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The impact of nutrition on academic achievement

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Abstract

The recent increase of obesity and malnourishment among students has prompted many researchers to question the effects of such lifestyles on the students' health and academic areas. Many factors are to be associated with the lack of knowledge and initiative to make amendments within the system. In addition, many steps can be taken to implement the correct changes. This paper outlines the causes of malnutrition, the affects of poor nutrients, the vitality of specific nutrient, and ways to help the problems cease. Attention to the strong research and statistics, leads to transformation of the traditions and barriers of individuals choosing unhealthy lifestyles to see the benefits a healthy diet and exercise has on the academic success of students.

THE IMPACT OF NUTRITION ON ACADEMIC ACHIEVEMENT

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Julie A. Long

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Abstract

The recent increase of obesity and malnourishment among students has prompted many researchers to question the effects of such lifestyles on the students' health and academic areas. Many factors are to be associated with the lack of knowledge and initiative to make amendments within the system. In addition, many steps can be taken to implement the correct changes. This paper outlines the causes of malnutrition, the affects of poor nutrients, the vitality of specific nutrient, and ways to help the problems cease. Attention to the strong research and statistics, leads to transformation of the traditions and barriers of individuals choosing unhealthy lifestyles to see the benefits a healthy diet and exercise has on the academic success of students.

The Impact of Nutrition on Academic Achievement

Two percent of students receive the proper number of daily servings from the main food groups (U.S. Department of Agriculture, 1994). As the number of childhood malnourishment is on the rise due to a decreased value and understanding of the importance of nutrition in childhood years, the question of the effects on academic achievement becomes apparent. The importance of establishing a strong nutritional background and education is vital in the growing years to set knowledgeable lifestyle habits for the future. This helps to build a strong foundation for proper development and growth (Massey-Stokes, 2002).

Centers for Disease Control and Prevention (2004) stated the number of overweight young people has doubled in the past twenty years, with 15% of them being overweight or obese. In addition, 80% of unhealthy children are more likely to continue the cycle of poor habits into adulthood and continue to be overweight and obese (Yaussi, 2005). While the national epidemic of malnourishment with high-sugar, low nutrient foods is leading to overweight and obese children, some malnourishment in children is due to a lack of ability and funds to provide healthy food and lifestyles to children (Massey-Stokes, 2002). Sixteen percent of children live in poverty, with an average of 45% having limited access to food and approximately 10% are hungry at least one day a month (Stang & Bayerl, 2003). What are the causes that lead to this form of lifestyle? How does it affect the students' academic achievement? What changes can be made to help? By questioning the factors and consequences associated with it, one is better able to understand the importance of a healthy lifestyle through education and modeling and the steps needed to be taken to see the effective changes.

After researching the topic further, the importance of cognitive and developmental importance to receive the proper nutrients became more evident. Many facts are verified in the importance of supplying proper nutrition, and there are many new, surprising concepts. The amount of research regarding the crisis is overwhelming due to the desire to make constructive changes to fix not only the health risks of malnourishment, but to also increase literacy and development among children.

This paper highlights the causes of poor nutrition, the affects of poor nutrition, how specific nutrients affect the achievement of the students, and how to help the problem. The most influential way change can be made is in the school system. Providing the same education to all students, no matter the student's background, is one tool that can be employed and found useful for all students. As outlined in the paper, the vitality and lasting effects are evident and influential towards the health well-being and academic achievement of the student. No matter if the student comes from a healthy background, knowledge is power in building a successful life, academically and personally.

Causes of Poor Nutrition

Commonly, the reason students lead an unhealthy lifestyle is due to the modeling and cycle of unhealthy habits in the students' family and home lives. Many factors are to blame that cause the influx of poor nutrition. A lack of knowledge of healthy food and lifestyle habits, a decreased Socio-economic Status (SES), a sedentary lifestyle due to little emphasis on the importance of exercise, school factors, and in our technology savvy world, students are experiencing the effects physically and cognitively (Yaussi, 2005; Sigfusdottir, Kristjainsson, & Allegrante, 2007).

