

BHN: Fuel Your Brain, Feel Your Best!

Autism and Nutrition

Patricia Novak, MPH, RD, CLE
Professional Child Development Associates (PCDA)
Pasadena, California • Patty@pcdateam.org



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INSIDE this issue

- 2 From the Chair
- 2 BHN Election Results
- 7 CPE Questionnaire
- 8 Gardening Programs to Improve Nutrition-Related Outcomes in Children with ADHD
- 10 Hands-On Nutrition Education in Behavioral Health Nutrition
- 12 In the BHN Pipeline
- 13 Weight Stigma in the Nutrition Counseling Setting
- 16 BHN DPG Executive Officers



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MPH, RD, CLE

The number of children identified with autism spectrum disorders (ASD) is increasing, and children with ASD are at great risk of developing nutritional problems. Approximately 80 % of children with ASD are selective eaters.^{1,2} Children with ASD tend to eat fewer fruits and vegetables, have less dietary variety and have a greater preference for crispy and crunchy snack foods.^{1,2} Long term suboptimal nutrition may contribute to the greater incidence of chronic disease in adults with ASD such as gastrointestinal disorders (24% higher), hypertension (42% higher), diabetes (50% higher), and obesity (69% higher).³

Understanding Eating Issues in ASD

Dietitians have a critical role in working with individuals with ASD, their families, schools and community programs to address early nutrition and prevent the development of chronic illness.⁴ Before we can know what to do, it is important to first consider what ASD is and why eating issues are so common in ASD. ASD is not one disorder but a spectrum with varied etiology and varied expression developing from a complex interaction between genetic factors and environmental triggers. Diagnosis of ASD is made by the identification of key behaviors.⁵ Behaviors that can influence eating and nutrition are detailed below.

1. *Persistent deficits in social communication and social interaction across multiple contexts:* may limit motivation to eat because of peer interaction or social aspects of mealtime. Typically developing children may develop an interest in a food because they see parents or peers enjoying the food, a child with ASD may be uninterested in others around them or lack the capacity to interpret expressions and gestures indicating that food is enjoyable.
2. *Restricted, repetitive patterns of behavior, interests, or activities:* can lead to an insistence on sameness in food, including how food is presented, utensil use, brand or packaging and location of eating.^{6,7} Rigidity causes a preference for food that is **always** the same. For example, a child may happily eat a specific brand of chicken nuggets and refuse others. He or she will accept only a specific brand of packaged macaroni and cheese but not homemade. While parents may be very frustrated with this, for the child it makes sense. Processed food is always the same taste, texture and visual presentation. Slight variations in texture or flavor of homemade foods may seem meaningless to parents, but to a child with ASD they are significant. The slight natural variations in fruits and vegetables can cause a child to avoid these foods. One red apple may be crisp while another might be soft. The natural variation defies how the child classifies the food, and the child lacks the flexibility of thought or

continued on page 3

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From the Chair

Adrien Paczosa, RD, LD, CEDRD



Value of BHN

When I go shopping or planning a trip, I always begin with the cost of the flight, hotel and then go from there. Sometimes I will move the dates of travel just based on a less expensive plane ticket. I have been known to be a mindful clothes shopper too, "Oh I'll just wait for that top to go on sale." To me, this all has to do with how I value the article of clothing and the value of the plane ticket. I find it interesting I have never once questioned the value of BHN. What I value about BHN continues to grow each day as I get involved in all areas of BHN.

The value of BHN for me came from a place of, "Holy Bananas!! I am working in eating disorders all of a sudden and only had 1 hour of coursework in my coordinated program. How, what and where do I even begin?!" After the initial freak out and Google-ing everything I could on dietitians in eating disorders, I scheduled a consult with Jessica Setnick, MS, RD, CEDRD. Jessica pointed me towards BHN to learn more and ease my worries. Since the day I signed up for this amazing DPG, my life has seriously changed and accelerated to amazing professional levels. The value this DPG provides me has changed my life.

Jumping head first into the electronic mailing list (EML) reading everything I could, signing up for every webinar and devouring the newsletter articles, I was beyond grateful to have a safe place that would hold my hand as I traversed into this new area of the profession. Then I opened up to the idea of giving back some of what I had received. The value that BHN added ten fold to my life and career.

Three years ago when I was the Public Relations (PR) Chair for BHN and was working on handouts for FNCE® about member benefits with a designer, I was floored by her impression of BHN. I ran through all of what BHN has to offer our members and how we offer support to every member, the designer about fell out of her chair when I told her the annual cost of our DPG! Needless to say the value of BHN holds true across other professions. Along with all the tangible value BHN has brought to my life, the true value that BHN has brought to me (and I do hope to all of you) is support and friendship. The women and men that I have met along my BHN journey have become amazing friends and supporters in all areas of my life, which is a value I never expected to receive from a DPG. There are so many amazing people in my life because of BHN, and to me is priceless!

Nominations Committee is Pleased to Announce BHN Election Results!

The following officers will assume duty on June 1, 2016:

Chair-elect- Janice Scott MS, RD, CSP, LD

Secretary- Mackenzie Reeser, RDN, LDN

Nominating Committee Chair-elect- Theresa Wright, MS, RD, LDN

Autism and Nutrition

continued from page 1

problem solving skills to accept the difference. If the child has an issue with motor planning or motor skills, the slight difference in texture may make the food difficult to manage. The insistence on sameness can extend into the environment; a food may be accepted when eaten at one location but not another. Essentially, it becomes a different food based on where it is eaten

3. *Language development and use:*⁵ Impairments vary and may include limitations in expressive language, receptive language or processing. Impairments in cognitive-linguistic development influence the ability to conceptualize a different outcome. The experience of eating a novel food may seem unpredictable and therefore undesirable. Use of language is atypical and classification of foods or instructions related to eating may not be understood as expected. Assumptions that the child understands the similarities between two foods that we see as similar and thus equally desirable are generally wrong. Consultation with a speech and language pathologist can further the dietitian's understanding of how to best communicate to support eating.⁴
4. *Motor planning, or praxis,* is the ability to conceive of an action and then physically carry out that action. This is often a challenge for the child with ASD.⁶ Eating is a complex chain of activities. Choosing to eat a spoonful of yogurt requires deciding to eat the yogurt, holding the spoon, scooping the yogurt, bringing the yogurt to the mouth, manipulating the yogurt in the mouth, discerning between any pieces of fruit in the yogurt and the smooth puree, and then swallowing the yogurt. Simultaneously, the child must be able to maintain his or her position in the chair and be aware of where his or her body is in relation to surrounding objects (proprioception). Poor praxis can limit participation in physical activities contributing to excessive weight gain.

