

# Evaluating the Quality of Physical Education Programs Provided by State Department of Education Websites and the Relationships Between Adolescent Obesity and Sedentary Prevalence

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EVALUATING THE QUALITY OF PHYSICAL EDUCATION PROGRAMS  
PROVIDED BY STATE DEPARTMENT OF EDUCATION WEBSITES AND  
THE RELATIONSHIPS BETWEEN ADOLESCENT OBESITY AND  
SEDENTARY PREVALENCE

by

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A thesis submitted in partial fulfillment of the requirements for the Honors in the Major Program  
in sport and exercise science in the College of Education and Human Performance and in The  
Burnett Honors College at the University of Central Florida Orlando, Florida

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Thesis Chair: Dr. Anna Valdes

## **ABSTRACT**

This research seeks to determine the relationships between the quality of physical education (PE) programs provided by state departments of education (DOE), obesity rates, and sedentary behaviors described as physical inactivity in adolescents ages 10-17 years old. A modified rubric based on the “Let’s Move Active Schools Assessment” was created and used to quantitatively and qualitatively evaluate the PE programs and physical activity (PA) opportunities provided by websites of the state’s DOE. A total of fourteen states were chosen to be assessed due to having either the highest or lowest obesity or physical inactivity rates. It was believed that the states with the highest obesity prevalence would have the highest inactivity and the lowest quality PE programs, and that those with lowest obesity prevalence would have lowest physical inactivity and high quality PE programs. After assessing the chosen states, no correlation was found between the quality of PE program as determined from the created rubric and the obesity or sedentary behavior rates of the state. The highest grade of all states assessed was 23 out of 27 with the lowest score being 7. The average scores of the states with the highest obesity was greater than the average for those states with the lowest inactivity, indicating that the quality of PE programs as provided by the DOE are not exclusively related to obesity and physical inactivity prevalence. Other determining factors such as nutrition, state funding, local policies, and societal factors may be more involved in the health of children than what is popularly believed. The data show that efforts are being made to decrease obesity throughout schools and the departments of education, however the efficiency of such efforts to increase physical activity and health are low. While states may post plans for PE and create standards for

teaching, local levels of education are not required to enforce the policies or teach the curriculum suggested. Including students with special conditions and providing physical activities outside the school building is also lacking although it may seem like measures are being taken to provide such opportunities. More evaluations must be completed to get a stronger understanding of how to fix inadequate physical education and activity programs provided by the states' DOEs. Reviewing each DOE efforts as well as that of the community and individual school districts would help gain insight into where roadblocks reside and how to overcome destructive policies to offer better physical activity and education to children.

## **DEDICATION**

For children in every country and educational environment.

“If by gaining knowledge we destroy our health, we labor for a thing that will be useless in our hands” – John Locke

## **ACKNOWLEDGEMENTS**

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## INTRODUCTION

Obesity is a powerful disease. The prevalence of obese individuals is climbing exponentially while the health of our nation and even the world is falling just as fast. Figure 1 demonstrates the growth of obesity from 1990 to 2015 in the United States by each state. The World Health Organization reported that worldwide prevalence of obesity more than doubled between 1980 and 2014. According to the Center for Disease Control, 36.5% of adult Americans are obese and 17% of children and adolescents are obese. These statistics are important because not only does obesity interrupt social activities and physical abilities but it also opens the door to highly destructive health issues. Overweight and obese individuals are more susceptible to high blood pressure, high cholesterol, type 2 diabetes, stroke, gallbladder disease, osteoarthritis, cancer, and mental illness (Center for Disease Control, 2016). Research continually brings to light the deadly impacts of obesity and yet the human race is still failing to reverse its pattern. Why is it that society is so incapable of overcoming obesity? What is so powerful about it that more people are being diagnosed with the disease instead of curing it? How can we stop it? In short, it is not the strength of the disease but the weakness of the people. Humans are lazy and with the help of technology less work has to be done physically throughout the day, allowing society to participate in more sedentary behaviors.

It was not until the past 50 years that obesity really became a topic. Long before cars, desks, computers, and processed foods, people had to use their own energy to get around, find food, and survive. While people still have to eat and travel the means for completing these activities are different. Simpler ways to complete everyday tasks are making humans lazy, or in more scientifically appropriate terms, - sedentary. This physically inactive lifestyle that the world

is slowly transitioning to reduces the time spent using our body's energy to complete tasks. Having cheap, easily accessible, and pre-packaged foods is making the consumption of this energy higher than necessary. These are facts well known from recent documentaries such as "Supersize Me," and popular community initiatives to be healthier. This research is not revolutionary, but rather realistic. The United States and other countries are not getting healthier because it is inconvenient to spend the time, money, and resources to truly put together decent programs that can overturn diseases like obesity.

This research is an in-depth evaluation of the physical education programs and physical activity opportunities offered by 13 states and the District of Columbia, making for a grand total of 14 states. Physical activity, healthy eating, and mental and social health are all vital components of a healthy lifestyle and each play a role in becoming obese, or overcoming obesity. Recently, efforts by our government to increase health and reduce obesity have not made a significant impact but have instead created a false image of health to our children. PE used to mean running around, time to play on the monkey bars, or getting together with friends to practice a sport. PE now, if provided at all, is a segment of time where children are often essentially watched over, so a school can claim they are following state or federal "guidelines" and receive their funding. There is little structure and requirements for physical education programs and of the few states that make some effort to comply, enforcement and quality is poor. By taking qualitative and quantitative measures based off a modified rubric of the Let's Move! Assessment Tool to evaluate such programs, this research seeks to determine if there is a relationship between obesity and physical inactivity in adolescents and evaluate the quality of physical education that the state provides. State standards, enforcement procedures,

recommendations, resources, ease of access, and other efforts published on the state DOE website will be used to assess the states' efforts. No direct correlations are sought to be found, but rather an understanding of what PE programs are lacking and how they can be improved to better the health of adolescents.

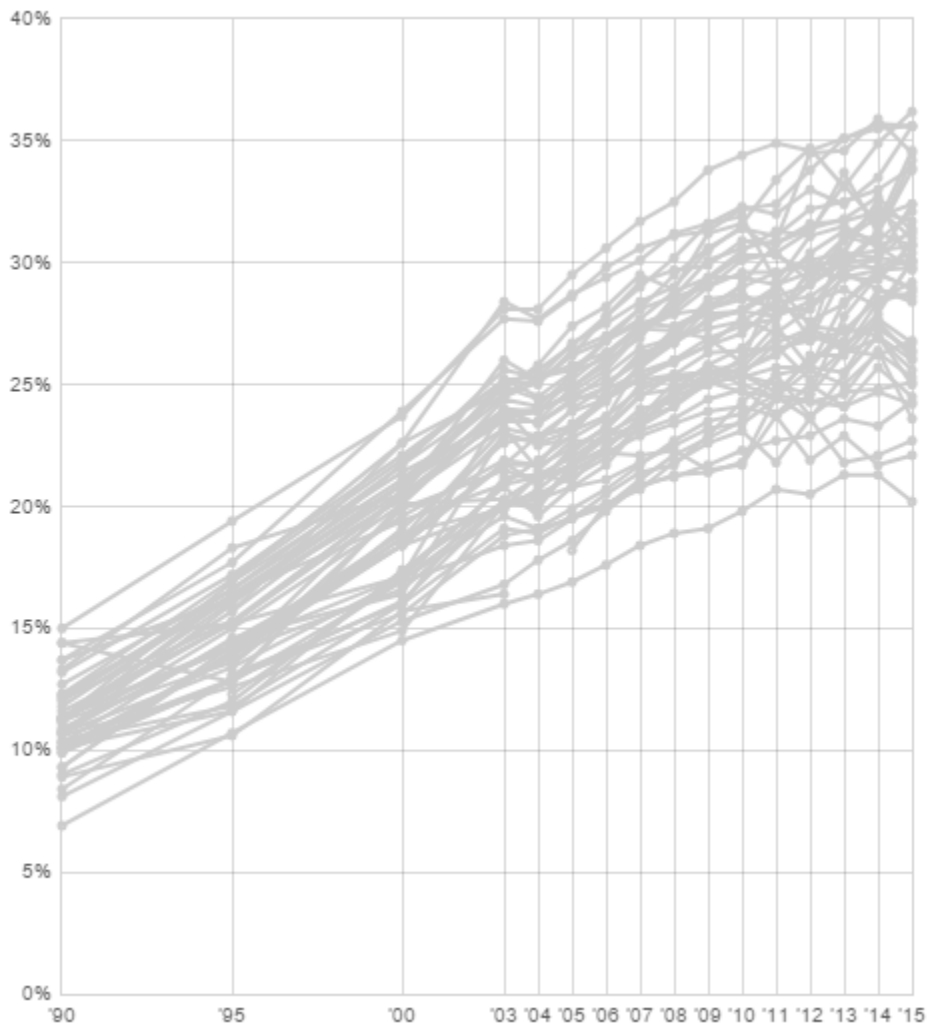


Figure 1. Adult Obesity Rates by State from 1990 to 2015 (State of Obesity, 2015)

## **BACKGROUND**

The following sections were included to better inform readers and the public about the background of physical education and why it is so important for children. Information on obesity, obesity-related diseases, physical activity benefits, and school involvement in physical education are included below to support the need for research to evaluate the quality of physical education programs and emphasize the significance of the relationships between sedentary behaviors and obesity.

