EXCLUSIVE WEBINAR PRESENTATION
NUTRITION MANAGEMENT OF ADHD

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Disclosure
Objectives

- Explain the etiology of ADHD as it relates to nutrition interventions
- List 2 nutrients that may be recommended for supplementation
- Explain how nutrition-related research for children with ADHD is conducted
Diagnosis

No single test used to diagnose

American Psychiatry Association DSM-5 criteria¹

- Symptoms by age 12, present for 6+ months
- Occur in 2+ settings
- Inattention, hyperactivity, and impulsivity
- Interferes with functioning and development

1. American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders
Diagnosis

What is the difference between ADHD and ADD?

American Psychiatry Association DSM-5 criteria¹

- Combined
- Inattentive
- Hyperactive and impulsive

1. American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders
Hallmarks

Impulsivity
Inattentiveness
Hyperactive

Creative
Innovative
Imaginative
Often super intelligent
Faces of ADHD

Michael Phelps - Olympic Swimmer
  ▶ Used swimming to help him focus

Richard Branson - Entrepreneur, billionaire
  ▶ Innovative, always using his imagination

Walt Disney
  ▶ Creative genius - surrounded himself by others to work out the details

Justin Timberlake
  ▶ Musical genius
Etiology

Widely accepted theory

- Altered neurotransmitter activity
- Not enough of dopamine or serotonin to control behaviors

Genetics

Etiology

Serotonin regulates brain activity
- Executive function
- Impulsivity
- Sensory gating - ability to filter out unnecessary external stimuli
- Social behavior

People with ADHD and similar disorders have decreased serotonin activity
Co-morbidities

2007 National Survey of Children’s Health (parent reports)
- Learning disabilities 46%
- Conduct disorder 27%
- Anxiety 18%
- Depression 14%
- Speech problems 12%

Presence of comorbid disorders can affect the presentation, diagnosis, prognosis, and treatment of ADHD
Prevalence - ages 4-17

National Survey of Children’s Health
2003-2004: 9%

2011: 11%

More than twice as prevalent in boys than girls
Therapy

Medications

- Methylphenidate or amphetamine-containing medications
- Stimulants that act on dopamine receptors in the brain to increase available dopamine and neuronal activity

Behavioral

Nutritional

- Secondary interventions or primary therapy?
Nutrition Considerations

Anthropometrics
Anthropometrics - Height

Medication use can slow growth in height by 1 cm per year for the 1st 3 years of use

*This is about 1 inch*

Rebound growth may be possible if medications stopped

Due to the disease itself or the medication?
Anthropometrics - Weight

Obesity

Prior to treatment
- 1.5 x more likely to be overweight/obese
- Impulsive in many aspects of lifestyle, including eating
- Choose the immediate and easy foods

Prevention/management:
- Behavioral therapy for food-related behaviors
- Plan ahead for improved nutrient content of foods
Anthropometrics - Weight

Underweight

After Starting Medication Therapy
- Stimulant medications reduce appetite
- Children started on these medications have a 1.6 chance of being underweight

Prevention/Management:
- Behavioral therapy for food-related behaviors
- Plan ahead for improved nutrient content of foods
- Adjustment of medication dose and schedule
Nutrition Considerations

Individual Nutrients
Nutrition Research for ADHD

No standardized questionnaire

Perception of behavior
  Hawthorne effect?

Structured interviews of parents
Sugar

Academy of Nutrition and Dietetics 2012 position statement:

- The use of nutritive and non-nutritive sweeteners does not affect behavior of children with or without ADHD

American Academy of Children and Adolescent Psychiatry:

- Does not address any dietary treatments for children with ADHD

Practice Tips

Encourage reduced intake of simple carbohydrates and sugars
Increase whole grains and complex carbohydrates
Artificial Food Colorings and Food Preservatives

1970s Kaiser Permanente Diet
aka Feingold Diet

Follow up studies conflicting

Practice Tips
RDNs discuss pros and cons with parents

Behavioral management and other nutrition interventions
Vitamin D

Deficiency common

Supplementation has been shown to improve inattention, hyperactivity, and impulsivity

### Food Sources of Vitamin D

- **Fatty fish** - tuna, mackerel, salmon
- **Vitamin D fortified foods** - dairy products, orange juice, soy milk, cereals
- **Beef liver, egg yolks**

### Practice Tips

Check with physician 1st!