Table 1. Factors Influencing Eating

Social Interaction and Social Reciprocity	Sensory Processing of Extrinsic and Intrinsic Stimuli	Concurrent Medical or Genetic Diagnoses
Communication skills	Praxis / motor planning	Gastrointestinal concerns
Rigid, inflexible patterns	Physical management of food and beverage (motor skills)	Allergies or intolerances
Recognition of feelings of hunger and satiety	Social-emotional and cognitive development	Medication use

5. *Sensory processing* tends to be atypical in ASD. There may be difficulty processing external sensation (touch, sound, taste, etc.) and also difficulty processing internal stimuli such as pain, hunger, and satiety.^{7,8} A child may be hypersensitive and therefore want very little stimulation or be hyposensitive, seeking out input. A hypersensitive child may prefer bland foods, and/or soft or pureed textures or he or she may want to avoid eating. A hyposensitive child may crave spicy, bold flavors and crunchy foods. Children can be both hyposensitive and hypersensitive. For example, a child may be orally averse to touch but crave bold flavors. Sensitivity to sound or smells may limit a child's ability to eat with others. Table 1 summarizes factors to consider in the assessment and treatment of children with ASD.

Nutritional health may be further negatively influenced by the presence of other disorders. Other common diagnoses include:³⁻⁵

- Intellectual disability – present in 38% of individual with ASD.
- Prematurity – 30% of children born prematurely will develop ASD.⁹
- Birth defects – present in 11% of children with ASD compared to 6.4% of typically developing children.¹⁰
- Seizure disorder – occurs in 10-30% of individuals with ASD with likelihood of developing seizures increasing with age.
- Attention deficit hyperactivity disorder (ADHD) – present in 30% of children with ASD.¹¹
- Sleep disorders are more common in children with ASD and have been associated with pain, obesity, decreased nocturnal melatonin production, and gastrointestinal disorders.¹²

Medications used with ASD or associated disorders have the potential to influence nutritional health. Examples include bone health (seizure medications), weight gain (antidepressants, anxiety medication or antipsychotics), and poor weight gain with associated stunted growth (medications for ADHD). Risperidone, an antipsychotic, is of great concern as it can lead to significant weight gain, cause metabolic syndrome, and impair swallowing.¹³⁻¹⁵

Gastrointestinal Issues

There is a greater prevalence of gastrointestinal issues in children with ASD, yet the role it plays in influencing behavior is controversial. Various studies have indicated that between 18-72% of children with ASD report gastrointestinal issues as compared to 25% of typically developing children.¹⁵⁻¹⁶ The actual extent of gastrointestinal problems is hard to determine because clinically gastrointestinal issues may not be expressed in usual ways. There is idiosyncratic expression of pain, such as aggression towards others, social withdrawal, decrease in communication, poor sleep, or comfort seeking (rolling around on the ground or pressing stomach against furniture).^{14,15} Etiology of discomfort is often unknown as cooperation for testing may be limited and require sedation which families are may be reluctant to do. Children with GI symptoms tend to have higher rate of sleep problems, higher measures of irritability, anger, and social withdrawal, more disruptive and less attentive behavior, and an overall lower quality of life.^{12,14-16}

The most common GI issue appears to be constipation. Reasons for this include monotonous diets low in fiber and high in processed foods, smaller variety of bacteria with greater concentration of non-preferred bacteria, alterations

continued on page 4

Autism and Nutrition

continued from page 3

in gastrointestinal neurotransmitter function, and loss of the feedback loop between the rectum and brain.¹⁴⁻¹⁷

Constipation may also be related to the sensory processing difficulties often seen. Either the feelings of needing to defecate are overwhelming and feared, or not registered and ignored. This leads to withholding which either causes or exacerbates the constipation.

While increasing fiber and fluid is traditionally recommended to treat constipation, this is often not an effective recommendation for individuals with ASD, especially if the reason for the constipation is not related to diet, or if any dietary change will be a prolonged process. The sense of fullness and discomfort from constipation may decrease a child's willingness to make a change, but making that change may be indicated to relieve the constipation.¹⁷ Treatment first requires making it safe and comfortable to have a bowel movement. Stool softeners or lubricants may be necessary to reduce pain with defecation. Regular bathroom routines and schedules are useful to reduce anxiety and facilitate normal bowel movements.¹⁴⁻¹⁶

Ultimately the presence of gastrointestinal problems or immune factors such as allergies can contribute to decreased food intake, limited food variety, and perhaps even influence behavior, making the child less engaged in mealtime and more rigid with eating behaviors.

Nutrition Assessment and Intervention

Ideally, prior to or at the time of assessment, the dietitian will have information regarding the child's individual differences that dictate the challenges and strengths as related to nutritional status. These factors will inform both assessment and intervention, providing key considerations for analysis of assessment data and direction for intervention.⁴

Nutrition assessment should follow recognized protocols, although there are some unique considerations. Assessment of a child with ASD is similar to any other pediatric assessment: the RDN should assess anthropometry,

biochemistry, clinical assessment (which includes GI and skin symptoms of allergies), diet, and eating environment. What is unique to assessing a child with ASD is that to obtain accurate information the RDN may need to alter the assessment environment or the approach to assessment, and to consider unusual factors influencing growth and intake.

In order to obtain accurate information, the manner in which the assessment is conducted may need to be adapted. Lighting, noise, and pacing (the time spent doing the assessment) can all influence the child's cooperation during the assessment. Providing extra time for the child to explore and become comfortable with the surroundings may be necessary, but unfortunately is not always possible. Sometimes a phone call to the parent or care provider, either before or after the assessment, may be a more effective way to obtain narrative or descriptive information.

