

Running Head: FOOD ALLERGIES AND DISABILITIES IN CHILDREN

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There is increased curiosity and research regarding the role that food allergies may or may not have in relation to major disabilities in children. Some researchers claim that symptoms, from simple aches and pains to cancer, are caused by food allergies. More specifically, in regards to children, there has been much speculation and research concerning specific food allergies and its possible link to two major disabilities in particular, Attention Deficit Hyperactivity Disorder (ADHD) and autism.

The American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) broadly defines ADHD as, "A persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequent and severe than is typically observed in individuals at a comparable level of development" (1994, p. 78). Children with ADHD often struggle with feelings of inadequacy because their behaviors are different from their same age peers. They may have to work harder to perform academically; while socially, they may be estranged due to their behavior. More specifically, the DSM-IV outlines symptoms of ADHD, which include poor concentration, lack of organization, difficulty waiting turn, fidgeting, losing important items, forgetfulness, excessive talking, difficulty staying focused, and running around excessively. Although most children exhibit some to most of these behaviors at times, children with ADHD must characteristically exhibit these behaviors in a variety of settings before age 7 (DSM-IV, 1994).

In addition, autism is an increasing disorder in our society that has aroused many questions and theories concerning its etiology. The DSM-IV describes the essential feature of autism as, "The presence of markedly abnormal or impaired development in social interaction

and communication and a markedly restricted repertoire of activity and interests” (DSM-IV, 1994, p. 66). This definition in itself is quite broad and unspecific. Autism is one of many pervasive developmental disorders (PDDs), and “although most authorities today agree that autism is caused by a dysfunction in the central nervous system, there are conflicting views as to its defining characteristics and to the causal chain that links brain dysfunction to behavioral characteristics” (Kabot, Masi, & Segal, 2003, p. 27). Children with autism may appear normal, but they may have limitations of speech. They may also be more prone to having mental retardation and usually do not respond well to change. They may be totally void of feelings at one moment then spontaneously overreact to certain stimuli that is not predictable at another moment.

What is interesting about autistic disorders is the dramatic increase of incidence. In 1970, the common prevalence was 1 in 2,500 and current statistics range from 1 in 250 to 1 in 500 (Kabot, Masi, & Segal, 2003). In addition, “explanations of the dramatic increase include heightened awareness on the part of professionals and laypersons, increased diagnostic work-ups, and the existence of yet unknown precipitating factors within the environment” (Kabot, Masi, & Segal, 2003, p. 27). Of course, dramatic speculation and research as to the causes of this disorder have been essential. As the phenomena of food allergies has evolved over the past 20 to 30 years, it is not surprising that there would be research to link food allergies with autism.

The term “allergy” in America is quite common and rarely viewed as odd or excessive. Allergies are becoming more popular and even more numerous in our population. Researchers state that “50 million Americans suffer from some type of allergy on a yearly basis, and allergy is ranked as the 6th leading cause of chronic disease today, at a cost of \$18 billion dollars per

year” (Barker & Meletis, 2004, p. 86).

The American Academy of Allergy and Immunology (AAAAI) defines a true food allergy as a “response in which the body’s immune system overreacts to substances in food” (Thompson, 1986, p. 25). More specifically, usually proteins within the food are the allergens that cause reactions. The body responds through the immune system to the perceived invaders. According to the AAAAI, the most common protein allergens in America are “cow’s milk, egg white, peanuts, wheat and soy” (Thompson, 1986, p. 25). The AAAAI says the responses are usually genetically caused and react in very few people (Thompson, 1986). More specifically, allergist, Dr. Jordan Fink states, “we are talking about less than 2 percent of the American population as having true food allergies” (Thompson, 1986, p.1). At the same time that this interest has been escalating, Americans have become just as interested in health foods. Nevertheless, the study of the diagnosis and treatment of disabilities has been efficiently growing as well. Nonetheless, there is ever increasing popularity of casein (milk), and gluten (wheat) free diets that promise to alleviate symptoms of allergies and even some disabilities.

