matrices. Cheese and yogurt are fermented foods that can contain live microbes and active cultures which have the potential to naturally produce additional bioactives such as peptides and short chain fatty acids.[3]

The Dairy Matrix

36% WATER 64% SOLIDS — The Cheese Matrix[4]

87% WATER 13% SOLIDS — The Milk Matrix[5]

81% WATER 19% SOLIDS — The Yogurt Matrix[6]

Because of its unique nutrient package, dairy foods have been linked with reduced risk of cardiovascular disease, type 2 diabetes and hypertension.[7-12] Dairy foods provide numerous nutrients – but their health benefits go beyond strong nutrition credentials. It may be the unique matrix (nutritional & physical) of dairy foods – and interactions therein – that plays a role in the health outcomes associated with eating dairy foods.

The dairy food matrix and its unique interaction between nutritive and non-nutritive components may help explain why dairy foods are associated with positive health outcomes.

References:

Recipe: Labneh

Labneh is a soft, creamy cheese made from strained yogurt.

Ingredients:
1 (32 ounce) container of yogurt (works best with whole or 2%)
1/2 teaspoon salt

Garnish:
1 tablespoon olive oil
1 to 2 teaspoons za'atar seasoning

1. In a small bowl, add salt to yogurt and mix. Line a fine-mesh strainer with cheesecloth and place over the top of a medium-sized bowl.
2. Spoon the yogurt into the strainer with cheese-cloth and wrap the sides of the cheesecloth over the yogurt to protect it. Store in the refrigerator for 24 to 48 hours (the liquid whey will drain into the bowl).
3. Discard the liquid and move cheese into a serving dish. Drizzle with olive oil and sprinkle with za'atar seasoning.

NDC

National Dairy Council's (NDC) mission it to bring to life the dairy community's shared vision of a healthy, happy, sustainable world with science as our foundation. On behalf of America's dairy community, NDC strives to help people thrive at every age through science-based information on dairy's contributions to nutrition, health and sustainable food systems. For more information visit USDairy.com

DAIRY NOURISHES LIFE | Helping people thrive at every age

USDairy.com @NationalDairyCouncil @NtlDairyCouncil

Dairy Council of California® | Let's Eat Healthy®

National Dairy Council

https://www.usdairy.com/getmedia/2c7e3fa8-db5b-4b74-b2e6-1ac750e06d1c/Food-Matrix-More-Than-the-Sum-of-its-Nutrients_FINAL.pdf?ext=.pdf

Resource Spotlight

COLORADO STATE UNIVERSITY EXTENSION

Functional Foods for Health

Fact Sheet No. 9.391 | Food and Nutrition Series | Health

by N. Litwin, J. Clifford, and S. Johnson

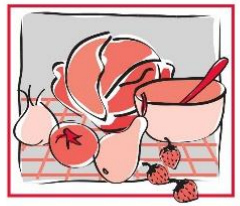
Defining Functional Foods

The concept of food as medicine is not new and has been around for thousands of years. In fact, the tenet "Let food be thy medicine and medicine thy food," was put forth by the father of medicine Hippocrates approximately 2500 years ago. The concept of functional foods

was first introduced in Japan in the mid-1980s when the Japanese government began funding research programs to study the ability of certain foods to influence physiological functions. This led to the creation of a law in 1991 defining a category of Foods for Specialized Health Use (FOSHU) which allowed certain foods to be approved by the Japanese government and carry the FOSHU seal of approval on their labels. In the late 1990s, the European Commission Concerted Action on Functional Food Science in Europe (FUFOSE) was created to establish a science-based approach for concepts in functional food science.

Today, the term functional foods is used to describe foods or food ingredients that provide health benefits beyond meeting basic nutrition needs due to their physiologically active food components (i.e. bioactive compounds or bioactive food components). However, there is no clear definition for functional foods in the United States. Importantly, the Food and Drug Administration (FDA) does not have a statutory definition for functional foods and therefore does not regulate them. Several prominent organizations have their own definitions (Table 1). Although these organizations recognize that all foods are functional on some level as they provide energy and nutrients required to sustain life, they acknowledge that certain foods may provide positive health benefits beyond this, and may exert specific functional effects within the body (e.g. reduction in blood pressure).

*N. Litwin, graduate student, Department of Food Science and Human Nutrition, J. Clifford, Colorado State University Extension food and nutrition specialist ,and S. Johnson, assistant professor, Department of Food Science and Human Nutrition, 4/18.