Another consideration is somatic and head growth in the evaluation of anthropometric measurements. Macrocephaly, especially in the young child appears to be more prevalent in ASD and may be associated with greater cognitive impairment.¹⁸ Differences in overall growth has been postulated and may be related to genetic underpinnings specific to subgroups within ASD.¹⁹ It is not known if this accelerated growth may be associated with excessive pregnancy weight gain which is associated with a greater risk of autism.²⁰

Factors Affecting Eating

Eating is a complex endeavor with multiple factors creating barriers and determining success. Intervention is most successful when treatment is with an interdisciplinary team.⁴ Team members do not all need to belong to the same agency; a team can be created across agencies and include both medical and educational interventionists. Communication through co-visits, phone calls, or emails will allow for addressing all barriers to good nutrition and health.

The dietitian may be asked to address behavioral or gastrointestinal symptoms by altering the diet. Many different dietary treatments have been proposed

for ASD. Often it is difficult for the dietitian to consider dietary intervention as there is no specific test; allergy tests are not always accurate and it is hard to test for "intolerance," growth and weight gain may appear appropriate, and there are no accepted evidence-based dietary treatments. Rather than seek out a diet for ASD, the dietitian should consider how a specific dietary change may resolve a symptom that the child is exhibiting, or enhance a selective or restricted diet. Diets used with children with ASD can be categorized as being related to immune response, gastrointestinal integrity, or carbohydrate digestion/absorption.¹⁷

Immune function is abnormal in many children with ASD.²¹ Increased levels of antibodies and cytokines in individuals with ASD indicate altered immune function on a cellular level.²² Allergies or intolerances are more common in children with ASD and can negatively influence nutritional status.^{22,23} Allergies may limit what can be offered especially for children with multiple food allergies. Allergies may also cause fear of eating (in both child and parent) and this fear may be exacerbated if the child is not able to make safe food choices independently due to communication limitations. Finally, while allergic symptoms such as itchy throat or runny nose may seem innocuous, to a child with sensory processing issues, these irritations may decrease their ability to stay calm and to engage at the meal. In order to determine the offending foods, that dietitian can work with the family in instituting an elimination diet, followed by reintroduction of foods one at a time, and carefully noting changes. Intolerance to food additives has also been suggested, primarily for children with co-morbid ADHD.^{24,25} Food additives, specifically sodium benzoate and synthetic dyes (Blue 1 and 2, Red 50, Citrus Red 2, Green 3 and Yellow 5 and 6) have been linked to hyperactivity.²⁵ These can easily be avoided by choosing organic foods or foods that are "naturally" dyed. This simple recommendation may actually improve nutrient intake and there is virtually no risk in recommending avoiding processed foods with the "numbered" dyes.

continued on page 5

Autism and Nutrition

continued from page 4

Based on the experiences in our clinic and suggested in many of the studies on dietary intervention, there appears to be a group of children who experience benefits from dietary restrictions.^{14,15,26} The most popular diet has been the gluten free and casein free diet. The origins of this diet are from early work by Dohan with individuals with schizophrenia²⁷ and work by Reichelt²⁸ with individuals with ASD. The theory suggests that poor breakdown of casein and gluten proteins and increased intestinal permeability (“leaky gut”) leads to absorption of gluten and casein peptides. These peptides are able to cross the blood brain barrier and may alter brain function.²⁸ Mulloy et al.²⁹ and Buie et al.,^{4,15} conclude that there is not adequate evidence to support the use of this diet and the risks may outweigh the benefits. It is important to note that the researchers did conclude that the diet should be used when warranted as determined by a positive response or by medical personnel. Despite the conclusions of these reviews, Elder²⁶ reports that in her study, parents chose to continue with the diet after the study concluded because they saw a benefit. Mulloy also states that while these modified diets do not “treat” ASD, they may reduce discomfort and therefore decrease challenging behavior.²⁹ Assessment, intervention and monitoring by a dietitian can reduce many of the risks associated with these diets, including limitations in social eating, reduced bone thickness, and inadequate vitamin and mineral intake.¹⁷

The use of carbohydrate-restricted diets has also been suggested in the popular press and it has been reported that carbohydrate intolerance is more common in ASD.^{30,31} Since foods containing casein and gluten also contain carbohydrates (lactose and fructans) it is unclear if the benefits reportedly associated with the gluten and casein diets are related to restrictions of carbohydrates rather than the protein/peptide theories as presented in the preceding paragraph. Our clinical experience suggests that the children who benefit the most from dietary

restriction such as a gluten and/or casein restriction, are usually those who have either a current GI complaint or a history of formula intolerance, hives, rashes, eczema, vomiting, bloating and distention, diarrhea, abnormal stools, or vomiting. Often there is a family history of Crohns, colitis, inflammatory bowel disease (IBD), irritable bowel syndrome (IBS), or celiac disease. The Fermentable Oligo-saccharides, Di-saccharides, Mono-saccharides and Polyols diet, more commonly known as FODMAPs, which restricts various carbohydrates, has been shown to be helpful in reducing symptoms associated with IBD and IBS.³² It can be a nice framework to use when trialing dietary change for children with ASD, as it targets very specific groups of foods, and allows one group at a time to be restricted. It is important to minimize restrictions especially since these children may already have limited diets and once a food is removed from the diet, it can be very difficult to add it back in.³³⁻³⁵ Before any foods are limited, it is important for families to keep detailed food and behavior logs to see if a pattern can be discerned.