### Obesity

#### *Rates, Prevalence, Incidence*

Obesity has become an epidemic in the United States at the same time that physical activity is at an all-time low. Ogden et al. (2012) reported 16.9% of children and adolescents ages 2-19 were obese in 2009-2010 and 31.8% were either overweight or obese. In addition, their study reported 12.1%, 18.0%, and 18.4% obesity prevalence for children ages 2-5, 6-11, and 12-19 respectively. The later data is more concerning because it notes an increase in obesity prevalence with age, indicating that as people become older and perhaps busier, they participate in less physical activity or inherit unhealthy habits that lead to an increase in weight and obesity.

Regarding obesity incidence, Cunningham et al. (2014) published that obesity incidence was 14% annually for overweight children, which means that every year, 14% of the children who are overweight will become obese. This study described a pattern seen in their data that the obesity incidence for children who were overweight commonly occurred early in elementary school and that obesity incidence for children who entered elementary school at a normal weight

was significantly less than those who entered overweight. Another concerning statistic published by Cunningham (2014) states that by kindergarten, 12.4% of children in America are obese and 14.9% are overweight; considering the previous information, this means every year of elementary school, 14% of the 14.9% of students who are already overweight will become obese, a pattern which continues to increase the overall prevalence of obesity.

Data from the National Survey of Children's Health (NSCH) have documented the obesity rates by state for 2003, 2007, and 2011, which demonstrates no decrease in obesity levels from 2003. The CDC reported on the NSCH data and determined that overall rates and prevalence for both children and adults has not changed significantly. The continued rise and/or plateau of obesity amongst a society that is seemingly aware and putting forth efforts to combat the disease is concerning and descriptive of what may be ineffective policies or efforts. The ineffective efforts of society could be wasting money and resources without substantial results and thus is reason for more research to be done on assessing and evaluating such programs.

#### *Related Conditions*

While obesity alone is a terrible disease, there are multiple other health conditions and diseases that are correlated to obesity. Increased risk for hypertension and increased cholesterol levels were reported in the US Bogalusa Heart Study on obese adults. In addition, obese children were susceptible to even more conditions including type 2 diabetes, menstrual irregularities, steatohepatitis, asthma, musculoskeletal disorders, and psychological problems (Lakshman, 2012). The CDC also lists heart disease, stroke, and some types of cancers as obesity-related conditions (CDC obesity data, 2015).

Type 2 diabetes is one of the most common obesity-related diseases; the *Canadian Journal of Diabetes* states there is an "urgent and increasing need... to invest in research ...to prevent and treat obesity and to encourage physical activity" (Cheng, A.Y.Y., et al., 2013, p.S2). The journal also describes the close relationship of metabolic syndrome and type 2 diabetes, correlating both diseases with obesity. Type 2 diabetes shares many of the same causes as obesity, but can cause your body to attack itself and end up an expensive and fatal disease if not treated properly. The process of treating and maintaining body function with type 2 diabetes can be very tedious and difficult for a child to properly administer, thus making obesity and type 2 diabetes extremely dangerous for a child to endure.

### Physical Activity

#### *Benefits and Role in Obesity Prevention*

As mentioned before in the study in the *Canadian Journal of Diabetes* (Sigel, et al., 2013), a strong need exists for governments to invest in research to create effective strategies for the purpose of not just obesity prevention but also to encourage physical activity. Physical activity plays a large role in the health of people, particularly in keeping a healthy weight, increasing bone density, and developing motor function in children. (Kushner & Bessesen, 2007) explains in the book, "Treatment of the Obese Patient," how physical activity is involved in the prevention and treatment of obesity. Although little data exists that supports significant correlation between PA alone and the reduction or prevention of obesity, the association of PA in the reduction of weight gain and prevention of other obesity-related diseases has been published; therefore this research recognizes PA as a method to aid in obesity prevention and reduction (Dwyer-Lindgren et al. 2013). Specifically with children and adolescents, decreasing sedentary



behavior and increased PA can combat weight and fatness gains (Must & Tybor, 2005). Independent of weight gain, other benefits of PA include decreased risk for cardiovascular disease and some cancers, increased bone and muscle strength, and improved mental health ("The Benefits of Physical Activity," 2015).

### School Interventions/Programs

#### *Need for school intervention/programs*

Combining what is known about the rise and danger of obesity and sedentary behavior along with the role of PA in health, adequate physical education should be provided in schools to educate children on the issues associated with unhealthy behaviors and how they can participate in a lifestyle of healthy behavior. Due to the high amount of time U.S. children spend in schools, it is the ideal place to implement intervention strategies to prevent obesity and encourage participation in PA. Research involving PA and the school environments has recently recognized multiple intervention strategies that have proven beneficial and realistic in preventing obesity (Waters et al., 2011). Lakshman, Elks, and Ong (2012) also discusses the reported success of school-based intervention for obesity with the most promising interventions including PA.

In addition, research on obesity incidence has discovered that by age 5 a component of the course to obesity is already established, indicating the need implement and teach healthy behaviors early in educational settings (Cunningham et al., 2014). Buscemi et al. (2015) also published on the impact of early care and education policies among preschool-aged children; the statement mentions the need to address obesity prevention at a young age in early childcare settings, and mentions the importance of physical activity for other health benefits such as motor

development. It is clear that education has the greatest impact on children while they are in elementary school and early child care settings, but this is not the only time intervention, education, and PA should be offered to children. Lakshman, Elks, and Ong (2012) describes an increased risk for adolescents and children who are obese that persists to continue to stay obese into the adult years, compared to normal weight teenagers who had less than a 5% chance of becoming obese. This means even after elementary and middle school, the weight of a teenager entering high school and during high school is often the weight they will stay during adulthood. In order to make effective efforts decreasing obesity prevalence, high school programs should be just as involved if not more in teaching and providing PA opportunities and health education.

#### *School Evaluation and Assessment*

Having the knowledge that obesity is bad, physical activity is good, and schools should include programs to prevent obesity and encourage PA is not nearly enough to make a serious effort in improving the health of children. Despite the inconsistency of the new and evolving analysis techniques used to evaluate health and/or PE programs, Lytle et al. (2002) published an article comparing various intervention strategies and their evaluations, studying the United States and European countries. One particular intervention in Crete was notably successful and included a high degree of parental participation, a health education program that included physical education classes that reported longer intervention hours than provided in American interventions, and a high level of teachers' compliance. Particular emphasis was granted to the length of interventions in how effective a school is at promoting health education as well as the length of a study that evaluates such programs. In addition, the approach to teaching a child should be considered before implementing a PE or health program. Maziah, Nooraziah, and

Saemah (2015) reported the best teaching tool to educate young children (elementary-aged) on PA includes child-friendly concepts that incorporate the child's surrounding environment and conceptual play activities. While this may seem obvious, current guidelines and/or mandates do not include this kind of detail in all states and thus is the reason why evaluation and assessment measures should be implemented and monitored.

