Thank you for your patience!
The presentation will begin shortly.

Caregiver Connections
Duke dementia family support program

dukefamilysupport.org
919-660-7510
Agenda

- How food affects our brains
- Malnutrition risk
- Diets and cognitive function
- Challenges for caregivers
- Nutrition in advanced dementia
What we eat and drink impacts our brain health.

How food affects our brains.
Diet-related lifestyle practices for brain health

- BMI between 18.5 and 24.9 km/m²
- Physical exercise
- Manage diabetes, blood pressure, stress
- Avoid deficiencies in B12 or folic acid
- Manage diabetes, blood pressure, stress
- Avoid deficiencies in B12 or folic acid
- Reduce neuroinflammation
- Inflammation can trigger amyloidosis, neuron death, and reduced brain size

Antioxidants

- Theory: brain has a high metabolic rate and generates oxidative stress → death of brain cells
- Antioxidants can protect against oxidative stress in cells
- Example antioxidants:
  - Vitamins A (beta-carotene), C, and E
  - Minerals: manganese, copper, selenium, zinc
- Mixed evidence in research
  - Potential harm: vitamin overdose
  - Variety of study methods

Take-home: +/- multi-vitamin, treat deficiencies

Potential harm: vitamin overdose

B12 or folic acid deficiency

- Theory: Low folate and/or B12 deficiency
  - High levels of homocysteine in the blood
  - Accumulation of amyloid and tau (proteins involved in Alzheimer's dementia)

- Mixed evidence in research
  - B vitamin supplementation lowers homocysteine or cognitive decline
  - No evidence that it translates to protection from dementia or cognitive decline

Take-home: treat B12 deficiency, eat a well-rounded diet

Folic acid sources:
- Asparagus
- Avocado
- Beets
- Broccoli
- Eggs
- Leafy greens
- Oranges
- Peppers
- Seeds and nuts
- Tuna
- Trout
- Salmon
- Milk
- Liver
- Greek yogurt
- Clams
- Fortified cereal
- Eggs
- Beef
- Folic acid sources:
- Leaky greens
- Broccoli
- Beets
- Avocado
- Asparagus
Vitamin D

• Theory: anti-inflammatory, antioxidant

• Research: low vitamin D levels may be associated with cognitive decline

• Low vitamin D levels may be lower in older adults

• Take-home: treat deficiency

3 days / week

15-30 min of sun

800-4000 IU/day

Poly-unsaturated fatty acids (PUFAs)

- Theory: PUFAs are an important building block for neuron membranes. They may help keep the membrane strong.

  - Theory: PUFAs are an important building block for neuron membranes. They may help keep the membrane strong.

  - Take-home: Very little evidence

- Mixed evidence in research

  - Fish, omega-3, docosahexaenoic acid (DHA) - Also may have anti-inflammatory properties

Both are high in antioxidants and fiber and low in saturated fat and sugar. Conflicting data exist on dietary approaches to stop hypertension (DASH) and Mediterranean diets. Both are associated with better cognitive function, reduced cardiovascular risk, and better adherence to diet = better cognitive performance. DASH diet: Extra virgin olive oil = main fat source, low intake: red and processed meats, wine with meals, moderate intake: fish, poultry, red meats, grains, nuts, legumes, whole grains, whole fruits, vegetables, whole grains. Mediterranean diet: High intake: fruits, vegetables, whole grains, nuts, low intake: red and processed meats, low fat dairy foods, low sodium, also: low fat dairy foods, low sodium, whole grains, nuts, whole grains, whole fruits, vegetables, whole grains, nuts. Does not recommend alcohol. Anti-inflammatory, cardioprotective, based on traditional Mediterranean diet.
MIND Diet

• Mediterranean-DASH Diet Intervention for Neurodegenerative Delay

- Created at Rush University, 1997-2013

10 years of follow-up

- Food frequency questionnaires
- Cognitive assessments annually
- Cognitively normal or mild cognitive imp.
- 95% white, 98.5% non-Hispanic
- Average age 81 years
- 1545 community-dwelling older adults

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<table>
<thead>
<tr>
<th>Brain Healthy Foods</th>
<th>Unhealthy Foods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green leafy vegetables</td>
<td>Red meats</td>
</tr>
<tr>
<td>Other vegetables</td>
<td>Red wine</td>
</tr>
<tr>
<td>Beets</td>
<td>Olive oil</td>
</tr>
<tr>
<td>Berries</td>
<td>Poultry</td>
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<tr>
<td>Whole Grains</td>
<td>Seafood</td>
</tr>
<tr>
<td>Fried / Fast Food</td>
<td>Whole Grains</td>
</tr>
<tr>
<td>Pastries and other sweets</td>
<td>Whole Grains</td>
</tr>
<tr>
<td>Cheese</td>
<td>Beans</td>
</tr>
<tr>
<td>Nuts</td>
<td>Berries</td>
</tr>
<tr>
<td>Butter and stick margarine</td>
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</tr>
<tr>
<td>Red meats</td>
<td>Other vegetables</td>
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<td>&quot;Brain healthy foods&quot;</td>
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**MIND Diet**

- Pastries and sweets: Less than five times a week with no more cheese or fried food.
- Olive oil instead of margarine or butter.
- A five-ounce glass of red wine each day.
- A week of fish at least once.
- At least twice a week of berries.
- At least one serving of nuts each day.
- At least one serving of whole grains each day.
- At least one serving of green salad or one other vegetable each day.

