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## **The Effect of Food and Nutrition on Families and Students along with the Effects on Behavior and Academics in the Classroom**

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The Effect of Food and Nutrition on Families and Students along with the Effects on Behavior  
and Academics in the Classroom

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A Literature Review Presented

In Partial Fulfillment of the Requirements

For the Degree of Master of Education

**Abstract**

Families and children around the world are trying to find the food they need to live healthy, balanced lives. There are many factors that contribute to the demise of this becoming a reality for them. Food deserts, low income, food insecurity and the mental stability of parents everywhere contribute to this demise. There are ways to overcome these issues. When children do not have the food they need to fuel their minds and bodies, including test scores, and behavior in the classroom are affected. Their mental capacity to learn is diminished along with behavior issues due to these same factors of food insecurity and not having proper nutrition. People in all communities can come together to solve these food issues happening in the world with programs and proper education.

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The Effect of Food and Nutrition on Families and Students along with the Effects on Behavior  
and Academics in the Classroom

Children in this world are hungry and it is affecting them emotionally, behaviorally and academically. There are many children in the world who go to school every day hungry. In a survey conducted in 2008, there were millions of Americans that reported they did not have enough to eat at some point in the previous year (Dilulio, 2010). Their last meal was the lunch they had at breakfast the day before or possibly on Friday and now it is Monday morning and they have had little to eat, except maybe some quick and cheap fast food or gas station purchase. If children are getting meals at home, they are most often not a healthy meal that will keep them full and their brains working in proper working order for very long. This can lead to learning deficits and behaviors in the classroom.

Often when we talk about school lunches and better nutrition in relationship to childhood obesity. The Centers for Disease Control indicates that in a group of 5 children at least one of them would be obese in the United States (Anderson, Gallagher, & Ritchie, 2018). There is a relationship between what we feed our students at school and the obesity rate. We are not giving the children in schools meals to provide sufficient nutrients to sustain them and provide healthy habits for eating. The same thing goes for the breakfasts many schools provide.

A person may wonder what the effects of proper nutrition is on student learning. The wondering can often continue to the link to student nutrition. Teachers and parents often wonder if the students' nutrition would affect how they perform in the classroom. One study has shown that providing hungry kids with access to nutritious food at lunch can improve test scores (Anderson et al., 2018)

Eating healthy during the early years of life can be one of the most determinant factors in human health. Human eating behaviors are shaped by intrinsic factors such as genetics, age, and sex as well as environmental factors such as family, friends, or the neighborhood they live in. Parents give the first experience of food and eating to their children, which makes them important agents in the promotion of health, behavior, and education of good eating habits (Romanos-Nanclares et al., 2018).

### **Literature Review**

Starting by looking at the earliest years of brain development from conception to the third year of life undernutrition can be very damaging. Children during this stage of life need to have an average gestation period, along with oxygen, protein, and micronutrients (Mendoza-Salunga, 2007). After the gestation period there needs to be sensory stimulation, activity and social interaction (Tanner & Finn-Stevenson, 2002). Knowing this information one can look at maternal undernutrition as a correlation to low birth weight, which in turn results in an indicator of an elevated risk of permanent neurological impairment and a greater likelihood of difficulty regulating emotions (Tanner & Finn-Stevenson, 2002). One way to work on changing the outcome of having children born to mothers who are undernourished themselves is to make sure they are participating in the WIC program. WIC stands for a program called the Special Supplemental Nutrition Program for Women, Infants, and Children. In a study completed by Devaney, Bilheimer, and Schore in 1991, it was shown that women who participated in the program were able to have increased birth weight compared to those not utilizing the program. There was even more evidence gathered when a study followed 21 pairs of siblings from birth to age 6. The mothers in this study used the WIC program for their youngest child but not the oldest. It was shown through the study completed by Hicks and Langham in 1985 that the younger child performed higher on cognitive tests when compared to the older child who did not benefit from the utilization of the WIC program. This study suggests that prenatal supplementation has lasting effects on cognition. Getting the WIC program information out to those who will benefit from it will have a lasting effect on the children and their development physically and neurologically.