Knowledge of Common Barriers

Adams (1997) examined these concepts to specifically identify four barriers of healthy lifestyle habits, including: individual, environmental, policy, and additional behaviors. Individual barriers are defined as one's attitude regarding the amount and type of food one consumes in addition to the willpower one has to determine to their lifestyle. These factors influence their overall relationship with food and habits.

The individual's barriers toward lifestyle choices is largely based on environmental barriers that are influenced by outside factors in students' lives such as family, traditions, culture, peers, school, society, and availability of food selections. For example, if one is raised in the south where greasy food is common, the knowledge of the negative affects may not be as understood. Yaussi (2005) stated when a student is raised in an environment with overweight families, the lifestyles choices are modeled and affect the students negatively. The environment the student is raised in influences other types of behavior the student may choose to participate in based on factors like exercising, drugs/alcohol use, and overall healthy food choices. If a student does not grow up in a home that does not enforce outside play and activity as necessary, the student may choose computer and television.

All of the barriers go hand in hand. Especially since there is no specific law that can be inflicted among parents and guardians to determine right and wrong lifestyle habits, there are no steps that can be taken to ensure a healthier lifestyle for children in the home. If there were set policies created by the government, the amount of lifestyle choices the family models and imposes to the children could be better monitored.

Furthermore, the additional barriers that are effective include combining the previous three barriers and experiencing the resulting consequences.

Research based knowledge. O'Dea and Wilson (2006) performed a study in Australia that assessed the factors associated with a high Body Mass Index (BMI) and found similar results as described above as contributing factors to unhealthy lifestyle habits. In their study, a questionnaire was given to over four thousand students to determine the impacts of the students' exercise, food choices, self-control in making healthy decisions, genetic makeup, and their family's SES. The results displayed common themes as most studies did, but the study specified the main causes of a high BMI was based on the parental income and one's choice of breakfast. When children are not able to receive the most nutritious breakfast, it is most likely caused from a lower family income due to the inability to support healthy choices. Consequently, the lower the SES is, the higher is one's BMI.

Affects of Poor Nutrition

While the risks of unhealthy lifestyles are known to cause one to become overweight and be more at risk for diseases, students' academics are in jeopardy. Hungry and malnourished students have difficulty learning due to poor concentration, apathy, irritability, and a lack of energy and motivation (Massey-Stokes, 2002; Sigfusdottir et al., 2007; Youssi, 2005). With these risks of malnourishment, the ability to effectively learn through engagement and hand-on activities are decreased (Yaussi, 2005).

In addition, if students are malnourished, the sleep cycle can also be disrupted due to a lack of vitamins and inability to sleep on an empty stomach (Taras & Potts-Datema, 2005). Between these consequences and the more serious factors of difficulty to problem

solve, remember, and focus, students are more likely to have poor grades and a reduced academic performance. The biggest influence of students' academic performance is based on physical activity and diet because of the negative consequences comprised with it (Sigfusdottir et al., 2007).

When students are malnourished, it is not only possible to not grow cognitively, which affects academics, but also physically and psychosocially (Stang & Bayerl, 2003). As a result, poor nutrition can further lead to the problem of infections, diseases, and illnesses. While this is a risk in itself, it also increases the academic threat of failure because the student is forced to miss school to get healthy (Massey-Stokes, 2002). MSNBC (2007) highlighted these claims in obese children. Obese children miss an average of two days more in school per year. In addition, obese students are more prone to serious medical conditions such as asthma, hypertension, Type II Diabetes, anxiety, depression, high blood pressure, and high cholesterol (MSNBC, 2007; Ellerbee, Bramson-Paul, & Marcellino, 2006; U.S. Department of Health and Human Services, 2001). School is important in not only teaching children academic knowledge in tools for their future, it also teaches self discipline and the importance of self-esteem. The vitality of these areas cannot be ignored because if students are not in school, students cannot grow in these areas either (Sigfusdottir et al., 2007).

