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Capstone Research Project

Childhood Obesity and Academic Performance

Author Note

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Abstract

students and the  
apparent decline of academics in overweight student populations. This paper will look into the history of school nutrition, school health education, and school physical education and the changes that may have occurred over the last several decades. This paper recognizes that childhood obesity is an epidemic. This paper will explore elements of the past that started the epidemic; elements of the present that currently fuel the epidemic, and current and future solutions to the obesity epidemic. It also seeks to understand why it seems to affect academic performance negatively and if there could be other causes.

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these changes really provided students were choices. Students could choose to have fries and a soda and nothing else for lunch. Or they could choose other products that contained high fat, little fiber, and high sugar.<sup>1</sup>

It urged Americans to reduce fats in their diets and to increase their intake of complex carbohydrates. American food manufacturers did cut down fat in foods, but they increased sugar and simple carbohydrates.<sup>9</sup> Concurrently, TV commercials and magazine ads geared toward young people focused on sugary cereals, candy bars, and sodas.<sup>9</sup> Many of these items were readily found in schools, thanks to the vending machines that had been making their way into schools nationwide.<sup>1</sup> These



is to give a clear understanding of why it is difficult to change NSLP standards and regulations.

Justifiable fear of past hunger has created a culture of strong caution in NSLP administrators. Protecting children from malnutrition is still the primary purpose of the NSLP, but most children with iron deficiencies are not suffering from hunger, they are suffering from poor diet.<sup>21,22</sup>

The NSLP set standards to provide meals that are generally well balanced and nutritious.<sup>22</sup> NSLP also includes the alternative meal lines and ala carte lines.<sup>21</sup> Those lines contain foods similar to fast foods and competitive foods (*commercial foods sold inside the school*), which are not nutrient dense.<sup>11</sup> Competitive foods sold in schools, such as chips, candy, and ice-cream are high in carbohydrate, fat, saturated fat, sugar and additives.<sup>11</sup> These products make a child feel full, but are not providing the real, complete nutrition discussed above.<sup>1, 11, 33</sup> In addition to eating competitive foods at school, children snack on them at home between meals, while watching television, doing homework, or playing video games.<sup>36</sup>

, at school and at home, calorie surplus happens rapidly.<sup>33</sup> The USDA reported that a significant portion of the school age population demonstrated deficiencies in Vitamin D, Vitamin B12, Vitamin A, Iodine, Iron, Calcium, and Fiber but over

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of fast food that children eat.<sup>35</sup> Students that reported eating fast food one to three times per week scored 18.25 points lower than their peers.<sup>35</sup> Students who reported eating fast food once or more daily had their test scores decline by an average of 33.88 points lower than their peers.<sup>35</sup>

### Fat Impacts Critical Thinking

The reasons that fast food and foods like fast food cause poor performance are physiological. These foods are low in fiber, vitamins, and minerals, but high in simple sugar, carbohydrate, and fat.<sup>35</sup> This can lead to fluctuating blood sugar levels which are focused in the classroom.<sup>25, 26</sup> High fat and saturated fat decreases DHA as well as plasticity of the brain,<sup>30</sup> High saturated fat has also been linked to .<sup>30</sup> Fast foods are low in essential minerals such as iron and zinc have only eight percent of the daily recommended value (DRI) of iron for a child.<sup>35</sup> Iron deficiencies negatively impact academics, with anemic children scoring below average on standardized math scores specifically.<sup>31, 35</sup> Unfortunately the youth of America, do eat fast food regularly and other calorie dense foods regularly also.<sup>27</sup> By incorporating foods that are pre-packaged and high in fat and additives, Americans are replacing fast food for another form of fast food.<sup>27, 23</sup>

### The Current State of Physical Education

Most children are not getting the recommended amount of exercise.<sup>36, 38</sup> Exercise

shown to severely impact younger students.<sup>3</sup> Schools are not able to hire qualified staff to watch students while they play at recess.<sup>3, 34</sup> The solution to schools' hiring problem and teacher shortage has been to simply cut out recess altogether. It is more prevalent in socioeconomically depressed areas where districts and schools do not have funds to support their students in the same way as more affluent areas.<sup>34</sup>

o support local schools, education could be made more equal in poor areas. Teachers would also be more likely to take jobs in those areas.<sup>34</sup>

Overweight and obese children who do have the opportunity to enroll in physical education often do not. When they do, they are often discriminated against in group activities based on their appearance. Because of harsh physical punishments and taunting, obese children withdraw from their peers during gym activities, fearing further embarrassing situations they choose not to participate.<sup>32</sup>