Part of the current issue today is that too many school districts and DOEs are adding in PE programs or encouraging students to participate in PA just for show, but the true quality and effectiveness of the programs and efforts reveal poor quality and little outcome. Obesity has been on the rise since the early 2000s and current statistics report some states having up to 21.7% of children categorized as obese; this does not include those who are overweight (CDC, "Childhood Overweight and Obesity Trends," 2003, 2011). The CDC also reports that in 2013, only 29% of high school students attended PE class daily and 27.1% participated in the recommended amount of PA all 7 days prior to being surveyed. No doubt, evaluation and modification of current PE programs and DOE efforts to provide PA opportunities is necessary to combat obesity seriously and its related problems (CDC, "Physical Activity Facts," 2015).

#### Potential Educational and Societal Impacts of this Research

Not only is society making little to no progress on decreasing prevalence, but tons of money and resources are also being spent on obesity awareness and programs that are not showing promising results. Without quality programs with clear requirements and guidelines appropriate to the age group, society may get too comfortable with the trend of supporting obesity without efficiently and seriously working to fight the disease. Research on evaluation,

assessment, program modification, and proper program development are necessary to make significant progress on this issue. Proper research and change can not only decrease obesity prevalence and increase PA in children and adolescents but also decrease health care costs, decrease emotional stress on children who are constantly combating their obesity related diseases without any results, and increase the overall quality of children's lives by increasing their health through physical activity.

## **METHODOLOGY**

The following section explains how the research and the analysis was conducted. The purpose of this research is to evaluate state DOE PE programs and use the data to enhance the physical education and activity provided to students. The methods described below were chosen in order to provide the most detailed evaluation of physical activity programs and expose as much information possible to provide the best feedback. When planning for this research study, the idea of making sure the study is replicable was also considered in the research design and methods. Even though the process was very meticulous and time-consuming, it was believed to result in the best outcome for ensuring replicability of the research.

### Inclusion Criteria

The purpose of this study was to evaluate PE programs and guidelines as well as search for a relationship between obesity, sedentary behavior, and the quality of PE and PA programs provided by state DOEs. In order to draw relationships between sedentary behavior and obesity, only the states with the highest and lowest prevalence of obesity and inactivity were evaluated. Jebb, S. A., and Moore, M.S. (1999) published a study with similar interests in the relationship between inactivity and obesity and found a causal relationship. Additionally, Hu, F. B. (2003) concluded that sedentary behaviors were correlated with increased risk of obesity. If a relationship can be found between obesity and physical inactivity, it would be reasonable to believe the states with the highest obesity should also have the highest inactivity prevalence, and vice versa, thus leading to the reasoning behind choosing states from the extreme ends of the spectrum. Due to time restrictions, only the 5 states with the highest and lowest prevalence in each category were considered.

The target population that this study focused on is children and adolescents ages 10 to 17 years old. Obesity rates will be recorded for children ages 10 to 17; however, there is no recorded physical inactivity data for 10 to 17-year-olds per each state in the year 2011, so data for physical inactivity is collected for the state in general. Both obesity rates and PA rates are reported for the most current and complete year of 2011.

### Instruments

In order to gather information regarding the various school PE programs and PA efforts, the websites of each state DOE were examined. Statutes, Bills, Rules, Regulations, Standards, and Guidelines provided by the state DOE website were included in each state's assessment of their PE program. When necessary, e-mails or phone calls were sent to employees of the state DOE who were in charge of the PE guidelines in question when an answer was not found or unclear online.

A quantitative assessment of each state DOE was performed with a modified rubric created for the purposes of this research (Appendix A). The rubric used for assessment was derived from the *Let's Move Assessment Tool* and modified with guidelines from the CDC to better assess the state DOE rather than each individual school (Appendix B). The rubric listed nine guidelines and allowed a score from zero to three, three meaning all criteria was met for the guideline and zero meaning the guideline was not met at all or there was no PE program to assess. The highest score possible on the assessment is 27 total points.

Each guideline on the modified rubric was derived from the *Let's Move! Assessment Tool* and CDC recommendations. The first guideline recommends elementary schools provide at least

150 minutes of physical education to students each week, supported by the *2008 Physical Activity Guideline for Americans* article published by the CDC. The second guideline is in reference to the number of years middle and high school students are required to take physical education, with the highest score being the equivalent to all years of school. Guideline 3 recommends all PE teachers use an age appropriate, sequential PE curriculum that is consistent with national or state standards. This was the most difficult guideline to assess because many states have standards but do not truly mandate all teachers to use a curriculum, therefore it is difficult to assess if all teachers are truly following the appropriate curriculum.

The fourth guideline addresses professional development, fitness assessment, and healthy fitness zones by recommending that the PE program adopts the Presidential Youth Fitness Program components. Guidelines 5, 6, 7, and 9 are based on multiple components that evaluate how well the DOE offers or supports certain guidelines. Guideline 5 assess how well the DOE includes students with special health care needs or chronic health conditions that may cause for modified PE programs. Guideline 6 evaluates the DOE's efforts to support walking or biking to school; an important guideline not just for physical health but also for reduced pollution and more accessible transportation for every child to get to school. Guideline 7 recommends before and after school activities that offer physical activity. Guideline 9 incorporates community organizations and how well the DOE promotes participation in physical activity outside of school and in the community. Lastly, Guideline 8 recommends that schools provide at least 20 minutes of recess a day. This is an important recommendation because while physical education can be considered classroom time learning about physical health as well as play time, recess is strictly time for physical activity to take place.

## Procedures

The obesity and physical inactivity prevalence were recorded from the State of Obesity website. This organization is funded in part by the Center for Disease Control and derived their data from the Behavioral Risk Factor Surveillance System, the largest telephone health survey worldwide.

All data involving obesity rates are representative of the year 2011. Obesity rates for 10-17 year-olds were recorded from the State of Obesity Organization website and can be found in Table 1 and Table 2. Only the five states with the highest obesity rates (Mississippi, South Carolina, District of Columbia, Louisiana, Tennessee) and the five states with the lowest obesity rates (Oregon, New Jersey, Idaho, Wyoming, Colorado) had their obesity rates recorded. Physical inactivity rates were recorded from 2014 and include the entire state. The five states with the highest physical inactivity (Mississippi, Arkansas, Louisiana, West Virginia, Oklahoma) and the five states with the lowest physical inactivity (Colorado, Oregon, Utah, Washington, Idaho) were included in this study. Tables 1, 2, 3, and 4 list the states with the highest and lowest obesity rates and highest and lowest physical inactivity rates that were used for this research.

Table 1 Obesity Rates of the Five States with the Highest Obesity in 10-17 Year Old Children

Rank	State	Obesity Rate
1	Mississippi	21.70%
2	South Carolina	21.50%
3	District of Columbia	21.40%
4	Louisiana	21.10%
5	Tennessee	20.50%



Table 2 Obesity Rates of States with the Lowest Obesity in 10-17 Year Old Children

Rank	State	Obesity Rate
1	Oregon	9.90%
2	New Jersey	10.00%
3	Idaho	10.60%
4	Wyoming	10.70%
5	Colorado	10.90%

Table 3 Physical Inactivity Rates of States with Highest Inactivity (2014)

Rank	State	Physical Inactivity Rate
1	Mississippi	31.60%
2	Arkansas	30.70%
3	Louisiana	29.50%
4	West Virginia	28.70%
5	Oklahoma	28.30%

Table 4 Physical Inactivity Rates of States with Lowest Inactivity (2014)

Rank	State	Physical Inactivity Rate
1	Colorado	16.40%
2	Oregon	16.50%
3	Utah	16.80%
4	Washington	18.10%
5	Idaho	18.70%

After obesity and physical inactivity data was recorded, each state's DOE PE programs and PA efforts were assessed. Information for each state's assessment came from the DOE website and any statute, code, bill, regulation, rule, standard, or guidelines was included in the assessment. It is important to note that information that was not described as "required" or "mandated" was still considered for assessment and regarded as part of the DOEs effort to increase PA. There is variability between each state DOE website and how policies are documented and published for the public to find; it is important that the researcher does a thorough job looking for every piece of information to properly assess the state to the best of their ability. If answers were not clearly found online or if conflicting information was found between sources, emails or phone calls were made to the physical education director listed by the DOE to complete the assessment. For this study, both phone calls and emails were sent to the department heads and other DOE employees to accurately evaluate the programs.

