

EARN
1 CEU

EXCLUSIVE WEBINAR PRESENTATION NUTRITION MANAGEMENT OF ADHD



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Disclosure



Objectives

Participants
will be able
to...

- 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

Diagnosis

What is the difference between ADHD and ADD?

American Psychiatry Association DSM-5 criteria¹

- ▶ Combined
- ▶ Inattentive
- ▶ Hyperactive and impulsive



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

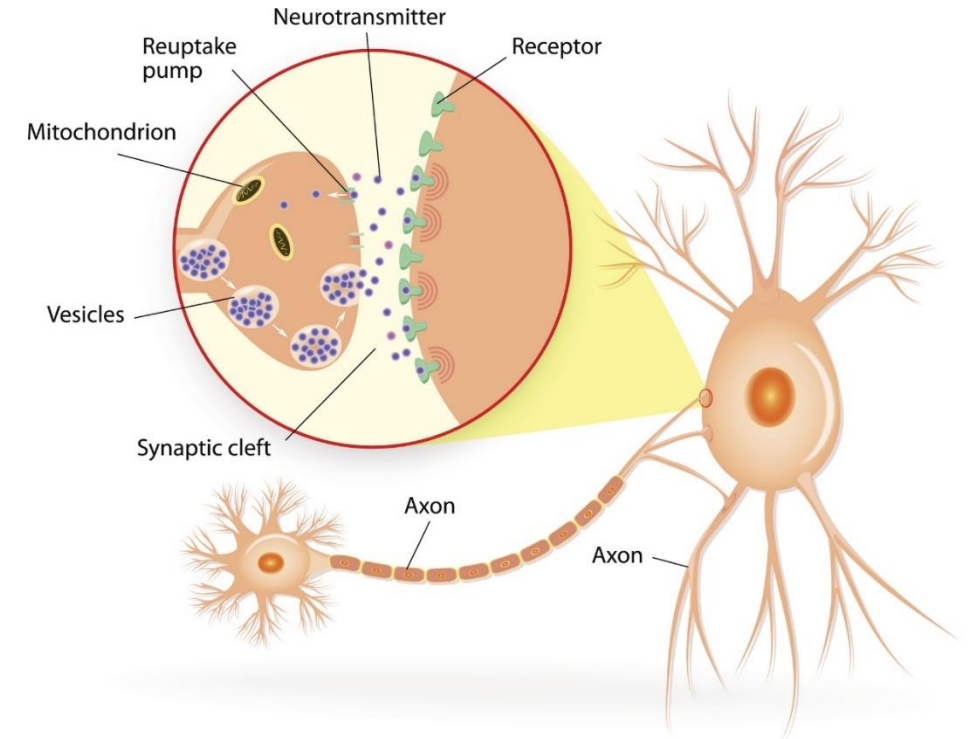


Etiology

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

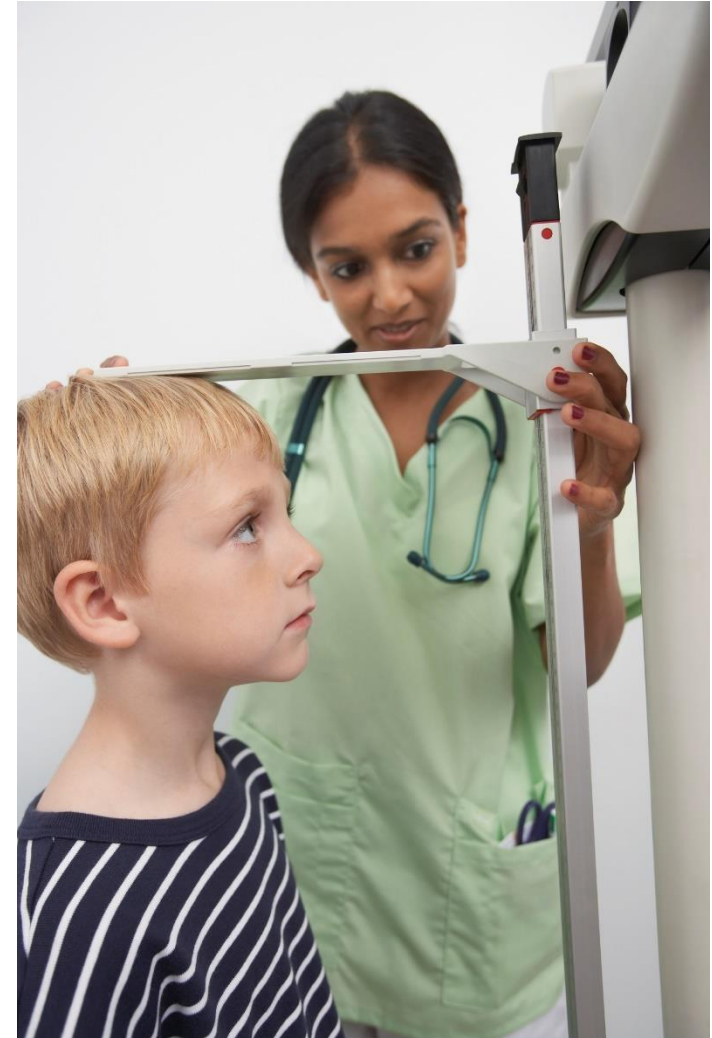
Anthropometrics - Height

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



Omega 3 Polyunsaturated Fatty Acids

2012

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

Study	Doses	Study Length
Belanger et al, 2009 ⁹	500 - 1000 mg EPA and 100-400 mg DHA depending on the child's weight	16 weeks
Bos et al, 2015 ⁸	Fortified margarine with 650 mg EPA and 650 mg DHA	16 weeks
Stevens et al, 2003 ¹⁰	480 mg DHA and 80 mg EPA	17 weeks
Richardson & Montgomery, 2005 ¹¹	558 mg EPA, 174 mg DHA	26 weeks
Sinn & Bryan, 2007 ¹² ; Sinn et al, 2008 ¹³	558 mg EPA, 174 mg DHA	30 weeks
Johnson et al, 2009 ¹⁴	558 mg EPA, 174 mg DHA	26 weeks

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





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