Perspectives on Diet and Supplements

There are three ideological “camps” on how dietary change can help address ASD. One group proposes that diet can be causative. They posit that undesired compounds are absorbed and disrupt brain function. This would include the GF-CF restriction related to the work of Reichelt and Dohan.^{28,29} Others believe that diet is a contributor to dysregulation and increases undesirable behaviors of individuals with ASD. Making a dietary change may remove discomfort and help a child to be more engaged and alert and therefore able to benefit more from therapeutic interventions increasing the child’s function and engagement.^{14,15, 29,36} Mulloy³⁰ describes this as a “biological motivating operation”. Finally, others believe that the GI issues are just an association and that making dietary changes will not actually influence cause or progression. An example of this would include the identification of a variant of the Met-C gene in some individuals with ASD. This gene is involved in brain development and gut repair, perhaps

explaining both the GI and brain irregularities. Changing diet will not influence the expression of the gene.³⁷

Just as there are different theories on diet and ASD, there are many different recommendations regarding the use of dietary supplements in the treatment of ASD. While food remains the best source of biologically active nutrients, dietary supplements have a place in supplementing nutrients that are missing from the diet. This is especially critical when children avoid entire groups of foods such as avoiding dairy or fruits and vegetables. Promotion of supplements of vitamins, minerals, fatty acids or nutritionally related substances (amino acids) to address impairment on a cellular level is more controversial. Evidence to support their use in ASD is lacking. Research on supplements has been limited and it is hard to generalize as the number of children and supplements studied is small, and the groups of children studied are rather heterogeneous, that is, they all have ASD, but may have other disorders as well. Usually diet is not assessed prior to inclusion in the study and the question always remains: Did the intervention merely correct a dietary deficiency? Causality usually cannot be determined and is often inferred when there is no basis. An example of this concerns zinc. Zinc is often low in the diets of young children and has been found to be low in young children with ASD as well.³³ This does not suggest that more zinc is needed because a child has ASD, or that low zinc causes ASD, rather that there is an association. Research on Vitamin B12 illustrates another difficulty with supplement research: do biochemical changes lead to behavioral changes? Anecdotal reports suggest a benefit with Vitamin B12 supplementation. Vitamin B12 is difficult to absorb and it would make sense that children with GI issues may not absorb it well. Vitamin B12 is also related to neurologic function. Research has indicated that a subgroup of children demonstrate positive biochemical changes with supplementation (through injections), yet biochemical improvements have not corresponded to behavioral changes. Research at this time has not clarified the role of Vitamin B12 in

continued on page 6

Autism and Nutrition

continued from page 5

ASD.⁴⁷ Table 2 summarizes information regarding use of common supplements.

Conclusion

Feeding issues are a constant, and nutrition concerns paramount, in the lives of families living with ASD. Parents report that mealtimes are stressful, often feel like therapy, and rarely can the entire family eat the same foods or enjoy eating together.^{48,50} Eating practices can lead to poor nutritional status and obesity.^{1,2,33,35,51,52} Efforts to treat ASD through nutritional means can lead to further dietary restriction, greater stress, increased financial costs, and can cause greater social isolation through the inability to share in mealtime with others.^{26,29,53} Dietitians are underutilized in the treatment of ASD. Nutrition assessment and intervention can minimize the nutritional risks associated with ASD, maximize the efficacy of nutrition intervention, reduce the lifelong burden on nutritionally related chronic disease, and support parents and children in enjoying eating together.^{4,14,15,29,35}

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continued on page 7

Table 2. Dietary Supplements³⁹⁻⁴⁷

Supplement	Rationale	Support	Caution
Vitamin B6	Cofactor with neurotransmitters; conversion to active form potentially impaired	Multiple studies with no support	High doses can cause peripheral neuropathy
Magnesium	Cofactor with neurotransmitters	No support but qualified support for use with ADHD	Diarrhea with higher doses, cardiac risk with very high doses
Vitamin A	Cell growth and differentiation	No support	Toxicity at high levels
Zinc	Proposed abnormal metallothionein function	One study found improved speech when combined with carnosine and vitamin E	Need to maintain appropriate zinc and copper balance
Iron	Higher rates of anemia in ASD	One study found improved sleep	Constipation, iron overload
Vitamin C	Antioxidant helps with increased oxidative stress secondary to decrease in detoxification systems	One study suggested decrease in stereotypic behavior	High doses can cause diarrhea
Vitamin D	Epidemiologic studies suggest greater risk with low levels prenatally	Potential for further investigation	Can be toxic at very high levels
Vitamin B12	Impairments in methylation and sulfation	Promising; improvements in cellular processes	No risk
Folic Acid	Impairments in MFTHR gene; impairments in methylation and sulfation	Promising; prenatal use recommended, use active form	No risk
Probiotics	Dysbiosis in ASD	Good; can influence intestinal microbiota and may reduce allergies and constipation	Slight risk for immuno-compromised individuals
Omega 3 fatty acids, DHA and EPA	Anti-inflammatory; enzymatic conversion to active form may be impaired	Good; while some studies are conflicting, there does appear to be benefit	Minimal risk, fish oil supplements may decrease blood clotting

Autism and Nutrition

continued from page 6

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CPE

CPE credit (1.0 hour) is available from BHN for the full text version of the article, Autism and Nutrition.

Access the article at

<http://www.bhndpg.org/cpe-articles-quizzes>

CPE Questions for Autism and Nutrition

1. Medications used with ASD may influence nutritional health for all but
 - A. Bone health
 - B. Dental caries
 - C. Poor growth
 - D. Weight gain
2. Select the correct answer:
 - A. A child with ASD may experience rigidity, causing a preference for food that is always the same.
 - B. For a child with ASD, nutritional supplements are beneficial in treating deficiencies that result from dietary insufficiencies or medication side effects.
 - C. If a child with ASD has an issue with motor skills, a slight difference in food texture may make a food difficult to manage.
 - D. All of the above
 - E. None of the above
3. A RDN working with a child with ASD should recommend
 - A. Limit nutrition changes
 - B. Making a diet change to resolve a symptom
 - C. Recommend foods easier to chew
 - D. The American Standardized ASD Diet
4. Eating all white food, only processed food, eating in one location all fall under the following behavior that can be used to identify a child with ASD
 - A. Motor planning
 - B. Persistent deficits in social communication
 - C. Restrictive, repetitive patterns of behavior
 - D. Sensory processing
5. Gastrointestinal issues in children with ASD typically present with
 - A. Aggression
 - B. Constipation
 - C. Nausea
 - D. Vomiting
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continued on page 8

Autism and Nutrition

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Gardening Programs to Improve Nutrition-Related Outcomes in Children with ADHD

Natasha Eziquiel-Shiro, MS



Natasha Eziquiel-Shiro, MS

Attention-deficit/Hyperactivity Disorder (ADHD) is a widespread neurological and behavioral disorder characterized by impulsivity, inattention or hyperactivity. Those traits also affect eating habits, and children with ADHD are likely to have irregular or impulsive eating patterns with preference for unhealthy foods, which may compromise growth and development, or contribute to overweight or obesity. Therefore, nutrition-focused treatments should go hand-in-hand with other behavioral therapies for children with ADHD. One creative approach is the use of gardening education to improve the eating habits.