Once all data was collected from the assessment by the researcher with the guidance of the thesis chair, relationships were considered between obesity and the physical inactivity rates of each state and their scores on the assessment. Average scores for the four groups were documented for both the high and low obesity groups and the high and low physical inactivity groups. Other qualitative findings such as how a state enforced or recorded physical education policies were noted in the analysis. No statistical analysis was done on the quantitative results.

## RESULTS

The purpose of this research was to discover if a relationship exists between obesity and sedentary behavior for children between the ages of 10 and 17 while also evaluating the DOE PE programs and PA opportunities of the states with the highest and lowest obesity and physical inactivity prevalence. Quantitative scores from the created rubric are listed in Tables 5-8. Average scores for each group are listed in Table 9.

Table 5 Assessment scores of the five states with the highest obesity rates in adolescents.

CDC Guideline	Mississippi	South Carolina	District of Columbia	Louisiana	Tennessee
1	3	3	3	3	2
2	1	2	2	3	1
3	3	3	2	0	3
4	2	3	3	3	3
5	2	2	2	3	3
6	3	1	1	3	1
7	2	3	2	0	3
8	1	1	3	0	1
9	2	2	3	2	3
<b>Total</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>17</b>	<b>20</b>

Table 6 Assessment scores of the five states with the lowest obesity rates in adolescents.

CDC Guideline	Oregon	New Jersey	Idaho	Wyoming	Colorado

1	3	3	1	1	0
2	2	3	1	1	0
3	3	3	3	1	3
4	3	3	3	0	3
5	3	3	3	2	3
6	3	3	2	0	2
7	1	1	1	1	3
8	2	1	0	0	3
9	2	3	2	1	2
Total	<b>22</b>	<b>23</b>	<b>16</b>	<b>7</b>	<b>19</b>

Table 7 Assessment scores of the five states with the highest physical inactivity rates in adolescents.

CDC Guideline	Mississippi	Arkansas	Louisiana	West Virginia	Oklahoma
1	3	2	3	2	1
2	1	1	3	1	0
3	3	0	0	0	2
4	2	2	3	2	2
5	2	3	3	3	3
6	3	1	3	1	1
7	0	2	0	2	3
8	1	0	0	3	1
9	2	2	2	3	3
Total	<b>17</b>	<b>13</b>	<b>17</b>	<b>17</b>	<b>16</b>

Table 8 Assessment scores of the five states with the lowest physical inactivity rates in adolescents.

CDC Guideline	Colorado	Oregon	Utah	Washington	Idaho
1	0	3	0	2	1
2	0	2	2	1	0
3	3	3	3	2	3
4	3	3	1	3	3
5	3	3	3	0	3
6	2	3	2	3	2
7	3	1	3	1	1
8	3	2	0	0	0
9	2	2	3	3	2
<b>Total</b>	<b>19</b>	<b>22</b>	<b>17</b>	<b>15</b>	<b>15</b>

Table 9 Average scores for the five states with the highest obesity, lowest obesity, highest physical inactivity, and lowest physical inactivity.

Group	Highest Obesity	Lowest Obesity	Highest Inactivity	Lowest Inactivity
Average Score	19.4	17.4	16	17.6

Reflecting on the results, no relationship can be observed between the states with the highest obesity and physical inactivity or those with the lowest obesity and lowest inactivity. Interestingly, the average evaluation score for the states with the highest obesity was 19.4, 2 points higher than the average evaluation score for the states with the lowest obesity. This means that the evaluation tool used in this study demonstrated that despite the obesity levels of those

states with the highest prevalence of obese 10-17year-olds, the physical education program and physical activity opportunities offered are either more plenty, easier to be found and learned about, or of a higher quality than those states with the lowest obesity prevalence.

## **DISCUSSION**

The purpose of this research was to evaluate states' DOE physical education and physical activity programs and determine if a relationship exists between obesity and physical inactivity prevalence of children between the ages of 10 and 17. This research is important in determining where there are faults in the programs being offered in American schools and how school administration, teachers, parents, and children can better tackle the obesity epidemic to decrease obesity and the risk of developing obesity-related illness.

### Conclusion

The results in Table 9 show that the averages for each group of states were not as expected. Initial thoughts were that the states with the highest obesity would score lower on the assessment than states with low inactivity and low obesity. Additionally, states with the lowest obesity were thought to score higher than those states with high obesity and high inactivity. There seems to be no relationship at all between the data and even more surprising, some states with a high obesity rate had better results on the assessment than states with low inactivity and low obesity.

For example, South Carolina reported the second highest obesity rates and received a score of 20 out of 28; however, this score is better than three of the five states with the lowest obesity rates: Idaho, Wyoming, and Colorado. Similarly, Mississippi has the highest obesity rates and physical inactivity rates, but received a higher score than Washington and Idaho, two of the five states with the lowest inactivity, and an equal score to Utah, which ranks third lowest in

inactivity. Table 9 expresses the averages for each group, clearly demonstrating the states with the highest obesity rates scored better than the states with the lowest obesity or lowest inactivity.

Scores from this assessment are not directly related to the true quality of the PE programs of the schools in the states, but perhaps of the many Department of Education's efforts to provide physical activity and physical education. This surprising data may cause confusion and guide a reader to think that whatever states scored better on the assessment must have better PE programs in their school and thus healthier children, but this is not true. The scores from this assessment are not indicative of the healthiness of the children or the quality of education each individual school provides, but the efforts and policies provided by the department of education. Additionally, if a state scored a 0 in a category, this does not strictly mean that the schools in that state do not include any of the components of that guideline, but the guideline may be controlled at a local level in which the Department of Education does not interfere. For example, the Louisiana DOE is not directly involved with interscholastic sports and do not advertise much information on their website regarding sports. Interscholastic sports are one of the components used to assess Guideline 7 and Guideline 9. Because Louisiana's DOE is not directly involved, they were scored on those guidelines without being credited with providing interscholastic sports, but the individual counties and schools in the state still participate in sports.

Another important factor to consider in this assessment is that the states are assessed based on what they provide to the public- resources provided online, published policies and legislation, and other credible resources regarding the physical education programs. If a state was inaccurately scored in this analysis, it is because the DOE did not accurately or clearly provide



the information in a format that was easily understandable to the public. Consider Guideline 6, some schools in a particular state may have their own variation of a walk to school program, but if this program is not characteristic of the entire state as promoted by the DOE, it was ignored in this assessment.

After further review of the assessment outcomes, a few guidelines stick out as needing more attention than others. While all states have an individualized way of providing education and opportunities to students, the research suggests some components of PE and PA should be well enforced and managed by the DOE with clear instruction. These components include providing structured PE that includes national and state standards, mandating a specific curriculum be utilized by all PE teachers, providing at least 20 minutes of recess per day, and providing a means of implementation. It is particularly important that administrators at the local and state level can verify the policies are being enforced and can make appropriate adjustments as needed.

### Practical Applications

#### *Missing/Poor Qualities*

After review of the assessment for each state, it was found that even those that scored highly still lacked essential qualities for providing an environment where children can learn

about their health and proactively battle obesity. The assessment used was modified from an assessment by the *Let's Move* initiative which has a great motive in their work, however the assessment has faults in that it does not highlight what is truly lacking in the programs that the departments of education are providing. There is more to the field of physical education than what the guidelines used in this study observed.

### Fitness Assessments

Currently, testing is only administered in core subjects such as math, reading and science. The idea of testing students in physical education, physical activity, or health is new in today's culture and may seem out of place for the school system since it can be perceived as over-personal and inappropriate. Despite the emotional feelings people have about fitness and health, physical education is equally important as any other "core subject" and should be tested equally among students.

Guideline 4 involves three components, one of which being an assessment tool similar to the Fitnessgram or an equivalent. While most schools did have some sort of equivalent assessment tool, the alternatives were weak and hard to find explanation and data for. For example, Louisiana doesn't have an official assessment required for the class subject of PE or for the fitness components, but in their "Physical Education Handbook," they encourage teachers to use assessment for material taught in the PE class. Certain schools may complete regular fitness assessments in their PE programs that demonstrate the health-related components of fitness, but that doesn't mean they do anything with the findings, such as making parents aware of their child's score or using their scores to develop individualized programs to better their health. The

key to assessment in PE is using the data to improve a child's fitness and health status. Just as specific shots vaccinations are required to attend school, health-related fitness assessments can also be administered for the benefit of the student.

