Disclosure to Participants

- Notice of Requirements for Successful Completion
  - Session refer to learning goals and objectives
  - Learners must attend the full activity and complete the evaluation in order to claim continuing education credit hours
- Conflict of Interest (COI) and Financial Relationship Disclosures:
- Non-Endorsement of Products:
- Nutrition Consultant
- Conflict of Interest (COI) and Financial Relationship Disclosures:

Objectives

- The true value of dairy
- Dairy’s role in hypertension, obesity and insulin resistance
- Lactose Intolerance
- Strategies to overcome barriers to consuming enough dairy

Nutrients of Public Health Concern

Milk and yogurt contains nine essential nutrients and provides three of four “nutrients of concern” identified by the 2010 Dietary Guidelines
- calcium
- vitamin D
- potassium

Milk and yogurt is an important source of calcium and vitamin D. The role of yogurt in improving quality of the American diet and meeting dietary guidelines. Nutrition Reviews 2014;72(5):160-163
The 2015 Dietary Guidelines Advisory Committee concluded that “consumption of dairy foods provides numerous health benefits, including lower risk of diabetes, metabolic syndrome, cardiovascular disease and obesity.”

**Risk Factors for Diabetes**

- **Obesity**
- **Hypertension**
- **Insulin Resistance**

**Obesity**

- Reviewed evidence from Controlled Clinical Trials
- Whey protein more filling 90 – 180 minutes after eating
- Casein more filling 330 minutes after eating
- Whey stimulate greater secretion of incretin hormones glucagon-like peptide-1 and glucose-dependent insulinotropic polypeptide
- Sense of fullness, thereby suppressing appetite
- Stabilize postprandial glucose excursions

**Hypertension and the DASH Difference**

- Dietary approaches to stop hypertension DASH study 1997 NEJM
- Low fat dairy rich diet high in calcium, potassium and magnesium, and rich in fruits & vegetables significantly lowered blood pressure. (2015 DGAC concluded that strong and consistent evidence demonstrates benefit of this eating type of eating pattern)
- DASH-Sodium Study 2001NEJM
  - Reanalysis of DASH looked more closely at subgroups revealed racial differences
  - DASH diet twice as effective among African Americans
  - \( \downarrow \) Bp 13mm HG

**Type 2 Diabetes & Insulin Resistance**

The Cardia Study 2002 (JAMA)
- Increased dairy consumption inversely associated with insulin resistance syndrome among overweight adults and may reduce risk of type 2 diabetes and cardiovascular disease.
- African Americans have higher rates of each component (obesity, glucose intolerance and hypertension) with the exception of dyslipidemia.
- 20% lower risk of IRS every time dairy was eaten.

“Consumption of Dairy and Metabolic Syndrome Risk in a Convenient Sample of Mexican College Applicants.” (Food and Nutrition Sciences 2013)
- Objective, determine whether individuals not meeting dairy recommendations of 3 servings daily were at greater risk for MetS
- 339 Mexican College Applicants. Cross – Sectional Design
- 76% did not meet dairy recommendation; they were at 2.9 times greater risk for MetS.
- Yogurt, cheese and ice cream helped achieve recommendation for total dairy.
Yogurt and Type 2 Diabetes

  - Prospective analysis of 7-day food diary data from participants in EPIC-Norfolk Study followed for 11 years.
  - 200,000 men and women ages 25 followed 30 years
  - Total dairy, high-fat dairy, milk, cheese or high-fat fermented dairy
  - Higher intake of yogurt associated with a reduced risk of T2D
  - Dairy foods and consumption of total dairy not appreciably associated with incidence of T2D.

Researchers said “the consistent findings for yogurt suggest that it can be incorporated into a healthy dietary pattern.”

African American’s and Hispanics Have the Most to Gain From Dairy

- US Adults consume 1.5 servings of dairy daily.
- Hispanic Americans consume only 1.5-1.6 servings of dairy daily.
- African Americans consume only 1.2 servings of dairy daily.

US Adults consume 1.5 servings of dairy daily.
Hispanic Americans consume only 1.5-1.6 servings of dairy daily.
African Americans consume only 1.2 servings of dairy daily.