Linking food allergies as a possible cause for ADHD or autism is an expansive and an exhausting endeavor. Researchers are persistently and increasingly calling for further research in this area. It seems logical to link food to mild behavioral reactions such as the stimulating effects of caffeine or the “sugar plunge” feeling of eating a piece of cake on an empty stomach. However, it is a bold step for proponents for food allergies to claim that food allergies or “sensitivities” can actually cause serious disabilities. In their defense, researchers explain “food comprises the largest source of antigenic challenges to our immune system and food allergy is defined as a grouping of clinical signs and symptoms that result from the body’s sensitization to

one or more foods wherein symptoms may manifest at any place in the body as a result of immediate or delayed allergic reactions and their byproducts” (Barker & Meletis, 2004, p. 87). Essentially, besides water, there is no greater product that we put into our body on a regular basis. Food, whether it be processed or natural, is made up of chemicals which are released into our bodies as it undergoes further chemical reactions. This process is not visible to the eye; only the results are visible. When there are internal allergic responses, proven symptoms, such as diarrhea, nausea, rashes, swelling, sneezing, dark circles under the eyes, and fatigue may occur. These symptoms are known to every allergist and sufferer of food allergies. However, there is an increasing part of our population that believes that criterion-based disorders are affected by the food we eat. This moves out of the realm of simplistic symptoms to causative agents of life-long conditions that are debilitating. Some researchers even speculate that the cause for serious reactions is based upon the compromised immune system that is always fighting food proteins. They state that the “Immune surveillance may be decreased, allowing for other immunologic problems to creep up, such as cancers or autoimmune disease” (Barker & Meletis, 2004, p. 88). Supporters and skeptics admit that much more research is needed; however, the possibility is so high so that many will advocate for the removal of certain foods from the diet.

How can one speculate that food allergies have such a profound impact biologically and behaviorally? Historically, the genesis of linking food to behavior was founded by Dr. Benjamin F. Feingold, a leading allergist in California from the 1930's to the 1980's. Although, he is no longer alive, his studies and work were among the first in this field of study. His work originated under Professor Clement von Pirquet who developed the term “allergy.” In Feingold’s book, *Why Your Child is Hyperactive*, he described his beginnings and research as to how food

additives, dyes, flavorings, aspirin, salicylates (natural food colorings), and preservatives negatively affect behavior. Initially, he stumbled upon his first hypothesis unintentionally when he treated a woman who had severe swelling and hives. Her allergy tests were negative so he assumed that food additives were the culprit (he had seen this in previous patients). Therefore, he placed her on his special Feingold diet, and she no longer had the swelling. Amazingly, without his knowledge that she had a serious psychiatric condition, he received a call from her psychiatrist stating that her behavioral symptoms had cleared. When she would resume her typical diet, the symptoms would slowly reappear. Thus, he began his research regarding diet and behavior which lead him to do exhaustive work with hyperkinetic (hyperactive) children.

Feingold first theorized that food additives and preservatives may cause allergic responses through studies of allergic reactions of flea bites. Feingold (1975) wrote, "We demonstrated that the reaction to the flea bite was induced by a low (molecular weight) chemical present in the saliva of the insect" (p.5). The name for the low molecular weight chemical is a hapten. A hapten by itself can not cause an allergic reaction (too small) unless it binds with a protein (larger molecular weight). It is then a reaction stimulates the allergic response (Feingold, 1975). Essentially, Feingold (1975) concluded, "The chemicals man uses as drugs and chemicals used as food additives are both low-molecular compounds, subject to the same behavior as the hapten demonstrated in flea saliva" (p. 6). Thus he was one of the first researchers to link a food substance to an allergic reaction. He sought to eliminate artificial additives, dyes, flavorings and salicylates through his Feingold diet. By eliminating these low-molecular substances, the proteins would not be able to bind to them, and no allergic response would occur. In one of his studies he states that 40% to 70% of the hyperkinetic children responded positively in some way

to his diet (Feingold, 1975). His opponents state that there has been well-documented research about the metabolism of chemicals so finding behavioral implications is not clear (Schahill & deGraft-Johnson, 1997).

Dr. Doris Rapp, is a well-known, physician and author, who continues further research inspired by Feingold. She too has researched the link between diet and hyperactivity, but added additional hypothesis regarding pollution and toxic chemicals. She was one of the leading physicians though that began to speculate about cow's milk, corn, eggs, wheat, and chocolate. In a study, she claimed that over half of ADHD children exhibited increased symptoms when exposed to certain foods or food colorings. However, skeptics claim that, "The primary outcome measure was a crude four-point scale rated by a nurse in an office setting under poorly controlled conditions making the results difficult to interpret" (Scahill & deGraft-Johnson, 1997, p. 36).