Supplement 4,000 IU/day IF deficient
Omega 3 Polyunsaturated Fatty Acids

One of the most studied nutrients related to ADHD

Decreased plasma levels in ADHD children

Supplementation studies show conflicting results

- Different dosages
- Differing content of EPA and/or DHA
Pregnant women with omega-3 rich diet less likely to have a child with ADHD-behavior

2012 Cochrane Review
- Little evidence exists that supplementation improves symptoms
- Limited data that combination Omega 3 + Omega 6 supplementation improves symptoms
Omega 3 Polyunsaturated Fatty Acids

2014

Omega 3 supplement + methylphenidate increased benefit over methylphenidate alone

2015

Possibly need a supplement with both EPA and DHA

- Most promising: 650 mg DHA and 650 mg EPA fortified margarine
## Omega 3 Polyunsaturated Fatty Acids

<table>
<thead>
<tr>
<th>Study</th>
<th>Doses</th>
<th>Study Length</th>
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</thead>
<tbody>
<tr>
<td>Belanger et al, 2009&lt;sup&gt;9&lt;/sup&gt;</td>
<td>500 - 1000 mg EPA and 100-400 mg DHA depending on the child’s weight</td>
<td>16 weeks</td>
</tr>
<tr>
<td>Bos et al, 2015&lt;sup&gt;8&lt;/sup&gt;</td>
<td>Fortified margarine with 650 mg EPA and 650 mg DHA</td>
<td>16 weeks</td>
</tr>
<tr>
<td>Stevens et al, 2003&lt;sup&gt;10&lt;/sup&gt;</td>
<td>480 mg DHA and 80 mg EPA</td>
<td>17 weeks</td>
</tr>
<tr>
<td>Richardson &amp; Montgomery, 2005&lt;sup&gt;11&lt;/sup&gt;</td>
<td>558 mg EPA, 174 mg DHA</td>
<td>26 weeks</td>
</tr>
<tr>
<td>Sinn &amp; Bryan, 2007&lt;sup&gt;12&lt;/sup&gt;; Sinn et al, 2008&lt;sup&gt;13&lt;/sup&gt;</td>
<td>558 mg EPA, 174 mg DHA</td>
<td>30 weeks</td>
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<tr>
<td>Johnson et al, 2009&lt;sup&gt;14&lt;/sup&gt;</td>
<td>558 mg EPA, 174 mg DHA</td>
<td>26 weeks</td>
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Omega 3 Polyunsaturated Fatty Acids

**EPA** regulates serotonin release

**DHA** regulates serotonin receptor function

Different and complementary actions
Omega 3 Polyunsaturated Acids

Treatment effect of Omega 3 much lower than medications

Medication + Omega 3 could reduce dosage of medications needed

Practice Tips
Check with physician 1st!

Supplement IF deficiency confirmed or if diet history confirms low intake

Supplement both EPA and DHA
Exercise

Increases tryptophan transport across blood-brain barrier

Increases serotonin production

Multiple other benefits
Behavioral Nutrition Therapy
Eating Behaviors of Children with ADHD

- Skip meals but eat 5+ times/day
- Drink more sugar sweetened beverages
- Fewer fruits and vegetables
- More screen time, less organized sports time
- Lower self-control in eating
- Poor meal planning
- Convenience foods, immediate choice
Behavioral Strategies for Nutrition

‘No’ means ‘no’

Avoid using food as a distraction

Make the healthy choice the easy choice

Avoid using food as a reward

Establish routines and expectations
Behavioral Strategies for ADHD

Focus on the positive

Allow for autonomy when possible

Build healthy habits to last a lifetime
Summary Recommendations

Avoid simple carbohydrates
Nutrition therapy +/- medication therapy
Most promising nutrients
  - Vitamin D
  - Omega 3 fatty acids
Support elimination diet trial if desired by the family
Behavioral nutrition therapy
Non-food rewards for positive behavior
Exercise
Credit Claiming

You must complete a brief evaluation of the program in order to obtain your certificate. The evaluation will be available for 1 year; you do not have to complete it today.

Credit Claiming Instructions:
1. Log in to www.CE.TodaysDietitian.com and go to “My Courses” and click on the webinar title.
2. Click “Take Course” on the webinar description page.
3. Select “Start/Resume Course” to complete and submit the evaluation.
4. Download and print your certificate.