After a child is born, they are still relying on adults in their life to feed them the proper food they need to help them grow and maintain a healthy way of life to develop their brain accurately. Poor nutrition specifically affects behavioral and neurological functioning. With this being said, there are many main aspects that go into good nutrition and what the brain needs to develop appropriately (Tanner & Finn-Stevenson, 2002). The term malnutrition is considered when micronutrients, important for all young children are not received in their everyday diets. One of these being protein. Protein is important for the brain because when we eat it turns into amino acids which balance neurotransmitters. These are chemicals in the brain that send information between neurons. This protein deficiency can cause neurological disorders and physical growth delays. Children with low protein are usually seen as lethargic, withdraw and emotionally unresponsive (Tanner & Finn-Stevenson, 2002). Iron is another micronutrient that is essential for the healthy growth of children. Iron is necessary for red blood cell synthesis and the normal development of the brain. Iron also helps to fight infection in the body. Iron deficiency is a significant cause of cognitive delays in young children. Other micronutrients that are essential in the development of young children include iodine, zinc and vitamins. Iodine deficiency can cause severe mental disabilities and hearing impairments. Zinc is associated with growth deficiencies and vitamins take part in developing the nervous system (Tanner & Finn-Stevenson, 2002).

### **Nutritional Needs for Young Children to Young Adults**

Nutritional needs continue to be about the same as children grow and move into their preschool and elementary school years. They need to continue to consume the correct amount of protein and vitamins and nutrients needed to maintain their cognitive functions and continue to



develop physically healthy (Tanner & Finn-Stevenson, 2002). The rates of obesity increase as children age. The USDA has guidelines they developed for 2015-2020 for foods that should be consumed and those that should be limited. The guidelines include a variety of vegetables, fruits (especially whole fruits), grains, fat-free or low-fat dairy, a variety of protein foods and oils. It limits saturated fats and trans fats, added sugars, and sodium (Rahavi, Altman, & Stoody, 2019). It is very important for children to be receive all of this on a daily basis to allow for their brains and bodies to grow efficiently. Some families are having a hard time getting these amounts of fruits and vegetables into their children for a multitude of reasons (de Araujo, de deus Mendonca, Filho & Lopes, 2017).

Vitamins play an important role as well when looking at the brain function. While parents can provide children with a multi-vitamin, they cannot be sure that their bodies are absorbing the nutrients they need from them properly. Researchers do know that providing them with healthy, fresh food on a daily basis does provide their bodies with the vitamins needed for them to grow including their brains. There is evidence to suggest the relationship between vitamins and cognitive function (Kennedy & Haskell, 2011). Low levels of folate and vitamins B6 and B12 may be factors in cognitive deficits and dementia (Kennedy & Haskell, 2011). There has also been study done on children who were given a broad range vitamin or what many call a multi-vitamin. In this study it showed evidence of an improved performance in non-verbal intelligence tests. In all studies looked at there was some evidence of an increase in cognitive performance (Kennedy & Haskell, 2011). It does not matter if the increase in cognitive performance is large or small, it is important to note it and to provide children with the multi-vitamin wherever available.

**Food Insecurity**

Food insecurity continues to be a topic that contributes to the health and welfare of children across the globe. Food insecurity is defined as a limited amount or unpredictable amount of acceptable, healthy food or the inability to access these foods in a socially acceptable way (Theuri, 2015). Given this definition one can understand that there are some families who are not able to go to the grocery store to get the food they need to feed their families. There are a multitude of reasons why families are unable to get to a grocery store or get the food they need to feed their families. These families may lack sufficient funds to purchase healthy food, they may be unable to afford housing that would allow for them to have a place to store and prepare healthy food. These families may not have the means of transportation to get them to the store to buy the food (Theuri, 2015). These families may rely on other people to get them to these places or need to use public transportation methods to assist in getting them to the store. Diagnosing families with food insecurity is not as simple as it may seem. Many families are embarrassed of the situation they are in and will not admit to doctors or nurse practitioners that they are struggling to get food for their families. Nurse practitioners and doctors need an efficient way to identify the families in need. They can use a Food Insecurity Screen which is based on the Household Food Insecurity Survey (Theuri, 2015). It consists of two questions that can be asked of every family to assess their concerns with access to food (Theuri, 2015). Two questions can be asked on the screener. The first is, within the past 12 months we worried whether our food would run out before we got money to buy more. The second, within the past 12 months the food we bought just didn't last and we didn't have money to get more. If families answer often

true or sometimes true to either or both of these questions, food insecurity can be diagnosed (Theuri, 2015).