ADHD and Dietary Health

Although the exact mechanism or cause is unknown, research shows that significant differences in diet, eating patterns, and rates of obesity exist between ADHD and non-ADHD children.¹

Children with ADHD may have smaller stature and head circumference, higher percentage of body fat, and greater BMI as well as abdominal circumference than their peers.^{2,3} These children may have a 50% greater likelihood of being overweight if non-medicated, and a 60% greater likelihood of being underweight if medicated.⁴ One study involving children aged 8-14 with ADHD identified loss of control eating syndrome (LOC-ES) in 70% of the 79 participants, linking their LOC-ES to higher BMI, and overweight or obesity.⁵ Over the long term, these children have an increased risk of becoming obese adults, developing Type 2 diabetes, and having less success with weight loss treatments than non-ADHD adults.⁶

Using structured interviews with parents of 100 children with ADHD, Ptacek et al. (2014) found the following

differences in ADHD and non-ADHD children:

- Children with ADHD may skip meals but eat more frequently throughout the day,
- Sweetened beverages may account for half of the daily fluid intake in those with ADHD,
- Fruit and vegetable intake is lower than of non-ADHD peers,
- Physical activity time may be only 6 hours/week as compared to 8 hours/week in non-ADHD peers.³

In the clinical setting, a diet history or blood assay would be useful in determining the need for RDA/RDI supplementation for a child with ADHD, as these children are at increased risk for multiple nutrient deficiencies.⁷

With these nutrition-related targets in mind, it becomes evident that a dynamic nutrition program such as one developed around gardening could be beneficial specifically for children with ADHD.

Potential of Gardening Programs for Children with ADHD

Gardening programs offer an excellent way to address multiple risk factors present for children with ADHD. Research on gardening programs for kids shows that, when offered along with hands-on lessons, cooking education, and parental involvement, these programs have the ability to improve fruit and vegetable intake in children, encourage healthier diet choices, ensure additional physical activity time to all that participate, and even improve academic outcomes.^{8,9,10} Time spent in outdoor gardens may also improve vitamin D status, which is often low in children with ADHD.⁷ As many comprehensive gardening programs include a culinary component, this may help teach children to enjoy a structured eating time, reinforcing the value of

continued on page 9

Gardening Programs to Improve Nutrition-Related Outcomes in Children with ADHD

continued from page 8

meals versus grazing and thereby encouraging regular meals and meal-time behaviors in other settings.

School-based programs such as Edible Schoolyard NYC, Denver-based The Kitchen Community, and others around the country work with children of all ages to create outdoor garden-based classrooms and raise awareness of fruits, vegetables, and the concept of “real food.” These programs can provide an excellent outlet for children with ADHD by promoting types of learning styles increasingly overlooked in the classroom setting, for example: Connecting visual-spatial intelligence by using garden bed planning to reinforce math and art skills, engaging kinesthetic learners while getting hands-on caring for garden beds and compost heaps to reinforce science skills, or capturing the ear of musical learners by singing lessons as lyrics.

Of parents surveyed by Edible Schoolyard NYC at one Brooklyn school, 73% reported their children were more engaged with school and 60% reported their children asking for healthier foods at home.¹¹ Gardening programs can offer a way to build self-confidence in children that may be stigmatized for their atypical behaviors, even specifically attracting children to the unique project-based learning opportunities provided in a garden setting. At Edible Schoolyard NYC, not only is the garden with its compost system and chickens maintained by students, but also the school farm stand, which offers low cost

fresh organic produce to the neighborhood, is led by youth. Some children in these programs become “real food” champions in their communities, contributing to a future of improved food access and healthier living for all.

Additional Added Value

In addition to providing a setting in which to target the individual behaviors of children, gardening can provide many other meaningful benefits. For families facing food insecurity, gardening programs can improve access to fruits and vegetables. Gardening also carries significance for many immigrant groups and food cultivation programs may encourage improved diet and lifestyle with often-marginalized groups, breaking cultural or language barriers, and serving to build healthier communities.¹² Finally, gardening programs may capture children and parents who may not typically participate in nutrition education programs or seek diet counseling.

Dietitians can play a critical role in the health and longevity of those with ADHD, in particular through the application of evidence-based strategies such as gardening programs to prevent and manage childhood overweight.

If you are interested in starting a gardening program with a partner site in your community, check out the Edible Schoolyard Project, www.edibleschoolyard.org, to discover local programs and access shared resources on gardening and cooking education, community outreach, advocacy and more.

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Submit RDNs for BHN Awards!

It's time to recognize colleagues who demonstrate leadership and excellence in the field of behavioral health nutrition.

Nominations for awards are accepted beginning March 1, 2016. Start thinking about deserving BHN members.

There will be one recipient from each practice area and one distinguished member award.

Leadership may be demonstrated through this practice group and/or other work related to promotion of nutrition and health in populations served by BHN members. Leadership may also encompass contributions to the field in legislation, research, management, education, and publication.

Access BHN awards information and applications at <http://www.bhndpg.org/members/awards-information/>

Send your submission to chair@bhndpg.org.

Hands-On Nutrition Education in Behavioral Health Nutrition

Renée Hoffinger, MHSE, RD



Renée Hoffinger, MHSE, RD

In the Fall 2015 issue of our BHN newsletter, author-members Moore and Wiss touted the benefits of “Hands-on Nutrition Interventions for Substance Abuse” and

briefly described their intervention and outcomes during a 12-week study with 15 participants. The Winter 2011 issue included “Cooking with Addicts” describing an earlier program with Veterans. Perhaps you are wondering: What exactly is Hands-on Nutrition Education (HONE)? What is the theory behind the practice of HONE? Is it evidence-based? Is HONE useful or applicable to my area of practice? How would I initiate such a program in my work setting? Where can I find resources to help with curriculum, build my own skills, etc? We hope to answer these questions and more below and in the Summer issue of the BHN Newsletter.