Affects of Nutrients

The lack of nutrition in students' lives raises questions to determine the impact of various vitamins on the students' achievement. Especially during the development and formative years, the student is growing and changing. When the proper nutrients are not obtained, proper growth and development cannot take place. It is not merely a matter of

obesity and “cosmetic” reasons to encourage healthy eating, cognitive functioning is also in jeopardy (Satcher, 2002). Children that lack proper nutrients when growing, perform lower in general academics and specifics such as reading, math, and vocabulary due to possibilities of delayed development (Action for Healthy Kids, 2004).

Many specific nutrients are important in the development of healthy students, physically and cognitively. These include calcium, vitamin A, thiamin, riboflavin, and iron (Goldberg, 1998). However, iron is of the greatest nutrients that affects achievement due to its significance of transporting oxygen to the body to provide energy, influencing the attention span and overall cognitive ability of the student (Massey-Stokes, 2002). Research done by Halterman et al. (2001) determined math scores of iron deficient children scored lower than children with normal iron levels (Taras, 2005).

Additional research has been done to determine the impact of nutritional supplements, such as a multivitamin on the students’ lives. While a multivitamin would help students to achieve the Recommended Dietary Allowances (RDA) of vitamin and mineral levels needed to be healthy, there has not been strong evidence to point to the intellectual benefits on student achievement to encourage the intake of additional supplements that help to meet RDA standards (Taras, 2005; Goldberg, 1998). The position of the RDA has is to provide information and policies to people on the most vital nutrients and foods to eat to help supply information on needs for a healthy life by monitoring programs and diets (Goldberg, 1998). Consequently, information must be made available to others to demonstrate the impact of nutrients on achievement and success.

How to Help

“The school setting is a great equalizer, providing all students and families- regardless of ethnicity, socioeconomic status, or level of education- with the same access to good nutrition and physical activity...” (Satcher, 2000, p. 26). As schools become increasingly more knowledgeable about the situations at hand, children can become nourished and assisted. Massey-Stokes (2002) highlighted the importance of providing positive role models for the students in the school and examples in the media. Through the ability to educate students about healthy lifestyles, schools can specifically define healthy habits and provide strong support for good choices and habits through examples (Adams, 1997).

O’Dea and Wilson’s (2006) study incorporated the impact of the students’ socio-cognitive ability in conjunction with the Social Cognitive Theory. Based on the skills, knowledge, and ability to follow through with appropriate actions and decisions regarding one’s health, the behaviors are determined. If students understand what measures he or she must take to correct the areas that inhibit the causes of poor nutrition and the available tools for the students to do so, then the resulting areas will show through their achievement.

By teaching the relationship between the behaviors and food, students can establish independence for their lifestyle choices to take necessary steps for positive health and academic achievement. In addition, partnering up with the administration, parents, teachers, organizations and community allows the vital information to be expressed and the benefits of healthy programs. When schools are enforcing nutrition

and teaching it, there is consistency for students understand the need for good choices to be made within their lives (Ellerbee et al., 2006).

Action for Healthy Kids (2002) is a nonprofit organization that took matters into their own hands to address the link between students' academic achievement and health. By educating schools, policy makers, and instilling academic nutrition information across the nation, districts are increasingly becoming more knowledgeable about it. They have conducted studies to assess the impact of their school standards for nutrition and exercise and established results concluding the effectiveness of the programs. The schools who participated in the studies received such benefits as funding for healthy choices, actual implementation of healthy choices in the cafeteria, and pedometers for activity monitoring. Results demonstrated positive benefits. There was not a decrease in the amount of food sales in the cafeteria, in fact some sales increased. In addition, 61% of students increased their academic performance due to the nutritional choices, and 71% stated they did better when receiving more exercise.

Referring back to the environmental barriers as discussed by Adams (1997), schools can help by supplying a school breakfast program. As implied previously, when students skip breakfast, it is detrimental to the students' cognitive functioning. Studies show that students who receive breakfast do better in cognitive skills like problem solving because the student is able to concentrate and focus better ("Impact of Diet," 2007). Therefore, when students are offered breakfast, essential nutrients are provided to the students to improve students' concentration and memory skills. Positive effects show short-term benefits of improved attendance, attention, creativity, assessment scores, and

overall cognitive ability. However, long-term overall benefits of breakfast programs are not as known (Taras, 2005).