Diagnosing the problem is only just the beginning. Once there is a diagnosis, something needs to be done to help these families. The risk of allowing them to continue to live with food insecurities is too high. The potential effects on infants caused by food insecurity and hunger can be identified as an increase of a weakened attachment to parents. In children the effects are poor performance on comprehension tests, an inability to follow directions, delays in socioemotional, cognitive and motor development, a higher level of hyperactivity and poor memory, a higher frequency of chronic illness, and an increased risk in obesity. In youth the effects are seen as depression and suicidal thoughts, along with substance abuse disorders (Ke & Ford-Jones, 2015).

The reason for all of these negative side effects is the fact that the infants, children and youth are not getting the food and needed nutrients in their homes. In families that are not food insecure, they are more likely to have foods like fruits, vegetables, beans and meat. These are all marked as healthy food because of their nutrient profiles and low-energy density foods (de Araujo et al., 2017). Families who are experiencing food insecurity will often have ultra-processed foods which are deemed unhealthy because they contain high amounts of fat, sugar, and salt with low-fiber content.

The effects of food insecurity do need to be put on the children in our communities and in the world. From the research that is available there is a common theme of what types families are most often effected with food insecurity. These are families with a lower per-capita income, less desirable occupations, they may have poor living conditions, often have a female head-of-

household, and lower levels of education (de Araujo et al., 2017). There are multiple resources that can help get these families the food and supplies they need. When a family has been diagnosed with food insecurity, health care workers should be educated on the programs that may be available to these families. The following is a list of resources available to anyone in need. Special Supplemental and Nutrition Program for Woman, Infant and Children - WIC, National School Lunch Program - NSLP, Special Milk Program - SMP, Summer Food Service Program - SFSP, Child and Adult Care Food Program - CACFP, School Breakfast Program - SBP and Food Banks. All of these are listed on the website [USDAnutrition.gov](http://USDAnutrition.gov).

It was mentioned earlier that foods with low-fiber content were often eaten in families that have food insecurity. Living with this food insecurity is not a way for children or adults to live. Children who live a life with low-fiber intake can increase the risk of GI distress. This can lead to constipation and other chronic diseases (Brauchla, McCabe, Miller, & Kranz, 2013). The study done by Brauchla et al. discovered an easy way to get students to eat two fiber-rich snacks a day. Their study showed that it was simple enough to get the students to eat the snacks and increase their total dietary fiber intake as long as the snacks are offered. Once they return to their usual diet and are not given the offering of the high-fiber snack they will not have the continued fiber intake (Brauchla et al., 2015). This is a very simple way to get students eating healthier on a regular basis, it just needs to be available to them. They will choose the foods that are better for them and make them feel better.

There are many implications to not having the food a person needs on a daily basis. The nutrients a person needs to fuel their body and develop their brain and other parts of the body properly as they are developing from a young child to an adult (Johnson & Markowitz, 2018).

Food insecurity in a home may indirectly affect a child's development due to the overall family stress. If the parents of a child are stressed due to the lack of food resources, there may be a decrease in the quality of the child-parent relationship. Parents who are often worried about how they will be providing food for their family while hungry themselves could be less supportive of their child's needs and not engage in their children's activities, which in the early years of the child's life contribute to social and emotional development (Johnson & Markowitz, 2018). To add to all of this, hungry children are often more irritable and can cause the parents to have negative responses to their children which creates a cycle of negative interactions between parent and child (Johnson & Markowitz, 2018).

Teachers wish for all of their students to do well in school. Teachers would like them to excel in reading, and writing and math, teachers and school staff need their students to learn to be good citizens and to be on their best behavior most of the time. A young child who is often hungry may not search out these things as they are just wanting to know where the food is (Tanner & Finn-Stevenson, 2002). This is where providing food within the school day and within the school building is important. If children are coming to school on a regular basis hungry they are not prepared for the stimulation of the classroom and all that it asks of them all day long.

There are several ways in which schools can help these children with food insecurities throughout the day. Schools can provide breakfast and lunch as all schools around the country do and a healthy snack (Caswell, 2009). School lunch programs have changed over the years and morphed into many different versions throughout the country. There was a time when

school lunch was a homemade meal provided at the school and we have now gone to warmed up meals in school (Caswell, 2009).