Minority Populations Have a Lower Intake of Key Nutrients

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Calcium (mg/d)</th>
<th>Vitamin D (IU/d)</th>
<th>Potassium (mg/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic White</td>
<td>1709</td>
<td>224</td>
<td>2728</td>
</tr>
<tr>
<td>Mexican-American</td>
<td>997</td>
<td>212</td>
<td>2583</td>
</tr>
<tr>
<td>All Hispanic</td>
<td>992</td>
<td>208</td>
<td>2556</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>865</td>
<td>172</td>
<td>2304</td>
</tr>
</tbody>
</table>

Minority Populations Have a Lower Intake of Key Nutrients

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Calcium (1000 mg/d)</th>
<th>Vitamin D (16 mcg/d)</th>
<th>Potassium (4700 mg/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic White</td>
<td>102.9%</td>
<td>32.0%</td>
<td>61.1%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>99.9%</td>
<td>30.7%</td>
<td>59.1%</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>85.8%</td>
<td>26.7%</td>
<td>52.4%</td>
</tr>
</tbody>
</table>

% of Population that Achieves Daily Recommended Intake

- U.S. Department of Agriculture, Agricultural Research Service. 2014. Nutrient intakes from food and beverages: Mean amounts consumed per individual 20 years and over, by race/ethnicity, What We Eat in America, NHANES 2011-2012.

Lactose Intolerance

  - http://digestive.niddk.nih.gov/ddiseases/pubs/lactoseintolerance/

Varying Degrees of Sensitivity

- Lactose Malabsorption
  - Incomplete digestion of lactose, the natural sugar in milk, due to low activity of the lactase enzyme; may be asymptomatic
- Lactose Intolerance
  - Gastrointestinal disturbances following the consumption of an amount of lactose greater than the body’s ability to digest and absorb

Prevalence of Lactose Intolerance

- Estimated to affect 25% of the American population.
- Ethnic Prevalence
  - 15% (6% to 19%) – whites
  - 53% – Mexican Americans
  - 62% to 100% – Native Americans
  - 80% – African Americans
  - 90% – Asian Americans


Lactose Intolerance Prevalence Study

- A telephone survey of a national sample of adults in three ethnic groups found that the overall prevalence rate of age-adjusted, self-reported lactose intolerance is 12 percent – with
  - 7.72 percent of European Americans
  - 10.05 percent of Hispanic Americans
  - 19.50 percent of African Americans considering themselves to be lactose intolerant.

Lactose Intolerance Overestimated

- According to this research, only 24% of African Americans surveyed actually reported being lactose intolerant.
- In another study that assessed prevalence estimates for adults who reported themselves to be lactose intolerant, 8%, 20%, and 19% of whites, African Americans, and Hispanics self-reported being lactose intolerant, respectively.

Lactose Intolerance vs Milk Allergy

<table>
<thead>
<tr>
<th>Lactose intolerance</th>
<th>Milk allergy</th>
</tr>
</thead>
<tbody>
<tr>
<td>A sensitivity</td>
<td>An allergy</td>
</tr>
<tr>
<td>Occurs in gastrointestinal system</td>
<td>Triggered by immune system</td>
</tr>
<tr>
<td>A sensitivity to milk carbohydrate (lactose)</td>
<td>A reaction to milk protein</td>
</tr>
<tr>
<td>Rare in young children</td>
<td>Generally impacts young children; may be outgrown*</td>
</tr>
<tr>
<td>Can enjoy milk and milk products with simple management strategies</td>
<td>Should avoid milk and milk products (unless allergy is outgrown)</td>
</tr>
</tbody>
</table>

Eating Patterns Shown to Benefit People with Diabetes

Eating Patterns

Consider personal preferences and metabolic goals when recommending an eating pattern.

Dash

- High in fruits, vegetables, low-fat dairy, whole grains, poultry, fish, nuts. Low in saturated fat, red meat, sweets, sugar-containing beverages, sodium.
- In 1995, the National Heart, Lung and Blood Institute funded the landmark diet and blood pressure study called Dietary Approaches to Stop Hypertension (DASH) trial. The study was remarkable, illustrating for the first time that dietary intervention alone significantly lowers systolic and diastolic blood pressure in hypertensives and nonhypertensives.
Dash
Can it prevent or control Diabetes
• Most research on the DASH diet has been in people without diabetes, but there was a small study published January 2011 in Diabetes Care that examined people with type 2 diabetes. The participants, who were randomly assigned to a control diet or the DASH eating plan with a sodium restriction of 2,300 mg/day, experienced reduced body weight, improved fasting blood glucose, A1c, blood pressure, and other cardiovascular risk factors.
• Being overweight is one of the biggest risk factors for type 2 diabetes, and combining DASH with calorie restriction has been found to shed pounds and reduce other risk factors for diabetes such as metabolic syndrome.

Eating Patterns
Mediterranean style
• Abundant plant food, minimally processed, fresh, seasonal foods. Fruit as dessert; sugar/honey infrequently. Olive oil primary fat. Low to moderate dairy, eggs, red meat, wine (with meals).
• In 1993, Oldways, a nonprofit organization, the Harvard School of Public Health, and the European Office of the World Health Organization (WHO) introduced the Mediterranean Diet along with the Mediterranean Diet Pyramid graphic.