Quick Facts

- The term functional foods is used to describe foods or food ingredients that provide health benefits beyond meeting basic nutrition needs.
- Inclusion of these types of foods can provide further protection against chronic disease and condition development.
- Different compounds most often work together synergistically to alter one or more physiological process in the body, so including a variety of foods is best.
- "Superfood" and "miracle food" are marketing terms and advertising foods as such can lead to unrealistic expectations.
- Consuming plenty of plant foods and choosing variety among foods can help increase intake of functional foods and the positive effects they may have on the body.

extension.colostate.edu

Table 3. Examples of Functional Foods, Bioactive Food Components, and Potential Health Effects

Food	Bioactive Food Component/Class	Potential Health Effects
Tomatoes	Carotenoids (e.g. lycopene, beta-carotene), vitamins C and A, and potassium	Supports cardiovascular health, may reduce the risk of certain cancers such as mouth, pharynx, larynx, prostate, and lung cancers
Blueberries	Flavonoids (e.g. anthocyanins, phenolic acids), pterostilbene, vitamins C and K, manganese, and dietary fiber	Supports cardiovascular, metabolic, and brain health, may reduce the risk of cancer such as mouth, pharynx, larynx, and lung cancers
Fermented milk/dairy	Bioactive peptides, probiotics, calcium, and protein	Supports gut, immune, cardiovascular and metabolic health
Walnuts	Ellagitannins, phenolic acids, omega-3 fatty acids (alpha-linolenic acid), phytosterols, melatonin, vitamin E, copper, manganese, and magnesium	Supports cardiovascular and brain health, may reduce the risk of certain cancers such as breast and prostate cancer
Broccoli and cruciferous vegetables	Glucosinolates, vitamins C and K, manganese, folate, potassium, fiber	May reduce the risk of certain cancers such as colorectal, mouth, pharynx, larynx, and lung cancer, cardio-protective, may improve antioxidant defenses
Salmon and other fatty fish	Omega-3 fatty acids	Supports eye, brain, and cardiovascular health
Whole grains	Flavonoids, saponins, lignans, resistant starch, B-vitamins, vitamin E, selenium, manganese, dietary fiber, and protein	Supports gut and cardiovascular health, may reduce the risk of colorectal cancer

These particular nutrients are found in the outer layer of the grain or the bran that functions as a protective shell for the germ and endosperm inside. The germ contains phytochemicals such as polyphenols and lignans, vitamin E, and B vitamins. The endosperm provides carbohydrates, protein and energy. Several epidemiologic al studies have shown that a high intake of whole grains is associated with a reduced risk of type 2 diabetes, coronary heart disease, stroke, obesity, and all-cause mortality. Lower risk of cancer, particularly colorectal cancer, has also been reported. In fact, consumption of 90 grams of whole grain foods per day (about 3 servings) has been shown to reduce the risk of colorectal cancer by 17% according to the American Institute for Cancer Research. These effects have been attributed to combination of bioactive compounds that whole grain foods provide. It is thought that whole grain foods may lower cancer, heart disease and diabetes risk by reducing chronic inflammation and oxidative stress, preventing insulin resistance, reducing cholesterol levels, and improving gastrointestinal health. Overall, the evidence suggests that consumption of whole grains can enhance health and promote disease prevention by exerting effects beyond meeting basic nutrition needs and are therefore deemed to a functional food. Additional examples of functional foods, their bioactive components, and associated health benefits are shown in Table 3. It is important to note that although the presence of bioactive compounds in foods is important, their digestion, absorption, and metabolism are also critical factors that influence their health effects. Potential influences on digestion, absorption, and metabolism include accompanying foods, beverages, and/or nutrients consumed, the oral and gut microbiome, quantity consumed, duration of consumption, and health status of the individual (e.g. presence of disease, genetics, and age). Also, factors within the food production chain such as processing and distribution of foods can influence the content and types of bioactive compounds

found in the foods when they are consumed.

Regulation of Functional Foods in the Marketplace

As previously mentioned, the FDA does not provide a specific definition for functional foods, and thus a formal regulatory category and framework does not exist. The only

Dairy Council of California® | Let's Eat Healthy®

Colorado State University Extension

https://extension.colostate.edu/docs/pubs/foodnut/09391.pdf

Resource Spotlight

Dairy Council of California® | Let's Eat Healthy®

U.S. Food & Drug Administration

https://www.fda.gov/food/food-labeling-nutrition/authorized-health-claims-meet-significant-scientific-agreement-ssa-standard

Closing Remarks

- Continuing Education Unit
- Evaluation
- Save the Date: **May 2, 2024**

  2024 Nutrition Trends

Please scan the QR code to complete a short survey

Thank you for joining us!

Dairy Council of California® | Let's Eat Healthy®

Certificate of Attendance

Let's Eat Healthy Community of Practice
Savor the Science: Functional Health Benefits of Everyday Foods

_____

Participant Name

Date: 3/6/24 Location: Webinar

Professional Standards Crediting Information for School Nutrition Programs

Key Area: Nutrition (1000)

Topics: Nutrition Education (1200), General Nutrition (1300)

Learning Objectives: Integrate nutrition education with school nutrition program, utilizing the cafeteria as a learning environment (1220); Promote the Child Nutrition Program (4120); Relate the Dietary Guidelines for Americans and USDA food guidance system to the goals of the school nutrition program (1310)

Total Continuing Education/Instructional Hours: 1.5 hours

This institution is an equal opportunity provider

Contact Information

Nadine Braunstein, PhD, RD, FAND
Associate Professor & DI Director
California State University, Sacramento

braunstein@csus.edu

Rema El-Mahmoud, MPP-D, RDN
Supervising Public Health Nutritionist
Solano County Health and Social Services,
Public Health Division

rel-mahmoud@solanocounty.com

Sonia Fernandez Arana, MA
Let's Eat Healthy Program Manager
Dairy Council of California
sfernandez@dairycouncilofca.org

Dairy Council of California® | Let's Eat Healthy®