### Community Relationships

A major realization throughout the data collection was that community organizations and programs were scarce on the DOE website. While it is understandable that the types of partnerships and availability to partner with community programs vary by district, some kind of resource or information should be provided by the DOE to encourage schools to develop such relationships. For example, Safe Routes to School is a popular organization that promotes walking and biking to school on safe paths. The program is active in almost every state but only a few states in this study promoted the organization on their website or provided references for parents.

Connecting with community programs for before and after school activities is a popular concept in many schools, but documentation is lacking on how the DOE supports or encourages such relationships. The research suggests that if the DOE was more involved in these relationships, an increase before/after school programs, walking to school programs, and other non-school funded physical activity programs could be supported and thus promote the overall participation in physical activity. It is also important to note that community partnerships are more commonly dealt with on a county or school specific level, in which case the DOE should provide resources and incentives for administrators to enforce these relationships or provide reports to the DOE documenting the partnerships.

### Modified Equipment/Facilities

Providing equal physical education to students with special needs or chronic health conditions seemed to be considered across all states studied as a priority while all put forth an effort to include all students in their program. Out of the five components of addressing special health care needs, the one lacking the most attention was “providing adapted PE equipment and facilities.” This component was often included in the scoring because many states mentioned that a modified program should include modifying equipment, but this is a vague response to the problem at hand, which is that most students with special needs cannot use the same type of equipment as others due to their body size and functional range of motion. Specific items like balance beams, plastic hoops, Velcro paddles and balls, wands with ribbons, huge group parachutes, and oversized sport equipment are easier for children with special needs to play with. Other items like height-adjusted equipment should also be included (Roth et. al., 2017). Obviously that the department of education should not have to directly administer all of these pieces of equipment, but rather make sure the funding is provided and appropriately administered so that schools who need modified equipment have the accessibility for it.

### Contradictive Policies

One popularly used reference throughout this research was the Shape of the Nation publication by the Voices for Healthy Kids and SHAPE America organizations in 2016. This publication evaluated physical education programs across all states, paralleling this research in efforts to find positive and negative components of our country’s education program in order to increase the health of children. One component of this resource’s evaluation included how physical activity was administered or kept away from children. For example, a state may require

that schools provide 20 minutes of recess per day, however, the schools are allowed to withhold recess as a punishment. Administering extra physical activity or a certain type of activity may also be allowed as punishment; for example, making a child run laps for PE instead of play softball with their friends because they did not do something the teacher wanted.

Using recess or physical activity as a punishment in any way creates a negative association between the child and activity and thus pushes the child away from a healthy lifestyle. Forcing extra activity or taking away activity time is contradicting to the purpose of physical education and should not be allowed under any circumstance. Recess and physical education should be provided in schools with the sole intent to create healthy habits and teach about the body, exercise, and health. It should be treated with the same respect and importance as other classes. Inappropriate administration of physical activity can also negatively affect a child's health and thus should be closely monitored and safely provided.

### *Enforcement and Compliance*

#### Requirements for Teachers

Most teachers in public schools require some type of license or certification. Physical education teachers are not treated with the same expectations and are not always required to obtain certain qualifications to teach. In addition, many states do not provide physical education specific continuing education courses for PE teachers nor do they require that the professional development required of all teachers be on physical education specific criteria. This means a physical education teacher could begin teaching in the year 2000, without even having a teaching certification, and continue teaching the same material or with the same methods fifteen years

later in 2015. It is common knowledge that biological and health research is continually evolving and publishing new findings regarding how to maximize a human's health. Due to this quick growth and new knowledge, it should be required that not only physical educators be equally certified to teach, but also have access to professional development specific to their field.

Another finding is that often the state does not provide funding for physical education development or events for teachers. This further increases the difficulty in making sure PE teachers are teaching current and correct content as well as making it a financial burden for schools to fund professional development for their teachers. These policies make the job of a physical educator less appealing to those with the willingness and knowledge to teach because the teachers themselves will often have to pay out of pocket for any extra knowledge and development to better teach and provide physical education.

### School and County Reports

Despite how well a state looks from their assessment score in this research or from the content they provide online for the PE programs, finding compliance reports or documents listing participation in the PE program guidelines were close to impossible. Many states do not require counties or schools to take reports on how many schools are truly complying with the state policies and if so, which policies the schools are or are not observing. There is little use for a perfect physical education program if the policies and guidelines created are not being administered.

To resolve this issue, counties should require schools to report which of the state and federally mandated policies they are incorporating into their programs and create modifications

as needed to make sure a school can provide the best program possible. Without keeping such logs, the department of education can not know how effective their policies are and could be wasting money on inefficient policies or be creating policies that are unrealistic and unachievable. No matter the situation, records of the PE program should be kept so improvement and progress can be appropriately made.

### Exceptions and Alternatives

Another major flaw in the physical education programs of many states is allowing students to be excused from the program or take an alternative route to receive equal credit. For example, Mississippi allows middle and high school students to use an extracurricular activity as their required physical education credit. While extracurricular activities are great programs for students, it should not replace a physical education program or course requirement. As previously stated, physical education should be treated equally as any other school subject and exemptions or substitutions should not be allowed. While the child may still receive an equal amount of physical activity in their extracurricular as they would in school PE or recess, the other aspects of the PE program may not be included in their extracurricular activity and thus the child would lose that part of their education.

Regarding the policies surrounding exemptions and waivers for medical reasons, students with disabilities and medical conditions should still be required to participate in a PE program that is adapted to their situations. This practice respects and teaches the benefits of physical activity and how it relates to their health. Because most physical education courses do not provide physical activity exclusively and are complemented with a health and wellness

component, it is still to the student's benefits to learn the curriculum and participate in a modified physical activity program. Some ways to provide a modified program would be to allow physical therapists, occupational therapists, or aides to assist in providing the PE program. In addition, having access to modified equipment and resources would also allow students with disabilities or those with medical restrictions to still participate in activity and contribute to a healthy lifestyle.

#### *Ease of Access*

A major setback in the production of this research was the difficulty in obtaining the information to accurately assess each state's department of education. The DOE websites for the states were hard to navigate and their website often did not recognize the search terms needed for the research. Google and other resources such as the Shape of the Nation report were commonly used to assess the states due to the difficulty in finding the information from the DOE directly. To further supplement the analysis, emails were sent to DOE staff when a topic was completely missing from the DOE website.

#### Available Resources

Many of the guidelines assessed in this study involve multiple components such as how the DOE supports walking or biking to school and provide modified programs that allow students with disabilities to participate. These types of guidelines were the hardest to assess because most DOE websites did not provide any resources to schools, administrators, teachers, or parents, regarding these broad issues. The Safe Routes to School organization is separate from the DOE and provide information for students to get to school in a physically active way;



however, many DOE websites did not even include this kind of organization in their resource area. Including links to other organizations and health information such as the Center for Disease Control, Society of Health and Physical Education, and other community groups that supported physical activity would help parents and administrators provide physical activities to children, yet very rarely were such resources found. Popular programs like interscholastic sports and after-school activities were absent from the DOE website as well. Providing information on programs that are already popular and common should be made readily available to further support their participation.

Contributing to the resource deficit was the lack of organization of state legislation and policies, making it difficult for researchers, parents, or students to learn about the programs and policies offered by their state. This makes it easy for states to enact policies that are not required or that are optional which then contribute to schools not adopting the policies created. Making resources more easily available to the public would contribute to a successful physical education program and should be considered by all state DOE's.

#### Clarity of Offered Programs

Another setback in this research arose from the lack of clarity of state policy. The meaning of words varied by state and program components could be easily misunderstood as required when they were just optional. In reality, there are few legislative policies that are required or mandated by state departments of education. Many published documents regarding physical education and activity are mere "guidelines" or "suggested programs," making the state DOE look like they are providing quality physical education when school aren't truly adopting

such programs. For instance, state standards may be required to be followed by schools, but the curriculum and methods that the standards are taught may vary by teacher or in other words, there is not mandated curriculum for physical education. Another example is that a state may require 150 minutes of physical education per week, but physical education does not have to include physical activity. Clearly defined requirements and standards need to be implemented throughout each state in order to efficiently and effectively promote a healthier environment for all children.