Marshalltown Community School district has currently applied this knowledge of the importance of the breakfast program by supplying breakfast to select schools. All students in school receive a cereal product and another substantial choice (e.g. cheese), milk, and juice. Based on research and validity to support the vitality of nutritious food options, the students are able to concentrate better and increase their academic achievements. (K. Green, personal communication, August 21, 2007).

In conjunction with the breakfast program is the school lunch program and the nutritional benefits it provides. There are over 1,000 school lunch programs across the nation (National Food Service Management Institute, 2006). If all of the school lunch programs take the next step to acquire adequate funding and qualified dietary kitchen staff, the nutrition intake of the students' lunches can be properly monitored and assessed. In addition, the nutrition staff can also monitor the amount of nutrients the students receive in snacks and junk food too by eliminating snack and pop machines to ensure students receive fruits and vegetables (Satcher, 2005).

Since the amount of exercise is becoming desolate in students' lives due to factors such as an increased amount of videogames, Internet functions, and other technology related areas, it is necessary to include aspects in the school day that promote physical activity. Fifty percent of the youth in the nation do not receive enough exercise, and 20% of United State's schools have eliminated recess to account for more class time (Yaussi, 2005; Tyre, 2004). Schools must evaluate the consequences of reduced physical activity. National Association for Sport and Physical Education & Council of Physical Education

for Children (2001) stated when students participate in a daily physical movement, academic achievement, attendance, and the students' attitude about school is increased. In addition, physical activity helps students grow in socialization with others, problem solving, and in helping increase one's self-esteem. We need to monitor the amount of time students obtain for physical activity to maximize these benefits.

However, if students are to be in class for more time, schools can teach students to read food labels to empower them to learn to make healthy food choices and the benefits of certain food to provide energy ("Fuel Student Understanding of Nutrition's Importance," 2006). Some parents and guardians do not provide direction in ensuring children receive the correct nutrients and students need to be knowledgeable about making good decisions to use in their future. The Federal Drug Administration has teamed up with the Cartoon Network to begin doing so in a fashion that is "kid friendly" and informative (MSNBC, 2007). By empowering students to make educative decisions about calories, fat, sugar, and the percents of daily requirements, students can take matter in their own hands to lead a healthy lifestyle, as well as influence those in their environmental lives to make good choices as well.

Nutrition programs as such, instill an adequate source of resources for food and knowledge, as well as assessments and interventions to continue to monitor the results that are achieved by students and the overall quality of the enforced program. The programs are useful to decrease hunger and malnourishment, while increasing test scores and success in the schools. Since students in schools are not discriminated by race, SES, age, or any other factors, the ability to weigh and measure the results provides genuine research and knowledge to help schools evaluate themselves and their system.

After learning these connections between student achievement and nutrition, some schools have already taken a stand to increase the nutritional standards within the schools. California is one example, as they have monitored the nutritional content for food and drinks in school and for any school activity based on standards (Ellerbe et al., 2006). Changes must be made in all schools across the nation to determine the best needs for students and the school to build achievement (Stang & Bayerl, 2003). Just as schools wish to create healthy minds of children, it is necessary and able to do so with healthy bodies (Ellerbe et al., 2006).

Conclusion

After assessing the impact of nutrition and exercise on academic achievement, it is evident to see the value and need to provide assistance to students affected by the primary causes of poor nutrition. One's nutritional lifestyle affects the cognitive function and development level, influencing the academic achievement, school attendance, self-esteem, health risks, and weight of the student. Many factors such as knowledge, resources, environment, nutritional choices, and income attribute to the resulting figures. Since many studies have been performed to determine the needs that must be met to address these issues, knowledge has been established to understand changes need to be made in the school system to provide students with healthy meals, physical activity, and the knowledge to teach students to make healthy decisions for themselves. When areas as such are addressed, students' test scores and performances within the classroom will be attained, levels of cognitive functioning will result, and developmental areas will be met. As made evident in this paper, the better the health and habits of students, the more

successful students will be academically and in their overall lives (Sigfusdottir et al., 2007). No matter the realm, when students experience success, it will breed success.

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