### **Breakfast**

There was a study done which indicated that most to all students ages 6-11 ate something for breakfast in the morning before school and dropped in significantly for students ages 12-19. Participation in a School Breakfast Program (SBP) has shown to improve school performance (Reddan, Wahlstrom, & Reicks, 2002). The SBP was offered to students in low-income families and had an impact that was seen positively on the students however still not all students were participating. Some schools decided to offer a Universally Free School Breakfast Program. When this was offered even more students took advantage of the program including more from the low-income families. The increase in participation in the breakfast program was associated with the fact that it was a free breakfast for all and also how the school scheduled into the school day which benefitted the needs of the students, food service staff and teachers (Reddan et al., 2002). When the students of the survey were asked, they noted that when they ate breakfast, they had more energy and ability to pay attention in school. The most common reasons children are skipping breakfast before school are as follows, lack of time, not being hungry, and not getting enough sleep, and a small amount of people reported not eating breakfast due to a lack of money or food. It has been reported that millions of children take advantage of a school breakfast program in the United States (McGuire, 2011). Kesztyus, Traub, Laure, Kesztyus, & Steinacker in 2017 explain that with age in children through adolescents, the frequency with which they eat breakfast declines (Kesztyus et al., 2017). Maintaining the idea that offering breakfast as an option to provide a good start to a child's day and provide an opportunity to socialize with their

peers. It is also shown that food behaviors established in childhood are often continued into adulthood (Kesztyus et al., 2017).

There are many other reasons why providing a breakfast to students at school would be beneficial. It has been concluded that eating breakfast may positively impact a variety of children's cognitive functions including memory, academic performance, school attendance rates, and mood (Caswell, 2009). In addition to these outcomes, eating breakfast daily helps to promote adequate nutrition with higher intakes of micronutrients and fiber when comparing to those that do not eat breakfast (Caswell, 2009). Providing children with breakfast in school will allow all students the opportunity to reap these benefits.

There is considerable evidence as well of students who are eating breakfast that will have a reduced risk of becoming overweight or obese which can also include a lowering of their body mass index. In children who skip breakfast there is a correlation to higher blood glucose, triglycerides and very low-density lipoprotein cholesterol. They children are also more susceptible to abdominal obesity (Kesztyus et al., 2017). The riskiest kind of obesity has been recognized more and more as abdominal obesity. Abdominal obesity is associated the most strongly with major non-communicable diseases which are the world's number one killer (Kesztyus et al., 2017). Kesztyus et al. discovered in their research many reasons and correlations to beehives of skipping breakfast. The following are some of the reasons they found and correlations they found to children and adolescents skipping breakfast. Children with single parents are more likely to skip breakfast, there is a positive relationship between skipping breakfast and a low socioeconomic status, more screen time and less physically active (Kesztyus et al., 2017). The associations between parents and children and their breakfast consumption has

a great impact on children eating breakfast or not eating breakfast. If parents are choosing to skip breakfast it will be negatively associated with their children's breakfast eating habits (Kesztyus et al., 2017). It was found that if a child perceives that their mother often skips lunch, adolescent boys and girls are more likely to skip breakfast (Kesztyus et al., 2017). Girls will also be more likely to skip breakfast if they know their best friend is skipping meals as well (Kesztyus et al., 2017). To show the opposite of this it was reported that these children see a good example from their mothers healthy eating patterns they are less likely to skip breakfast. (Kesztyus et al., 2017).

### **Lunch**

Millions of students in the United States take advantage of the lunch programs provided in schools in the United States. This often times can be the largest meal a student eats during the day or the only one given to them during the day (McGuire, 2011). It is extremely important to make sure that the meal they are receiving is filled with the proper nutrients they need to continue to grow and develop their brains appropriately (McGuire, 2011). In turn there was a committee created to set about developing recommendations which reflected current nutritional science and make school menu planning better meet the nutritional needs of the students. As reported earlier, including the right nutrients that a growing child needs is essential for brain development and overall care of the child. The committee that came together came up with some recommendations that included the following. School menus would require set targets for 24 nutrients and other dietary components, increase the amount of fruits and vegetables and whole grains while also reducing the amount of fats and sodium, and reduce waste (McGuire, 2011). Students can be provided all the healthy items and variety of foods they need, but in



many schools are not required to take all the items that meet these needs. These programs are offered to all children in the school system. Some of the students and families take advantage of these offerings while others opt to bring their lunch from home (McGuire, 2011). In the case of families sending in their own lunches, they need to be educated on what the best lunch options can be to optimize student learning and keep their children full throughout the day. Many parents are sending in junk food that is not promoting healthy brains and bodies (Roberts-Gray et al., 2016). It may work to the benefit of all children to provide high quality school lunches to promote more parents to allow their children to eat at school, in turn giving them the nutrients they need. Parents need to know that their child will eat the meal and be happy with this alternative to sending in lunch from home.