### Recommendations for Future Research

While the findings of this evaluation did not find a relationship between the quality of PE programs provided by state DOE's and the obesity and sedentary prevalence of children between the ages of 10 and 17, adjustments can be made for future research to continue searching for relationships. One interesting finding from this research was that many PE and PA program guidelines are not the responsibility of the DOE but rather the local school districts that get to create and enforce the policies. In a study reviewing nutrition and physical activity in schools, Story, M. et. al. (2009) found that districts have the highest influence in implementing and creating policy, followed by the state and then federal government. This is a huge realization when evaluating PE programs provided by a state because despite the policies or guidelines recommended by states, local districts have a bigger role in implementing those policies. To

better assess the PE programs provided, it is recommended that future studies consider the policies provided by local districts and create a report showcasing the compliance of each district and how their programs align with state or national guidelines.

The means by which the researcher was able to gather information to properly evaluate the programs were time-consuming and difficult using the methods above due to the lack of clarity of policies and the difficulty in finding legislation and guidelines online. Using a simpler system of evaluation that is constant for all states may provide more information than can be gathered online and would make the results fair across all states in what information was able to be found. For example, e-mailing out the same questionnaire to school principals or local administrators to determine if a guideline is followed or provided. This particular evaluation did not follow up with every physical education coordinator for each state, but perhaps making direct contact with the person most involved in PE and PA should be contacted to review the evaluation to confirm that all policies and guidelines are properly assessed.

Further research is necessary in the area of PE, PA, and obesity, not just for schools and children but for all people. The importance of teaching healthy habits to children at a young age is crucial in supporting a lifetime of health and disease prevention. Continual evaluation of PE programs and PA opportunities provided by schools and state DOE's would also benefit financial resources by making sure the provided programs are working and if not how they can be improved so the financial resources backing the programs can be put to meaningful progress.

## References

- Arkansas Department of Education. (2016). *Rules Governing Nutrition and Physical Activity Standards and Body Mass Index for Age Assessment Protocols in Arkansas Public Schools*. Retrieved from <http://www.sos.arkansas.gov/rulesRegs/Arkansas%20Register/2016/june2016/005.23.16-010.pdf>
- Arkansas Department of Education. (2014). *The State of Arkansas*. Retrieved from <http://www.arkansased.gov/>
- Arkansas Department of Education. (2005). *Rules Governing Nutrition and Physical Standards in Arkansas Public Schools*. Retrieved from [http://www.sos.arkansas.gov/rulesRegs/Arkansas%20Register/2005/sep\\_2005/005.01.05-009.pdf](http://www.sos.arkansas.gov/rulesRegs/Arkansas%20Register/2005/sep_2005/005.01.05-009.pdf)
- Center for Disease Control and Prevention. (2008). *2008 Physical Activity Guidelines for Americans*. Retrieved from [https://www.cdc.gov/physicalactivity/downloads/pa\\_fact\\_sheet\\_adults.pdf](https://www.cdc.gov/physicalactivity/downloads/pa_fact_sheet_adults.pdf)
- Center for Disease Control and Prevention. (2015). *Adult Obesity Facts*. Retrieved from <http://www.cdc.gov/obesity/data/adult.html>
- Center for Disease Control and Prevention. (2015). *The Benefits of Physical Activity*. Retrieved from <http://www.cdc.gov/physicalactivity/basics/pa-health/index.htm>
- Center for Disease Control and Prevention. (2015). *Physical Activity Facts*. Retrieved from <http://www.cdc.gov/healthyschools/physicalactivity/facts.htm>
- Center for Disease Control and Prevention. (2017). *Childhood Obesity Facts*. Retrieved from <https://www.cdc.gov/obesity/data/childhood.html>
- Colorado Department of Education. (2016). Retrieved from <https://www.cde.state.co.us/>
- Colorado Department of Education. (2016). *Physical Therapy Services (PT)*. Retrieved from <http://www.cde.state.co.us/cdesped/rs-pt>

- Colorado Department of Education. (2016). *Policies and Guidelines for Colorado Comprehensive Health and Physical Education Standards and Instruction*. Retrieved from <https://www.cde.state.co.us/cohealthpe/policiesandguidelines>
- Colorado Department of Education. (2017). *Adapted Physical Education (APE)*. Retrieved from <http://www.cde.state.co.us/cdesped/ape>
- Coordinated School Health Program in Idaho Department of Education and Department of Health and Welfare (2009). *Idaho Schools Physical Education- Quality and Quantity Study and Report, Dec. 2009*. Retrieved from <https://www.sde.idaho.gov/academic/pe/files/Physical-Education-Fact-Sheet.pdf>
- Cunningham, S. A., Kramer, M. R., & Venkat Narayan, K. M. (2014). Incidence of childhood obesity in the United States. *The New England Journal of Medicine*, 370, (5) 403-411. Retrieved from <http://www.nejm.org/doi/full/10.1056/NEJMoa1309753>
- The Council of the District of Columbia. (2011). *Healthy Schools Act of 2010*. Available from <https://osse.dc.gov/publication/healthy-schools-act-legislation>
- DC Office of the State Superintendent of Education. (2016). *Health Education Standards*. Available from <https://osse.dc.gov/publication/2016-health-education-standards>
- District of Columbia Public Schools. (n.d.) Health and Physical Education. Retrieved from <https://dcps.dc.gov/page/health-and-physical-education>
- Dwyer-Lindgren et al. (2013). Prevalence of physical activity and obesity in US counties, 2001-2011: a road map for action. *Population Health Metrics*, 11, (7). Retrieved from <http://pophealthmetrics.biomedcentral.com/articles/10.1186/1478-7954-11-7>

General Assembly of the State of Tennessee. (2006). House Bill 3750

Hu, F. B. (2003). Sedentary Lifestyle and Risk of Obesity and Type 2 Diabetes. *Lipids*, 38(2), 103-108. Retrieved from <https://link.springer.com/article/10.1007%2Fs11745-003-1038-4?LI=true>

Idaho State Department of Education. (2015). *Idaho System for Educational Excellence: ISEE Assignment Codes Credential/Endorsement Crosswalk for State and Federal Reporting for the 2015-2016 ISEE Data Collection*. Retrieved from <https://www.sde.idaho.gov/tech-services/isee/files/data-collection/2015-2016-manuals/2015-2016-SDE-Assignment-Credential-Manual.pdf>

Idaho State Department of Education. (2016). *Idaho School Health Profile: In Health & Physical Education*. Retrieved from <http://www.sde.idaho.gov/student-engagement/school-health/files/profiles/2016-Idaho-School-Health-Profiles.pdf>

Jebb, S. A., and Moore, M. S. (1999). Contribution of a sedentary lifestyle and inactivity to the etiology of overweight and obesity: current evidence and research issues. *Medicine and Science in Sport and Exercise*, 31(11). Retrieved from <http://europepmc.org/abstract/med/10593524>

Kushner, R. F., & Daniel, H. B. (2007). *Treatment of the Obese Patient*. Totowa: Humana Press

Lakshman, R., Elks, C. E., & Ong, K. K. (2012). Childhood obesity. *Circulation* 126(14) 1770-1779. doi:10.1161/CIRCULATIONAHA.111.047738

Let's Move! Active Schools – Assessment Guide. (2014). Retrieved from  
[https://schools.healthiergeneration.org/\\_asset/dhgkpk/13-5959\\_PE01\\_20Toolkit.pdf](https://schools.healthiergeneration.org/_asset/dhgkpk/13-5959_PE01_20Toolkit.pdf)

Louisiana Department of Education. (n.d.). Department of Education: Louisiana Believes.  
Retrieved from <https://www.louisianabelieves.com/>

Louisiana Department of Education. (n.d.). *Physical Education Handbook: Grade Level Expectations*. Retrieved from <http://www.louisianabelieves.com/docs/academic-standards/physical-education-handbook.pdf>

Must, A., & Tybor, D. J. (2005). Physical activity and sedentary behavior: a review of longitudinal studies of weight and adiposity in youth. *International Journal of Obesity*, 29, 84-96. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/16385758>

National Conference of State Legislatures. Childhood Overweight and Obesity Trends. (2011) *National Children's Health Survey*. Retrieved from  
<http://www.ncsl.org/research/health/childhood-obesity-trends-state-rates.aspx>

Ogden, C. L., Carroll, M. D., Kit, B. K., & Flegal, K. M. (2012). Prevalence of obesity and trends in body mass index among US children and adolescents, 1999-2010. *Journal of American Medical Association*, 307, 483-90.