Mediterranean Diet
Can it prevent or control diabetes?
• Noted by many leading scientists as one of the healthiest in the world. In the last year, 10 studies have been published that document the relationship between diabetes and the Mediterranean Diet.
• In a large study published in the August 2013 issue of Diabetologia, researchers analyzed data from more than 22,000 participants followed for 11 years in the Greek cohort of the European Prospective Investigation into Cancer and Nutrition (EPIC) study to investigate the relationship between the Mediterranean Diet, glycemic load, and occurrence of type 2 diabetes.
• Researchers found that people who consumed foods with a low glycemic load that adhere to the principles of the Mediterranean Diet have a 20% reduced risk of type 2 diabetes.

Closing the Nutrient Intake Gap
Overcoming Lactose Intolerance

EVERYTHING THAT RUMBLES IS NOT LACTOSE INTOLEANCE
Moving Beyond Belly Aches

Pinpointing the Problem: Standardized Objective Testing
- Hydrogen Breath Test (lactose non absorption)
- Lactose Tolerance Test (Lactose absorption)
- Stool Acidity Test

Lactose In Common Dairy Food

<table>
<thead>
<tr>
<th>FOOD</th>
<th>SERVING</th>
<th>LACTOSE IN FOOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole, 2%, 1%, Skim Milk</td>
<td>1 cup</td>
<td>12g</td>
</tr>
<tr>
<td>Chocolate milk, reduced fat</td>
<td>1 cup</td>
<td>10g</td>
</tr>
<tr>
<td>Cottage Cheese, low-fat, 2% milkfat</td>
<td>1 ounce</td>
<td>0g (product label)</td>
</tr>
<tr>
<td>Cheddar Cheese, sharp</td>
<td>1 oz.</td>
<td>&lt;0.1g</td>
</tr>
<tr>
<td>Swiss Cheese</td>
<td>1 oz.</td>
<td>&lt;0.1g</td>
</tr>
<tr>
<td>Mozarella</td>
<td>1 oz.</td>
<td>&lt;0.1g</td>
</tr>
<tr>
<td>Queso Fresco</td>
<td>1 oz.</td>
<td>&lt;0.1g</td>
</tr>
<tr>
<td>American Cheese, pasteurized, proceeded</td>
<td>1 oz.</td>
<td>&lt;0.1g</td>
</tr>
<tr>
<td>Yogurt, plain, whole milk</td>
<td>6 oz.</td>
<td>8g</td>
</tr>
<tr>
<td>Yogurt, Greek, plain, nonfat</td>
<td>6 oz.</td>
<td>4g</td>
</tr>
<tr>
<td>Yogurt, vanilla, plain, semisweet</td>
<td>6 oz.</td>
<td>4g</td>
</tr>
</tbody>
</table>

Lactose In Common Dairy Food
- Lattes, warm milk, hot chocolate
- Natural cheeses such as Cheddar, Parmesan, Swiss
- Cold beverages such as smoothies/licuados
- Cereal and milk (hot or cold)

There’s More than One Way to Enjoy Dairy
- Yogurt and Lactose Intolerance
  - Yogurt more easily digested
  - lactase-producing yogurt cultures
  - less lactose per serving than milk

Recognize Barriers
- Yogurt and Lactose Intolerance

Simple DAIRY Strategies to Manage Lactose Intolerance
- D Drink milk with food
- A Aged cheese like Cheddar and Swiss are low in lactose
- I Introduce dairy slowly, smaller portions at first. Gradually increase
- R Reduce it. Enjoy lactose-reduced milk and milk products
- Y Yogurt with live and active cultures helps digest lactose
Build on Tradition

- Traditional foods with milk, natural cheeses and yogurt
  - Tacos
  - Cornbread
- Soups made with milk

Lactose Free Products Provide Delicious Options

- Real milk without the lactose
- Same essential nutrients

Adapting Your Message Can Lead to Success

- Promote small sequential steps to change a lifestyle.
- Motivate parental change.
- Keep culture and taste preferences top of mind.
- Accentuate the positives.

Strategies for Diabetes Educators

- Get informed - become educated on current guidelines
- Ask - inquiry about lactose intolerance as a core question when taking a history
- Advise - encourage formal testing for lactose intolerance
- Identify those at risk - people with diabetes whose health may be improved by protecting against nutrient insufficiency
- Educate - regarding the critical role of consuming 3 servings of dairy foods per day

Questions and Answers

@eatingsoulfully