When looking at students in low-income families who often rely on the school lunch program school personnel see great success. The students who are receiving full and partial subsidies for school lunches are eating an adequate amount of servings of fruit, green salad, carrots and other vegetables (Howard & Prakash, 2012). This shows that with the intake of school lunch, the students are receiving the nutrients they need for their brain growth. Although, for the low-income students the NSLP (National School Lunch Program) has actually had no long-term effects on a student's health but may have affected the education of nutrition information.

The NSLP needs to do a better job at reaching all students. They tend to target poor children by coding standards for eligibility for free and reduced-priced lunches. They also provide special funding for poorer schools (Hinrichs, 2010). Although this is a great place to be and helping those who may look like they need it the most, all students can benefit from the

lunches provided on a daily basis at school. The study Hinrichs showed that the lunches provided by schools and supported by the NSLP, led to adults who were not necessarily healthier but did have sufficient educational results (Hinrichs, 2010). The educational results shown in this study would likely benefit all students not just ones receiving the resource of free and reduced-priced lunches.

In the UK there have been new guidelines put into place to dramatically change the content of school food. The new standards have put restrictions on foods that are high in salt, sugar and fat as well as those that are made with low quality meat. They also included nutrient-based standards (Caswell, 2009). A study conducted in California looked at the difference in quality of school lunches when made by a private company providing the lunch or in-house made lunch meals. They used a score using the Healthy Eating Index (HEI). The meals provided by the private company averaged scores were slightly above those of the median score (Anderson, Gallagher, & Ramirez Ritchie, 2018). Many of the concerns for the lunch standards stem from the fact that children these days are just not eating the foods they need to sustain a healthy diet and healthy weight. If children on a daily basis are eating healthy meals at lunch the hope is it will have a positive impact on their overall health. In the long term using healthy meals at breakfast at lunch could reduce the risk of many health conditions that come with poor eating habits which include, obesity, anemia, tooth decay, and diabetes.

In the UK, they have provided school food recommendations with healthier products that should be included on school menus and foods that should not be allowed (Caswell, 2009). The list of restricted foods or foods that are not allowed are as follows, confectioneries, chips, salt should not be added to foods, meals should to contain more than two deep-fried foods each

week, and manufactured meats such as chicken nuggets and burgers should only be served occasionally. (Caswell, 2009). In the United States these items are consistently served on a daily basis in most schools across the country. The improvements that need to be done in this area of what we serve our school children each day is large. In the United States the USDA and Food and Nutrition Service (FNS) do not have the same strict guidelines as the UK. Hopefully the United States can work towards that in the future. The meals that are provided to most of the children throughout the country, although better than before, is still filled with processed products and sugar.

Taking a look at the younger students in Early Care programs and the lunches they are being provided or eating. One study did just that when they came up with a program called Lunch is in the Bag (Roberts-Gray et al., 2016). This was a program to try and help parents understand what they were packing in their child's lunches benefitted or hindered the learning and healthy eating patterns of their children. During the study of this program parents were given a newsletter with information with sample menus, shopping and food preparation tips, presented images and articles to promote and reinforce positive attitudes and sense of self-efficacy, encouraged parent-child interactions and ways to enjoy nutrition at home. There was also a component of in class work that was provided to the teachers in the classrooms. Their goal was to increase parents' packing of fruit, vegetables, and whole grains in their child's lunches. (Roberts-Gray et al., 2016). Roberts-Gray, et al. explained that when parents pack the bag lunches they often contain too few vegetables, are high in fat, sugar and high sodium foods like chips and desserts; and fail to give the correct amount of important nutrients (Roberts-Gray et al., 2016).