Safe Routes to School National Partnership. (n.d.). Retrieved from  
<http://www.saferoutespartnership.org/>

Sigal, R. J., Armstrong, M., Colby, P., Kenny, G., Plotnikoff, R., Reichert, S., & Riddell, M. (2013). Physical Activity and Diabetes. *Canadian Journal of Diabetes*, 37, 540-544. Retrieved from <http://www.canadianjournalofdiabetes.com>

Society of Health and Physical Educators, & Voices for Healthy Kids. (2016). *Shape of the Nation: Status of Physical Education in the USA*. Retrieved from <http://www.shapeamerica.org/shapeofthenation>

State of Washington Office of Superintendent of Public Instruction. (2016). Washington State K-12 Learning Standards. Retrieved from <http://www.k12.wa.us/CurriculumInstruct/learningstandards.aspx>

The State of Obesity. (2016). *Adult Obesity in the United States*. Retrieved from <http://stateofobesity.org/adult-obesity/>

The State of Obesity. (2017). Retrieved from <http://stateofobesity.org/methodology/>

Story, M., Nannery, M. S., Schwartz, M. B. (2009). Schools and Obesity Prevention: Creating School Environments and Policies to Promote Healthy Eating and Physical Activity. *The Milbank Quarterly*, 87(1), 71-100. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/j.1468-0009.2009.00548.x/full>

Tennessee Department of Education. (2015). *Annual Physical Activity & Physical Education Report 2014-15 School Year*. Retrieved from <https://www.tn.gov/education/article/health-pe-wellness-standards><http://www.tennessee.gov/education/article/csh-reports-data>



- Tennessee Department of Educaiton (n.d.). Health, P.E. and Wellness. Retrieved from <http://www.k12.wa.us/CurriculumInstruct/learningstandards.aspx>
- Utah State Office of Education. (2012). *Bulletin: Child Nutrition Programs*. Retrieved from <http://www.schools.utah.gov/cnp/DOCS/Bulletins/NSLP/2012/NSLP-15-12.aspx>
- Utah State Office of Education. (2016). *Utah Core Standards for Physical Education*. Retrieved from <http://www.schools.utah.gov/CURR/healthpe/Core/PhysicalEducation.aspx>
- Utah State Office of Education. (2016). *Special Education Course Codes with Descriptions 2016-17*. Retrieved from <http://www.schools.utah.gov/sars/Data/CourseCodes.aspx>
- Utah State Board of Education. (n.d.). Retrieved from <http://www.schools.utah.gov/main/>
- Waters et al. (2011). Interventions for preventing obesity in children. *Cochrane Database of Systematic Reviews*,(5). doi: 10.1002/14651858.CD001871.pub3
- West Virginia Department of Education. (n..d.). Physical Education in WV Schools. Retrieved from <http://wvde.state.wv.us/healthyschools/section6/PhysicalEducationNew.html>
- West Virginia Department of Education. (2008). *West Virginia Board of Education Policy 2520.55: 21<sup>st</sup> Century Wellness PreK-4 Content Standards and Objectives for West Virginia Schools*. Retrieved from <https://wvde.state.wv.us/policies/p2520.55.pdf>
- West Virginia Department of Education. (2012). *Regulations for the Education of Students with Exceptionalities*. Retrieved from <https://wvde.state.wv.us/spl/Documents/Policy2419Effective7-1-12.pdf>

West Virginia Department of Education Office of Research. (2015). *Fact Sheet 2015*. Retrieved from [http://wvde.state.wv.us/research/reports2015/highschool\\_youthrisk\\_factsheet%20\(3\).pdf](http://wvde.state.wv.us/research/reports2015/highschool_youthrisk_factsheet%20(3).pdf)

World Health Organization. (2016). *Obesity and Overweight: Fact Sheet*. Retrieved from <http://www.who.int/mediacentre/factsheets/fs311/en/>

Wyoming Department of Education. (2014). *Physical Education Content and Performance Standards*. Retrieved from <https://edu.wyoming.gov/downloads/standards/2015/2014-PE-WyCPS-FINAL.pdf>

Wyoming Department of Education (2016). Retrieved from <https://edu.wyoming.gov/>

## **APPENDIX**

## APPENDIX A

Modified Let's Move Rubric Used to Evaluate DOE PE Programs and PA Opportunities

	Guidelines	3	2	1	0
1	ES: 150 minutes of physical education per week.	150 minutes per week	90-149 minutes per week	0-89 minutes per week	No requirements for PE or PA
2	MS/HS: All academic years of required physical education or 225 min / week	The equivalent of all academic years of PE (or 225 minutes per week)	The equivalent of at least 1 academic year or 150 min / week, but less than all academic years of PE	The equivalent of one-half academic year of PE or less than 150 min / week	No requirements for PE or PA
3	All PE teachers use an age-appropriate, sequential PE curriculum that is consistent with national or state standards for PE	All PE teachers use an age-appropriate, sequential curriculum that is consistent with national or state standards	1 component is missing (not mandated by all teachers, not sequential/appropriate, not consistent with standards)	2 or more components are missing	It is not required to follow a curriculum or there is no information provided on the curriculum
4	PE program integrates components of the Presidential Youth Fitness Program or an equivalent	All 3 components (Assessment-Fitnessgram) (professional development for PE teachers) (student recognition of healthy fitness zones and goals)	2 of the components	1 of the components	None of the components

5	*Does the PE program use appropriate practices to include students with special health care needs	4-5 components are included	2-3 components are included	1 component is included	No special needs program is offered or disabled students can be exempted/excused from PE
6	**DOE promotes or supports walking and bicycling to school in the following ways	5-7 of the recommended ways to involve walking or bicycling to school are used	3-4 of the recommended ways to involve walking or bicycling to school are used	1-2 of the recommended ways to involve walking or bicycling to school are used	None of the suggested ways to support walking or bicycling to school are used
7	***DOE supports /encourages PA before and/or after school through the following recommendations	5-7 of the recommended before/after school activities	3-4 of the recommended before/after school activities	1-2 of the recommended before/after school activities	None of the recommendations are supported or this issue is not addressed
8	ES: Students are provided at least 20 minutes of recess during each school day	20 minutes of recess is provided each school day	Recess is provided each day but for less than 20 minutes	Recess is provided but the amount of time and days required vary by district	Recess is not provided, required, or this issue is not addressed
9	****PE program uses methods to promote student participation in a variety of community PA options	4 recommended community PA opportunities are supported	2-3 recommended community PA involvement opportunities are supported	1 of the recommended community PA involvement opportunities are supported	None of the recommended methods are used or this issue is not addressed

\*Components of addressing special health care needs

- Students with special needs are still required to participate in PE program
- Students with chronic health conditions are still required to participate in PE program
- Modify PE programs to the individual with special needs or health conditions
- Require schools to have adapted PE equipment and/or facilities
- Use a second teacher, aide, physical therapist, occupational therapist, or other professional to assist with modified program

\*\*School supports walking and/or biking to school in the following ways:

- Safe routes are provided by the department of education, department of health, or department of transportation
- The DOE provides resources about other organization that provide safe routes
- Participation in promotional activities such as International Walk to School Week, National Walk and Bike to School Week, etc.
- Secure storage facilities for bicycles and helmets are provided by the school
- Instruction on walking/biking safety is provided to students
- Walking school buses and other alternate transportation services that involve PA are encouraged and supported by the DOE
- Creation and/or distribution of maps around the school are provided by the DOE

\*\*\*Recommended before and after school activities (CDC, 2015) Comprehensive school physical activity programs: A guide for schools)

- Walking and biking to school program
- Physical activity clubs and intramural programs
- Informal recreation or play on school grounds
- Physical activity in school-based child care programs
- Integrating physical activity in homework during out of school hours
- Interscholastic sports
- Can be coordinated with community-based organizations

\*\*\*\*Opportunities to promote student participation in community PA

- The DOE is connected with community organizations to provide before/after school activities
- Interscholastic sports are offered to engage students with other schools in the community
- School facilities are open to community programs that allow student participation in PA
- The DOE lists community resources/facilities that allow student participation and PA

## APPENDIX B

### Original Let's Move! Active Schools Assessment

## Assessment

Here is an overview of the *Let's Move! Active Schools Assessment*. Each question is followed by a set of answers to help identify how your school is already moving.