**Benefits:**
- The same purple grape juice provides many benefits.
- If you don’t drink alcohol.

[https://www.huffpost.com/entry/the-new-mind-diet-may-help](https://www.huffpost.com/entry/the-new-mind-diet-may-help)
Heavy alcohol use

- Avoid heavy alcohol use
  - Defined as >21 units per week
Malnutrition in Older Adults

Malnutrition is highest in Older Adults

- 3,754
- 1,487
- 437
- 107
- 0

- Age 85+
- Age 65-84
- Age 40-64
- Age 18-39
- Age 0-17

Protein-Calorie Malnutrition-Related Hospital Stays per 100,000 Population

- Up to 1 out of 2 older adults
- 1 in 2
- 3X more likely to result in death
- 3X longer related hospital stays are estimated to cost $51.3 billion annually
- 2X longer related hospital stays

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### Consequences of Malnutrition

<table>
<thead>
<tr>
<th>Fluid accumulation</th>
<th>Impaired immune function</th>
<th>Reduced calcium and vitamin D</th>
<th>Loss of fat tissue</th>
<th>Loss of lean body muscle and endurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be localized or generalized</td>
<td>• Reduced production of acute phase reactants</td>
<td>• Reduced bone density</td>
<td>• Reduced energy reserves</td>
<td>• Reduced strength and endurance</td>
</tr>
<tr>
<td>Obscures identification of weight loss</td>
<td>Weakened immune response</td>
<td>Weakens immune response</td>
<td>Increases fracture risk or injury</td>
<td>Increases fall risk</td>
</tr>
<tr>
<td>Limits function</td>
<td>Delayed healing</td>
<td>Increases duration of illness or injury</td>
<td>Increases fracture risk</td>
<td>Increases fall risk</td>
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- Reduced strength and endurance
- Reduced bone density
- Reduced production of acute phase reactants
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- Reduced calcium and vitamin D
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- Obscures identification of weight loss
- Limits function
Nutritional risk factors

Nutritional Risk

- Oral health
- Age-related changes
- Functional disability
- Mental health and cognitive changes
- Multi-morbidity
- Medication side effects
- Age-related changes

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- Age-related changes
- Multi-morbidity
- Medication side effects
- Oral health
- Mental health and cognitive changes
- Functional disability
- Age-related changes
- Financial constraints
- Inability to prepare food
- Limited transportation
- Social isolation
Challenges for caregivers

- Hydration
- Not eating
- Difficulty swallowing
- Taste preferences change

Strategies for nutrition and hydration challenges for dementia family caregivers
Mealtime considerations

- Environmental cues
- Food preparation
- Adaptive equipment
Who else can help?

- Adaptive equipment
- Tray set-up
- Hand feeding techniques
- Environmental cues

**Speech Pathologist**
- Speech language pathologist
- Environmental cues

**Speech Language Pathologist**
- Individualized assessment and recommendations
- Nutrition / malnutrition evaluation

**Registered Dietitian**
- Individualized assessment and recommendations
- Nutrition / malnutrition evaluation

**Occupational Therapist**
- Swallowing evaluation and recommendations
- Hand feeding techniques
- Environmental cues
Hand-assisted Feeding

https://www.youtube.com/watch?v=EN-PmPqmm6o
Dysphagia in dementia

Difficulty chewing and swallowing
Weakness
Signs of malnutrition, aspiration
Weakness
For people with Alzheimer's
Advancing dementia
https://www.choosingwisely.org/patient-resources/feeding-tubes-for-people-with-alzheimers/
Feeding tubes for PLWD

- No increased length of life
- No increased quality of life

Complications:
- Aspiration
- Infection, pulling, aspiration

Careful hand feeding

- Human contact
- Pleasure of tasting foods

Feeding

- Feeding tubes
Person-centered decision-making

• Consider personal goals and preferences when thinking about:
  – Foods to include in someone’s diet
  – Priority of what goes into their stomach
  – Consistency and textures of food
  – Too many pills?
  – Favorite things to eat and drink

• Thinking about:
  – Preferences and qualities of life when considering personal goals and
Reconsider therapeutic diets

• Diet recommendations accompany many disease management strategies – including the MIND diet!

• Position from the academy of nutrition and dietetics:

  "An individual’s diet should be determined with the person and in accordance with his/her informed choices, goals and preferences, rather than exclusively by diagnosis."

Individualized Nutrition Approaches for Older Adults: Long-Term Care, Post Acute Care, and Other Settings. J Acad Nutr Diet. 2018;118:724-35.
Person-centered decision-making

% focus

"Curative care"

Care continuum

"Palliative care"

MIND Diet

Avoiding malnutrition

Food for comfort

"Curative care"

"Palliative care"

Time →
Take-home points

• MIND diet may be helpful to prevent or slow cognitive decline
• Heavy alcohol is not good for brain health
• Addressing malnutrition risk factors can prevent unwanted outcomes
• Feeding tubes are unlikely to benefit people who can’t eat because of advancing dementia
• As dementia progresses, our focus shifts: food can be a way to enhance social interaction and pleasure
• Feeding tubes are unlikely to benefit people who can’t eat because of advancing dementia
• Heavy alcohol is not good for brain health
• Cognitive decline may be helped to prevent or slow
Thank you for joining us today!

Duke dementia family support program
Caregiver Connections
An Educational Webinar Series With The Experts
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