Cultivating consumer and culinary skills to promote nutritional health has been a foundation of Extension programs working with rural and lower income Americans for decades. But among dietitians counseling people to follow medically prescribed diets, prevent chronic disease, and/or achieve optimum wellness such strategies are only recently picking up steam. As RDNs we are well trained in advising our clients with handouts, food models, goal setting, and the like. However, as the adherence literature reveals,¹ this is not usually sufficient to motivate or cement lasting dietary changes. Medical researcher Kristina Lewis, who started the “KP Personal Shopper” program, explained it well: “Think of it in terms of exercise: If I wanted you to become more physically fit, would you be more likely to exercise if I sent you to work out with a trainer in a gym or if I had you meet the trainer in my office to talk about going to the gym and look at pictures of equipment?”² By actively

engaging people’s bodies to say “yes” we can help disengage and override the minds that say “no.”

Hands-on Nutrition Education (HONE) is any nutrition education and/or counseling encounter that actively engages the participant. It stands in contrast to didactic learning, in which the participant passively receives instruction via readings, lectures, or non-interactive technology. The hallmark of HONE is that it is experiential; that is, learning arises from observation, personal experimentation and actual, hands-on completion of tasks, from start to finish. Multiple senses are engaged, including taste and touch. Think of HONE as the ‘lab section’ to the usual classroom or counseling session.

RDN/nutrition educator facilitated HONE may comprise the full gamut of activities required for nutritious food to appear on a plate: gardening, field trips to food stores and farmers’ markets, menu planning sessions, food preparation demonstrations, tastings, role-plays of how to manage high risk social eating situations, cooking classes, and dining out at restaurants. The sky’s the limit! Any experiential activity that develops and strengthens skills that will help empower participants to eat in a way supportive of their health goals fits the definition of HONE.

Behavioral Health Nutrition and HONE

HONE works its magic on many levels – skill mastery and confidence boosting are just the start. It can also provide opportunities to model and practice social interaction, improve group dynamics, develop leadership skills, build community, learn from one another, increase appreciation of other cultures, unleash creativity, strengthen the RDN-patient therapeutic alliance, plus the spillover effect of self-confidence into other realms of life.

When applied to the variety of BHN practice areas, the benefits of HONE may extend well beyond the borders of nutrition. Cooking classes with patients struggling with eating disorders have been shown to help to dispel “the fear

and negative emotions associated with food”, allow participants to “experience a healthy relationship with food”,³ create positive experiences, model, and normalize attitudes to shopping, cooking, and eating.⁴ Dietitians working with people with mental illness have found that HONE has not only improved their functional health skills (in self-care areas such as nutrition, exercise, etc.), but decreases isolation, promotes independence, enhances recovery, helps develop a new healthy sense of self, and is, overall, therapeutic and empowering even for those with serious psychiatric disorders.⁵ The literature on HONE with adults with intellectual disabilities revealed that cooking classes not only helped to improve their nutritional status but also afforded them a social outlet, improved their sense of independence, as well as their chances for independent living.^{6,7,8} And looking again at the addictions arena, inpatient substance abuse programs can be fairly intense with rigorous self-inquiry and heavily scheduled classes and therapy. A field trip to a food market, or an hour chopping vegetables can be a welcome break, as well as an opportunity to learn about foods and eating habits supportive of a healthy recovery program.

Theory Behind the Practice

The essential theoretical underpinning of HONE is self-efficacy. Originally expounded by Albert Bandura,⁹ self-efficacy, briefly, is a person’s belief in their own capability to successfully complete a specific task. Simply stated: if someone is confident that they can do something, they are more likely to try, persist, and succeed. One of the main reasons for nonadherence to dietary recommendations is the feeling of being overwhelmed: “I can’t do this.” By providing opportunities to learn by doing, self-efficacy is enhanced and dietary goals more likely to be achieved.

Experiential learning fits well with adult learning theories, honoring and building on what adult learners already know. Fold in a generous helping of Transtheoretical model (aka Stages of

continued on page 11

Hands-On Nutrition Education in Behavioral Health Nutrition

continued from page 10

Change), a dash of motivational interviewing, a cupful of patient-centered care, a sprinkling of empowerment education, and a tablespoon of cultural competency, and voila! you've got the recipe for the foundation on which to build your HONE practice.

But is HONE actually effective? This question was, in fact, posed by The Academy of Nutrition and Dietetics' Evidence Analysis Library (EAL). Specifically: "In adults, do interventions focused on healthy cooking techniques (including recipe modification) result in improved eating habits?"¹⁰

EAL reviewed three hands-on programs and concluded "several studies show that cooking classes, as a component of an intervention, promote behavior change and result in improved eating habits." Furthermore, "cooking classes are also a highly requested nutrition education program enhancement."

Reicks et al (2014) reviewed 28 studies of HONE interventions, including some of the EAL studies, comprising a variety of study designs, programs, target audiences, and outcome measures which included actual dietary changes as well as symptom improvement, biochemical measures, self-efficacy, attitudes, etc. Results were generally favorable but the authors had concerns about weaknesses in study design and lapses in process evaluation. Their discussion of outcomes and research issues is excellent food for thought for anyone interested in HONE.

Essential Core Concepts of HONE

The following four core concepts can help you develop a strong foundational curriculum for a solid HONE program as they are applicable to a wide range of target populations and health concerns.

- 1) Sanitation and safety
- 2) The basics of healthy food preparation
- 3) Consumer savvy
- 4) Empowerment

These concepts guide learning goals such as demystifying the business of getting food on the plate, the nitty-gritty of sanitation and safety, building kitchen skills (such as following a recipe, basic steaming, etc.), taking ownership of nutrient content, debunking the myths that healthy food is tasteless, mindful cooking and eating, broadening the palate, and eating healthy on a budget.

Now that your interest is piqued by the intent, benefits, theoretical underpinnings, and core concepts of HONE, you are wondering: so, how do I incorporate HONE into my own dietetic practice? Stay tuned for Part 2 of this article: the practical aspects of HONE. We will discuss the logistics of actually planning curriculum, conducting and evaluating your program, as well as your specific queries about HONE. Please send them ASAP to reenehoffinger@gmail.com.