Interestingly, research does continue to cite proteins as a carrier for allergic response. Feingold began to teach our society to use artificial substances with caution. These substances could possibly be linked to hyperactive problems. On the reverse, instead of eliminating what Dr. Feingold had proposed, the popular diets of today are advocating that the actual protein is eliminated even though both may result in allergic response. There is an abundance of gluten and casein-free diets especially in persons associated with autism. The dominant protein in milk is called casein, and the dominant protein in wheat is gluten. The goal of these diets is to eliminate these foods from the diets in order to improve the behaviors of the child. This technique represents the gluten and casein free diets that so many families of autistic children are using. The idea is that the child is allergic to one or more of these substances and the reactions cause the symptoms of the disorder. This diet is not to be confused with Celiac Disease, which is

an inherited chronic disease of intense reaction to gluten. People with this disease do suffer and must eliminate the gluten; however, treating autism with a gluten free diet is to treat the disorder (Bauch, 2004).

Biomedical interventions expert, Dr. William Shaw (2002) writes that numerous studies “Have established elevated urinary excretion of peptides derived from certain proteins in milk and wheat in children with autism and in adults with schizophrenia. Restriction of these proteins from the diet or dialysis to remove the peptides causes improvement in the symptoms of these diseases” (p.1). The Defeat Autism Now Network (DAN!), which is a board of physicians specializing in autism, states that researchers at the University of Florida found that, “Proteins are transported to the brain where they bind to receptors causing an effect that our research indicates is manifested in the symptoms of autism” (Tilton, 2000, p.1). The DAN Network also provides a plethora of research on their website regarding specific diets. At the 2003 DAN Conference, two Norwegian physicians, Reichelt and Knivsberg (2003), provided research that stated, “Our dietary intervention strongly indicates that gluten free, gliadin free and casein free diet is an effective treatment”(p.3). Clearly, these allergy causing proteins may not cause autism, but there seems to be a contributing factor.

Interestingly, there has been a recent study performed by Dr. Joseph Bellanti (1998) of the International Center for Interdisciplinary Studies of Immunology at Georgetown University. Dr. Bellanti’s purpose statement was “to compare the effect of targeted dietary restrictions and nutritional supplementation on behavioral outcomes in young children with ADHD” (p.1). He and his colleagues proposed that the pathogenesis of ADHD could be based on induced symptoms from certain foods and removal of the food could reverse or lighten the symptoms.

He tested 17 ADHD kids for food allergies and 56% were positive, compared to 6-8% of kids normally found in the population. (Brown University Child and Adolescent Behavior Letter, 2002).

It seems that there has been some extremely professional and exhaustive research that has endeavored to link food allergies to autism and ADHD. When a researcher states that high levels of peptides are found in urine and removal of these peptides decreases symptoms; this seems to verify cause and effect. I found these results numerous times in the research on autism. However, no researcher was bold enough to say that a food allergy in itself caused autism. The authors did often state though that unidentified environmental factors were a contributing factor to the cause of autism.

Feingold's research is inspiring and may have some truthful components, but his inspiration was founded upon the coincidence of the increase of additives and food dyes after World War II and the increased incidence of hyperactive children. Many individuals know that ADHD has been better established and more specifically defined through the years. This could be coincidence, but I believe some of the behaviors could be a reaction to the molecular properties depending upon someone's genetic makeup. At the same time, many people can digest all kinds of additives and allergic properties and not have a reaction. Though, it would be interesting to research their intake in regards to cancer. In most of the review articles that I read, the authors stated that there are discrepancies in research, and many times people who highly "push" an issue are trying to sell some type of propaganda. Some of the less definite research was revolved around the ADHD issue. There seemed to be more reliable and valid testing in regards to autism and diet. However, findings should not be generalized to every autistic child.

Parents should have their child allergy tested then go on a special elimination diet in order to test if there are physiological reactions to certain foods.

Based upon the available research, the best explanation I have for both of these disabilities is that there is no single cause, but the significant relationship between food allergies and diets can prove to aid in the alleviation or reduction of symptoms. Most scientific research in this area possessed somewhat of an “unpredictable” quality. It was confusing but enlightening to find evidence on both sides of the spectrum. However, I learned that you must examine the type of study, procedures, professionalism, and results in order to formulate an understanding of the validity of the study. For instance, one of the articles was written by someone without a listed degree. This person cited evidence from a proven study written by a doctor. I learned to question that person’s judgement then I found it exciting to research the given doctor’s study. I also learned, as most of the doctor’s stated, that research in this area has just begun. I realized that I am walking away from this research with no definite absolutes, and I believe this is a scientifically sound conclusion at this point. Nonetheless, after studying the results, it seems quite promising that some autistic children are responding well from these tests. The research seems hopeful and helpful to all families struggling with these disorders.

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