#### A Problem with Depression

An overweight or obese child may have similar academics to a slim child, the reason is that both students eat a high fat diet.<sup>30</sup> As noted earlier, nutrition can reduce brain plasticity and impair function leading to poor test scores.<sup>30</sup> However, teachers and peers may perceive that the obese child more unmotivated, and that is why his or her grades are not as good as those of his or her peers.<sup>32</sup> That line of thinking is false. Youth with healthy body weights but high levels of interstitial fat have equally low grades; but are not as likely to be judged as lazy.<sup>30, 32</sup> Unfair judgments may cause a student to withdraw which can be further construed as a lack of motivation. All of these negative elements can damage a child mentally and emotionally leading to depression.<sup>32</sup>

Depression is a major concern for overweight and obese youth of any age but especially for adolescents.<sup>32, 14</sup> It is common for obese and overweight youth to show signs of depression early and to become progressively more withdrawn as they age.<sup>32, 14</sup> Many of them suffer from chronic health problems that keep them out of the classroom. They are prone to orthopedic issues which cause them pain as well as immobility that deepens depression.<sup>25, 14</sup> Their immune systems are weakened so they have more colds and flues, as well as other conditions such as uncontrolled diabetes, respiratory problems, and







In addition to poor health education, physical education and physical activity were equally poor. Eighteen percent of schools did not require physical education in every grade.<sup>19,28</sup> Thirty-three percent of schools allowed students to be exempted from physical education for participation in sports, other courses, or activities. Twenty-seven percent had not administered a physical fitness test to students in any grade in the past year.<sup>19,28</sup> Sixty-five percent did not have a policy prohibiting or discouraging the use of physical activity as punishment.<sup>24, 28</sup>

Kids must be healthy to learn, but they must also learn to be healthy through

High Quality Health and Physical Education

Healthy Food Choices

Strong Physical Activity Programs

Safe Routes to School

The solutions seem simple but it was a long planning and implementation process before the school system saw results. The physical education program overhaul was beneficial in two ways: First, grades went up even before students lost weight. Second, students lost weight.<sup>18, 19, 24, 28</sup>

### Modern Solutions

#### A Better Way to Eat

Reforming school lunch is a long and slow process. As mentioned previously, the NSLP is a safeguard against child hunger, so making sweeping changes on a national scale is not realistic.<sup>13, 22</sup> Working with dieticians the NSLP has been able to make small changes to help meet the recommended DRI values for essential nutrients to all children who utilize the program.<sup>13, 21</sup> Students must now choose a vegetable, fruit, entrée, and milk with each lunch in elementary schools. In middle schools and high schools the students must be given a choice to have these foods, they are not, however, required to put them on their tray.<sup>21</sup> But allowing states, districts, and individual schools to modify their own programs has shown to be very effective in combating poor diet in schools. Some areas of America are finding



students why they need to perform exercises or participate in physical sports.<sup>4</sup> Students are being taught that cardio exercise strengthens the heart, prevents cardiovascular disease, lowers the risk of heart attack, reduce hypertension, and decreases the risk of stroke and type two diabetes.<sup>4,8</sup> These health problems are usually found in adults, but in recent years have been affecting children in larger numbers. In addition to health benefits, P.E. and exercise increase development of motor skills and coordination.<sup>4</sup>

Another reason for the recent push to increase student activity is that research shows that when students are active, they strengthen and stimulate their brains.<sup>12</sup> Safely increasing a child's physical activity level directly results in better grades.<sup>12, 25</sup> One theory behind this has its roots in anthropology.

### Educate For The Future

Health promotion in schools is slowly evolving to focus on creating better education and awareness programs.<sup>8</sup> Health promotion professionals recognize that simply raising health awareness is useless if students do not have knowledge of how to be healthy.<sup>8, 16</sup> Health promoters are currently working with education professionals to craft nutrition education, health education, and physical education in areas that had previously stripped schools of those programs.<sup>8, 16, 26</sup> They are also serving as liaisons to the community and fund raising strategists for schools as part of their efforts to implement new programs.<sup>8</sup> This is especially common in rural and poor areas, where the school may need to build relationships with businesses or apply for non-

or in affluent areas. The lack of education about their own bodies may be one of the most damaging things society can do to a child. Indeed, it can and strengthen the body, the mind will follow.









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