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Call for Case Studies!

BHN invites you to share case reports of interest, both typical and unusual. All cases are of interest because they are what we do, they are often challenging and call for creative solutions. Case studies are a great way to gain and share knowledge, inform, and inspire fellow members in the art of BHN nutrition practice.

Case studies are needed for all areas of BHN practice, Addictions, Eating Disorders, Intellectual and Developmental Disabilities, and Mental Health.

Case studies are submitted via the BHN Web site by completing a basic case study report form. Information must describe enough detail to understand the case situation, nutrition treatment provided, outcomes observed and lessons learned. HIPAA identifiers, including unique patient characteristics must be removed prior to submission and publication. Go to www.bhndpg.org to submit or read more about BHN Case Studies.

Enter a Case Study through August 2016 and be eligible to WIN a FNCE® Registration, complimentary of BHN!

Select Case Studies will be presented at the BHN FNCE® 2016 Member Breakfast!

Now is the opportunity for you to Share Your Cup of Tea in Boston!!

In the BHN Pipeline!

BHN's Pre-FNCE 2015 Workshop Session.

Did you know that this session – “Brain Data and Dogma – Expanding MNT to Increase Fiscal Reimbursement” was a complete success? The Academy's Committee for Professional Development and the Center for Lifelong Learning/Professional Development, reported that this educational program had the highest ranking of any program to date! A big thank you and Kudos to April Winslow, MS, RDN, CEDRD and Adrien Paczosa, RD, LD, CEDRD for making it happen along with all our committee members, presenters, and attendees.

Mentoring project.

Bridget Arriazza, Student Member, volunteered and was selected out of four candidates (thank you to those who applied) to assist the Membership Team in developing a more coordinated and effective mentoring program within the Academy's e-mentoring system and/or our own. We look forward to rolling this program out in the near future.

Practice Area Descriptions Now Online.

Our Resource Professionals, Renee Hoffinger, MHSE, RDN, Marci Anderson Evans, CEDRD, CPT, LDN, Patricia Novak, MPH, RDN and Ruth Laise Wallace, PhD, RDN, have written descriptions of what is involved in their area of practice. This includes target populations, practice settings, education needs, team involvement and practical resources. Check it out!

Resources Expansion Online.

Our Resource Professionals (RPs) have provided additional resources in general and for the specific areas of practice. Check it out! If you have a good resource such as a website or book, let the RP know, and we will see about adding it.

Member Marketplace Online.

In the works is an online place for members to post books and guides that they developed and for sale or other services such as training and web-based services.

Case Studies Project.

Check out the Call for Case Studies to solicit members to write up a case study on the treatment of an individual in their care. Thank you to Ruth Laise Wallace, PhD, RDN for spearheading this great new feature! We look forward to your participation.

BHN Speaker's Bureau in the Works.

Be on the lookout for this new project to promote members who desire to do more public speaking in their area of expertise. Thank you to Sharon Lemons, MS, RDN, CSP, LD, FAND and Harriet Cloud, MS, RD, FAND for getting this project going.

Fact Sheets Now Available:

Spina bifida and Stress Management now available online thanks to the efforts of our writers, reviewers, and editor Ruth Roberts, LPC, LDN, RDN.

BHN Near You.

BHN will be in attendance at the Arizona Academy of Nutrition and Dietetics (AZAND) Conference on Friday, June 17th—stop by and say hello.

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Missed a webinar the first go around? Check out these easy CEU opportunities available on demand at: <http://www.bhndpg.org/store/>

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Weight Stigma in the Nutrition Counseling Setting

Marci Evans MS, CEDRD, LDN



Marci Evans
MS, CEDRD, LDN

As dietitians, we entered the field of nutrition to help people live healthier. It is at the forefront of the work we do. But how would you feel if your personal beliefs and attitudes were negatively impacting the health outcomes of your clients? Or if you learned that your clients' beliefs and attitudes about themselves were also a major risk factor for poor physical, psychological, and emotional health? I would imagine that you would want to do anything in your power to improve your client's health rather than jeopardize it.

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What is Weight Stigma?

At The Binge Eating Disorders Annual Conference in 2013, weight stigma is defined as "discriminating or stereotyping based on one's weight, shape, or size." It is one of the most blatant forms of prejudice in our society today. And despite the prevalence of weight stigma it often goes unnoticed. If you're not sure what weight stigma sounds like, here are a few examples:

- I'm so disgusting. No wonder I can't get a date, no person would want to date such a lazy pig.
- I wish fat people weren't allowed to wear swimsuits, that way I wouldn't have to look at them at the beach.
- It's her own fault she has diabetes. If she'd just say no to the second helpings and stop watching so much TV, she wouldn't have these kinds of health issues.

I know these statements sound harsh, but this is the voice of weight stigma. It is the voice that permeates

our culture, wreaking havoc on people's health and compromising the quality of the work we do every day as clinicians.

How Weight Stigma Effects Clients

The most recent statistic from the CDC states that 36% of adults and 18% of children and adolescents are classified as obese.¹ Regardless of where you work or who you socialize with, you will interact with people of larger body sizes on a daily basis. The Rudd Center examined clinicians' attitudes towards people living in larger bodies, and found that dietitians are just as vulnerable to weight stigma as other health care providers, and that this stigma leads to worse treatment and health outcomes.² Multiple studies have shown that across disciplines, health care providers think of clients with obesity as non-compliant, lazy, awkward, weak-willed, dishonest, lacking in self-control, sloppy, unsuccessful, and unintelligent.³ Providers report spending less time with obese patients and providing fewer interventions.⁴ This means that many of the clients who need us at our clinical best are at the greatest risk of receiving the most inadequate treatment.

There are numerous physical, emotional, and psychological consequences to weight stigma. Of particular importance to dietitians, this includes:⁵

- Chronic dieting
- Unhealthy weight control practices
- Eating disorders
- Binge eating
- Increased food consumption
- Avoidance of physical activity
- Lower motivation for exercise

It is remarkable that our negative biases and assumptions may lead to the exact behaviors that we are trying to help change. A client who feels stigmatized will not feel heard, understood, valued, or safe in sharing private information about difficult patterns and behaviors. Learning techniques to

combat weight stigma is the first step to aiding our clients achieve greater health.