### Physical Education

Standard  
301

ES: 150 minutes of physical education per week (elementary)  
Do all students in each grade receive physical education for at least 150 minutes per week throughout the school year?

*NOTE: Physical education classes should be spread over at least three days per week, with daily physical education preferable.*

3 = Yes.

2 = 90-149 minutes per week for all students in each grade throughout the school year.

1 = 60-89 minutes per week for all students in each grade throughout the school year.

0 = Fewer than 60 minutes per week or not all students receive physical education throughout the school year.

*\*Only 60 minutes per week is required for the Let's Move! Active Schools National Award.*

Standard  
302

MS/HS: Years of physical education (middle/high)

How many years of physical education are students at this school required to take?

3 = The equivalent of all academic years of physical education.

2 = The equivalent of at least one academic year but less than all academic years of physical education.

1 = The equivalent of one-half academic year of physical education.

0 = The equivalent of less than one-half academic year of physical education, or students are not required to take physical education at this school.

*\*Only one-half academic year is required for the Let's Move! Active Schools National Award.*

Standard  
303

Sequential physical education curriculum consistent with standards

Do all teachers of physical education use an age-appropriate, sequential physical education curriculum that is consistent with national or state standards for physical education (see national standards below)?

3 = Yes.

2 = Some use a sequential physical education curriculum, and it is consistent with state or national standards.

1 = Some use a sequential physical education curriculum, but it is not consistent with state or national standards.

0 = None do, or the curriculum is not sequential, or there is no physical education curriculum.

#### KEY

ES= Elementary School Question

MS/HS= Middle School/ High School Question

#### SUCCESS SCALE

3 = 100% success and completion at your school

2 = close to success

1 = working towards success

0 = we have work to do

*See appendix for detailed information on eligibility requirements for the Let's Move! Active Schools National Award.*



➔ **Assessment**

**Standard  
304**

**Health-related physical fitness**

Does the physical education program integrate the components of the Presidential Youth Fitness Program?

- Fitness assessment using Fitnessgram®.
- Professional development for physical education teachers on proper use and integration of fitness education, fitness assessment, and recognition.
- Recognition of students meeting Healthy Fitness Zones or their physical activity goals.

3 = Yes, all 3 components of the PYFP are integrated.

2 = 2 of the PYFP components are integrated.

1 = 1 of the PYFP components is integrated.

0 = None of the PYFP components are integrated.



**Standard  
306**

**Address special health care needs**

Does the physical education program consistently use all or most of the following practices as appropriate to include students with special health care needs?

- Encouraging active participation; modifying type, intensity, and length of activity if indicated in Individualized Education Plans, asthma action plans, or 504 plans.
- Offering adapted physical education classes.
- Using modified equipment and facilities.
- Ensuring that students with chronic health conditions are fully participating in physical activity as appropriate and when able.
- Monitoring signs and symptoms of chronic health conditions.
- Encouraging students to carry and self-administer their medications (including pre-medicating and/or responding to asthma symptoms) in the gym and on playing fields; assisting students who do not self-carry.
- Encouraging students to actively engage in self-monitoring (i.e., using a peak flow meter, recognizing triggers) in the gym and on playing fields (if the parent/guardian, health care provider, and school nurse so advise).
- Using a second teacher, aide, physical therapist, or occupational therapist to assist students, as needed.
- Using peer teaching (e.g., teaming students without special health care needs with students who have such needs).

3 = Yes, the physical education program uses all or most of these instructional practices consistently.

2 = The physical education program uses some of these instructional practices consistently.

1 = The physical education program uses some of these instructional practices, but not consistently (that is, not by all teachers or not in all classes that include students with special health care needs).

0 = The program uses none of these practices, or there is no physical education program.

➔ **Assessment**

### Physical Activity Before and After School

Standard  
307

#### Promotion or support of walking and bicycling to school

Does your school promote or support walking and bicycling to school in the following ways?

- Designate safe or preferred routes to school.
- Promotional activities such as participation in International Walk to School Week, National Walk and Bike to School Week.
- Secure storage facilities for bicycles and helmets (e.g., shed, cage, fenced area).
- Instruction on walking/bicycling safety provided to students.
- Promotion of safe routes program to students, staff and parents via newsletters, websites, local newspaper.
- Crossing guards are used.
- Crosswalks exist on streets leading to schools.
- Walking school buses are used.
- Bicycle parking is provided ( e.g., bicycle rack).
- Documentation of number of children walking and or biking to and from school.
- Creation and distribution of maps of school environment (sidewalks, crosswalks, roads, pathways, bike racks, etc.).



3 = Yes, our school promotes or supports walking and bicycling to school in 3 or more of these ways.

2 = Our school promotes or supports walking and bicycling to school in 3 to 5 of these ways.

1 = Our school promotes or supports walking and bicycling to school in 1 to 2 of these ways.

0 = Our school does not promote or support walking and bicycling to school.

*\*Only 3-5 of these are required for the Let's Move! Active Schools National Award.*

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Standard  
308

#### Availability of before- and after-school physical activity opportunities

Does your school offer opportunities for students to participate in physical activity before and after the school day for example, through organized physical activities or access to facilities or equipment for physical activity?

3 = Yes. Both before and after the school day.

2 = Yes. We offer before school or after school, but not both.

1 = No. We do not offer opportunities for students to participate in physical activity before and after the school day, but there are plans to initiate it.

0 = No. We do not offer opportunities for students to participate in physical activity before and after the school day, and there are no plans to initiate it.

*\*Only before- or after-school physical activity is required for the Let's Move! Active Schools National Award.*

### Physical Activity During School

Standard  
103

#### ES: Recess (elementary)

Are students provided at least 20 minutes of recess during each school day, and do teachers or recess monitors encourage students to be active?

3 = Yes.

2 = Recess is provided for at least 20 minutes each day, but teachers or recess monitors do not encourage students to be active.

1 = Recess is provided each day but for less than 20 minutes, or it is provided on some days but not on all days.

0 = Recess is not provided on any day.

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Standard  
309

#### Availability of physical activity breaks in classrooms

Are all students provided opportunities to participate in physical activity breaks in classrooms, outside of physical education, recess, and class transition periods?

*NOTE: Physical activity breaks are actual breaks that occur in the academic classroom, allowing students to take a mental and physical break from current academic tasks. These breaks can occur at any time during the school day, last from 5-30 minutes, and occur all at one time or several times during the school day.*

3 = Yes, on all days during a typical school week.

2 = On most days during a typical school week.

1 = On some days during a typical school week.

0 = No, we do not provide students with opportunities to participate in physical activity breaks in classrooms.

*\*Only most days during a typical school week is required for the Let's Move! Active Schools National Award.*

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Standard  
703

#### Staff Involvement

##### Modeling physical activity behaviors

Does your school support staff to model physical activity behaviors?

- Provide staff with information about the importance of engaging in physical activities with students.
- Provide staff with information or strategies on how to incorporate physical activity into classrooms.
- Encourage staff to use non-food items, activities, and opportunities for physical activity to recognize students for their achievements or good behavior.

3 = Yes, our school uses 3 of the strategies to support staff to model physical activity behaviors.

2 = Yes, our school uses 2 of the strategies to support staff to model physical activity behaviors.

1 = Yes, our school uses 1 of the strategies to support staff to model physical activity behaviors.

0 = No, our school does not use any strategies to support staff to model physical activity behaviors.

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### Family & Community Involvement

#### Promote community physical activities

Does the physical education program use three or more methods to promote student participation in a variety of community physical activity options?

*These methods may include: bulletin boards, school newsletter, school website, social media, posters/signage at your school, or classroom announcements.*

3 = Yes, through 3 or more methods.

2 = The program promotes participation in a variety of community physical activity options, but through only 1 or 2 methods.

1 = The program promotes participation in only 1 type of community physical activity option.

0 = The program does not promote participation in community physical activity options, or there is no physical education program.