The program had some very positive effects on the parents' lunch packing behaviors. There was an increase in the servings of whole grains, a temporary increase in the servings of vegetables, prevented an increase in the servings of sweets the parents were packing and increased the percent of lunches containing all of the five food groups they had been teaching about. (Roberts-Gray et al., 2016). There was no change in the effect of packing fruits in their children's lunch, but this could have been because that was already something most families were doing on a daily basis. Although there was some hesitating as the program was introduced, then pulled back, then reintroduced it goes to show that the more we talk with parents about their child's health and give them workable options for finding and choosing the healthy choices they will do it. The children will benefit with increased nutrition from the education of the parents. The children will benefit from the healthy nutritious meals their parents will provide as they learn through this Lunch is in the Bag program. Currently parents will most often pack for their children the things they know they will be happy with, rather than using it as a chance to create healthy eating patterns (Roberts-Gray et al., 2016). There will need to be more education around this and how to move away from allowing the children to choose their lunch. There can be some choice but ultimately, they will learn to like what parents provide for them to eat if it is introduced many times.

### **Effects on School Behavior with Healthy Breakfast and Lunch Options**

The effects on school behavior and learning by giving children in school a nutritious breakfast and nutritious lunch are shown in a study done by Storey et al. (2011). In this study performed in the United Kingdom they did not change some school environments or lunches and changed others to see what the outcome would be. It was observed that students were more on-

task and had fewer off-task behaviors in the intervention school where the dining experience and lunch were modified. The increased concentration and engagement that was observed in this study could lead to improved learning outcomes. The study also observed that there could be less class disruption during the after-lunch period which traditionally has been a hard time of the day (Storey et al., 2011).

In another study performed in California, changing just the quality of food, they found improvement in test scores. This study compared schools who contracted a private company providing the school lunch and the public schools who provided the school lunch. In California, a small amount of schools use private companies for their school lunches leaving most of the schools to prepare their meals in the school with school employees. In the study they found the meals that were prepared by the private company rated higher than those provided directly from the school. The researchers then looked at the test scores from these different schools. What they discovered was during the years the students received lunches provided by outside companies, students scored better on their year-end tests. The average test scores for the students were a few tenths of a deviation higher. The student population that receives free or reduced-rate lunches the test scores were about full percentage points higher. This information is critical because these are the students who are more likely to eat the lunches provided at school. These tests allowed the researchers to come to the conclusion that test scores can be driven by food quality, not quantity. It also proved that although the food was more nutritious, the children still ate the food. Some critics have stated that if we provide nutritious food the students may not eat it and we would be unintentionally hurting the students we are trying to help the most. This

study shows the opposite. A hungry child will eat the food that is offered to them (Anderson, Gallagher & Ramirez Ritchie, 2018).

People may ask and wonder how much it would cost to run programs that offer healthy, nutrition-filled meals to the many students who need it. Looking at the research provided it proves that providing both breakfast and lunch to all students would be beneficial in many ways, emotionally, physically and educationally. This would come with a cost but would also show great improvement in our children's lives. There is a number out there of an additional 12 billion dollars would allow us to implement a universal free school meal program (Dilulio, 2010).

When looking at what the cost of a good education is for our children administrators are willing to spend money on extra teachers to reduce class sizes, which in turn allows for more student interaction and better test results. Changing the food the children eat on a daily basis and providing both breakfast and lunch are ways in which test scores can improve as well (Caswell, 2009). Along with behaviors and concentration issues that are dealt with on a daily basis in classrooms across the United States (Anderson, et al., 2018).

### **Eating Environment**

Another area of interest when looking into the nutritional needs of students is the environment with which they eat in. The ambiance, or the feeling a student gets walking into the school cafeteria that may hinder or help student eating and behavior. One study looked into this area of need. They made a few changes to the environment where the children ate. Some of these changes were easy changes such as, re-painting of the room or installing more comfortable seating. There was also an assessment done to adjust the queuing system to eliminate long lines and improving the food choices by allowing a tasting session with the students (Storey, Pearce,

et al., 2011). These changes, and by meeting the students' needs helped increase the informal peer relationships and helped develop autonomy. These also being the benefits seen from team sports or other physical activities in students (Storey et al., 2011). What was discovered with some of these minimal changes were that there was increased attention in class and had support of other studies that showed academic performance linked to dietary intake (Storey et al., 2011). Taking a few modifications into mind will greatly improve the experience for all students which in turn would help the behavior and academic performance in the classroom. Food choice and allowing the students to have a say in their food and where they are going to consume this food seems to be a way to get the secondary student eating a healthier meal. The study done by Storey et al., was not able to distinguish the difference between the environment of the lunchroom or the changes in the food choices. This means that although they saw a benefit in their study to the interactions between peers and their attention and interaction in the classroom, they could not definitively say it was due to the food choice or the environment (Storey et al., 2011).