Combating Weight Stigma in Your Work

As dietitians we receive very little, if any, training on how to create a therapeutic environment that facilitates positive behavior change. We should all be equipped with simple yet effective strategies to prevent weight stigma from interfering with helpful nutrition counseling sessions. This information may be of special interest to dietitians working with clients with eating disorders, but is applicable to any type of patient interaction.

First, Look Inward

All of us have internalized weight stigma. It is an unfortunate but natural consequence of the cultural climate of our day. The first step to squelching weight stigma in your work is to identify ways in which it shows up in your own life. You may want to write down any stigmatizing thoughts you notice. Consider where they come from and stay on the look-out for how these ingrained beliefs impact your work.

Create a Therapeutic Relationship

While dietitians are not therapists, it is a mistake to think we cannot work therapeutically. Incorporating therapeutic language and applying therapeutic techniques facilitates behavior change, while limiting the prospect of doing harm in three important ways: establishes a sense of safety, decreases feelings of judgment and shame, and allows our minds to stay more closely attuned to our clients' needs. Weight stigma cannot thrive in a healthy, therapeutic environment.

Establish safety

According to behavioral psychologist Erik Erikson, trust is the earliest developmental task and the one in which all other stages of development are built.⁶ Psychologist Susan Heitler explains that trust is established when the client believes their clinician:⁷

Weight Stigma in the Nutrition Counseling Setting

continued from page 10

1. will be helpful, guiding them through to resolution of the issues that trouble them,
2. will keep clients safe from blame, anger or hurtful comments, and
3. will nourish positive feelings of hope and self-esteem.

Although we may feel frustrated with clients who seem to avoid aspects of their health problems, it is also helpful to remember that we all lie, and often in order to protect ourselves. This is often an issue of safety. Our clients may lie in order to feel safe, to preserve a coping behavior, or in order to avoid feeling embarrassed, judged or ashamed. Below are two techniques used to create a safe counseling environment:

1. During an assessment, consider explaining your intentions to your client. Use language and style that feels comfortable to you.
2. "I'm not sure if you're feeling this way, but it's really common for people to feel nervous when talking about their eating habits in depth. It's perfectly normal to feel anxious about sharing something so personal with a perfect stranger! My hope is that this will be a place where you can talk openly about your struggles with food. That way I can really understand how to be more helpful to you. But I understand that's going to take some time."
3. It's easy to become judgmental when you suspect a client is not being honest with you. Remember that if they are not being honest it is out of their desire to self-protect. That is normal and natural. The most important thing you can do is assess what about the situation or your language/ tone might feel threatening to them, and if you feel comfortable, bring it up with them. You could try the following if you suspect dishonesty:
"I have found that people often hold on to old habits because they are afraid of letting them go. Sometimes people feel ambivalent about changing their habits; on the one hand they are aware the particular habit

is harmful to their health while on the other hand they may enjoy or even find comfort in it. This is a really common occurrence in the work I do in nutrition counseling. Sometimes we have the hardest time talking about the things we are most afraid of losing. Have you found yourself experiencing anything like this during our work together?"

Decrease feelings of judgment and shame

Our clients come to nutrition counseling having already adopted a critical tone about their eating habits. By the time they arrive in your office, they have likely suffered through terrible cycles of: judgment → shame → self-defeating thoughts → negative emotions → maladaptive coping mechanisms. Amy Pershing LMSW, AMSW calls this phenomenon "toxic shame" and explains that it is incredibly common in clients with past trauma. According to researcher Dr. Timothy Brewerton, MD, 2013 presentation for the Binge Eating Disorder National Conference, clients with binge eating disorder have higher rates of post-traumatic stress disorder than any other segment of the eating disorder population. Integrating a compassionate, non-judgmental stance will help your clients decrease any toxic shame in their lives and facilitate healing.

Modeling a curious, objective attitude about your clients' behavior around food is one of the most valuable gifts you can give. Over time, they will begin to integrate this non-judgmental voice into their own lives. A litany of research shows that cultivating a compassionate stance opens the doors to positive and permanent change.⁸ Below are two strategies to foster less judgment in your counseling sessions.

1. Understand and be aware of counter-transference. Counter-transference, simply stated, is your emotional reaction to a client. It is a normal and inevitable part of any counseling process, but when left unchecked, can become damaging to the nutrition counseling work. As clinicians, it is our job to pay attention to our emo-

tional reactions to a client. What are your emotional reactions to clients with larger bodies? Are you more readily annoyed, disgusted, irritated, or angry? Assess if and how these emotions cloud your clinical judgment. Consider asking a supervisor to help you work through those emotions so you can more effectively perform your job, with clarity and compassion.

2. Stay attuned to your client's judgmental language and use it as a teaching tool. For example, "Rob, I can't help but notice how judgmental your tone is when you talk about your eating habits. I can't imagine you speak that way to your wife. Would it be OK if we slowed things down and talked about that for a minute?" And assuming he says yes... "I'm not sure if you've noticed but I use descriptive, objective language in our work. I actually do this intentionally. It's my belief that creating a new language around food and eating is an important part of getting healthier. In fact, there is a multitude of research that shows that developing self-compassion actually increases the likelihood of improved health. If it's OK with you, I'd like to work on this together. Would you be open to that?"

Foster Attunement

As dietitians, we know that the science of weight is an extremely complicated one. In recent years, a number of researchers are eschewing the notion that losing weight is as simple as calories in and calories out.^{9,10,11} When we make snap judgments (e.g., "she clearly needs to stop being so lazy and go exercise more") we close the door to the complexity of weight science and we eradicate the possibility of truly hearing our clients. Operating on assumptions precludes the possibility of thoughtfully listening to and joining with our clients to develop workable solutions based on their complex needs. We also run the risk of reinforcing blanket recommendations that may not apply or feel feasible to the client. When

continued on page 15

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Newsletter CPE Manager

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newslettercpemanager@bhndpg.org

DPG/MIG RELATIONS

Manager, DPG/MIG Relations

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The Academy of Nutrition and Dietetics
kgustafson@eatright.org

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