### **Parent Efficacy and Healthy Eating**

One of the factors that determine the health in humans and is a health and development booster is healthy eating in childhood. Parents are an important change agent in promoting behavior, health and education for their children. It is the parents that create the food environment and are the first ones to give children their first food experiences. These first food experiences are developed through their parents own beliefs, food practices, perspectives and knowledge and understanding of the benefit of healthy food and nutrients (Romanos-Nanclares, et al., 2018). The trend that individuals who are obese in adolescence are likely to remain obese

into adulthood, is another reason we need to get parents to have an understanding of what they put into their bodies and into the bodies of their children is essential. (Palmer & Davis, 2013). All of this plays a role in how children will eat as they grow and form their own beliefs and food practices. Taking a closer look at how this can happen from an early age is a study done by Adamson & Morawska in 2017. They looked at early feeding, child behavior and how it may relate to problem eating. Problem eating is common during early childhood and can include refusing to eat a certain amount of food or a reasonable range of food. It can also include, at an early age, the refusal of self-feeding and manipulating food and utensils in an appropriate way. (Adamson et al., 2017). All of this can cause stressors to the parents and may cause long-standing eating issues. In addition to these stressors factors that can adversely effect a child's food health are the consequences during the mealtime environment. The punishments administered by the parent, is their threatening or force feeding associated with fussy eating, food refusal or physical punishment. On the other hand, there could be options for between meal snacking, coaxing or the giving of alternate meals (Adamson et al., 2017). Concluding the study, Adamson et al. in 2017, discovered that parents of problem eaters reported more frequent use of the unhelpful strategies overall of coaxing, berating, force-feeding and offering alternate food choices. Educating parents on the helpful strategies of how to get their children to eat healthier and have better mealtimes.

### **Food Deserts**

Food deserts are an area of concern as well when talking about the health and nutrition of children and their families. There are many ways to look at food deserts and how they can be helped if they even need to be. A food desert has been defined as an urban area where people do



not have access to an affordable healthy diet (Alviola et al., 2013). The definition has recently been refined to include people who are living in rural areas that also lack the access to healthy food options (Alviola et al., 2013). The United States Department of Agriculture (USDA) would add to this definition of a food desert being a place where instead of supermarkets they have no access to food or only access to fast food and convenience stores which give affordable options (Wright, Donley, Gualtieri, & Strickhouser, 2016). Whether the definition of a food desert the USDA gives is correct or another version, they all have a common theme. All of the definitions of a food desert refer to the fact that there are places that do not have access to healthy food at an affordable cost. Which means people living in these areas tend to have worse diets and suffer from more chronic diseases than those who do not live in these food deserts (Wright et al., 2016).

As people look to add grocery stores or farmers markets to these areas that are considered food deserts people are questioning whether or not it would help and whether these people would buy the healthier food or would they just continue to eat the way they are used to eating (Sage, McCracken, & Sage, 2013). There was a study that has shown that even with the added resources to food in these areas, there is no increase in the amount of fresh fruit and vegetables eaten in the home (Wright et al., 2016). The discussion needs to continue, just because supermarkets or grocery stores, or farmers markets are added to an area, it does not change the buying habits of the people going there. There needs to be a lot of education around the idea of healthy eating and why it is so important. This can stem from the schools and beginning to educate the children in these families about good solid nutrition. They may end up choosing more of those options as there is more discussion which in turn could change the habits of their families. Merely putting the food in the area is not going to change how they eat (Wright et al.,

2013). When looking at food deserts one also needs to be aware of the distance some people need to travel. They could live in a location where the distance needed to travel to get to a farmers market or grocery store is too far. The possibility of the people not having proper transportation to get to these places to get the food can also be a concern (Sage et al., 2013).

One of the theories for why food deserts exist is that large grocery chains came into cities and caused the smaller grocery stores, which some people refer to as “mom and pop” stores, out of business. (Wright et al., 2016). The problem with this being that these larger grocery chains are located in suburban areas and can be harder for some people in low-income areas to get to. They may not have the transportation they need to get to these locations, where before they were able to walk down the street to get the food they needed for themselves and their families (Wright et al., 2016).

A few things can be said for sure about food deserts, they are always found to be populated by low and moderate income people and often by ethnic and racial minorities. It cannot be determined that because they live in a food desert that is the reason they have a poor diet. It could just be the fact that this is what they choose to eat (Wright et al., 2016). Whether or not people are living in a food desert should still be considered when looking at the health and wellbeing of all people and children (Wright et al., 2016).

### **Conclusion**

Children are being provided a disservice in their nutrition if families and school districts across the country continue to move in the direction they have been for the past years. They have moved from providing what was essentially farm to table products to our children on a daily basis all day, to everything being processed and coming out of a box or can or package of some kind. The vitamins and nutrients that our bodies need to grow and develop that were once provided in these foods, are now so processed and no longer there. The foods that were given to our ancestors because that was all they had available, gave them all they needed to survive and thrive (McGuire, 2009). People decided food needed to be more convenient and by making it more convenient much of the nutrients were removed. This is where the disservice to our children begins. All humans need to live and grow into a productive, well-adjusted person and in order for this to occur they need this one basic need.

There are plenty of ways families and school districts can change this moving forward. One of the best ways is to catch parents right away as they are arriving for prenatal care. Each pregnant female needs to learn how to feed herself in a healthy way to get the infant off on the right foot. They then need assistance in making sure they are making the right healthy choices for their babies as they grow (Tanner & Finn-Stevenson, 2002). Providing them with services like WIC, if they need it, and information to inform them what foods have the right nutrients to feed their child's brains and bodies. The education of new parents can be a large starting point to change the way children and people eat in the future. There also needs to be education on eating healthy and what foods children need to put in their bodies to become healthy individuals. This can happen starting in preschool and continue all the way through senior year in high school. If

children are given the power of knowledge in this area, they will take it on and eventually will change the ways they eat and possibly the ways their whole family eats (Grainger et al., 2007)

The next area that would be an area of change is to begin to provide and make healthy food for all children which in turn provides them the brain power and the emotional stability to learn is to get the food in the hands of the families. Food deserts need to be addressed and answers need to be found (Wright et al., 2016). It should not be the case in this decade that we have families living in areas where they do not have access to fresh healthy food. There are people starting small businesses and finding ways to help these areas of food deserts, one of these ways being bringing farmers markets to areas of need (Sage et al., 2013).

Finding ways to teach all families where and how to get fresh food and how to prepare the food will mitigate the problem with food insecurity. Food insecurity causes stress on the families and in turn creates family dynamics that make it hard for students to go to school and learn. It creates environments that are unhealthy and unstable. Educating families early and trying to reduce the stigma that comes from people having to ask for help for food will allow for these food insecurities to decrease. When food insecurities decrease, so will the stress in the family homes. This in turn has an effect on the overall behavior of the children and parents that live in that home (Ke & Ford-Jones, 2015).

The last area of need is in the schools themselves. All children should have access and be provided healthy, nutritious food for both breakfast and lunch. Lunchrooms across the country have gone from being kitchens that cooked homemade meals to facilities that warm up processed food for the students to eat. This is a convenience for the schools that have to serve hundreds of meals every day, the students are suffering because of it. If schools were able to go back to

cooking food in the school kitchens, they would be able to control the nutritional value entering the student bodies (Anderson et al., 2018). Teachers and staff would most likely start to see a reduction in behaviors and test scores would start to rise. Taking some of the burden off of the families' shoulders by providing breakfast and lunch to some or all students would also help with the food insecurities in America. There are initiatives being started in some areas to bring these ideas of "home-cooked" meals back to schools (McGuire, 2011). There are also programs starting to give all children the benefit of breakfast and lunch served in the school. This gives all children the ability to not be hungry while they sit in the classroom trying to learn. They are not able to focus if they are hungry (Kesztyus et al., 2017).

It is hopeful that healthy, nutritious food people eat on a regular basis will become more streamlined and people will be able to revert back to eating nutritionally sound meals (Rahavi et al., 2019). There needs to be a healthy balance between convenience with processed food and providing food that is healthy but also convenient.

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