

# ELEMENTARY SCHOOL ACADEMICS AND PHYSICAL ACTIVITY RESEARCH & RECOMMENDATIONS

## Improve Grades, Stop Obesity, Reduce Risk of Early Chronic Diseases



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This document reveals the breadth of research highlighting the dramatic connection between improved academic performance of elementary school children, measurable physical activity in schools, and reduced obesity and risk of Early Chronic Diseases (ECD). The data is clear: getting kids active improves both their grades and their health.

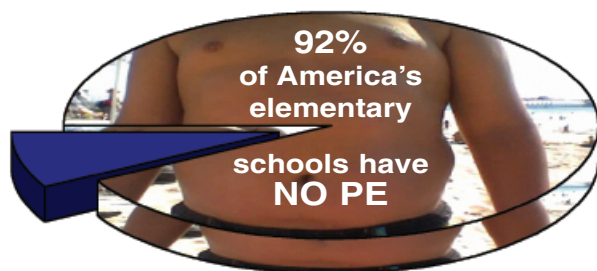
The following is a summary of a research meta-analysis. For a copy of the complete study, including a list of referenced peer-reviewed resources, contact Early Sport Foundation: [GoWild@GoEarlySport.com](mailto:GoWild@GoEarlySport.com)

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**FIGURE 1: No Regular PE in Elementary Schools.** Budget cuts and policy decisions have forced 92% of the nation's elementary schools to eliminate regular PE.

Source: Centers for Disease Control and Prevention (CDC), 2002

## Summary

In response to budget cuts and provisions of the federal “No Child Left Behind” act, elementary schools have been forced to cut Physical Education (PE) programs from their curriculum. The objective of these cuts is to give kids “extra” time for improving academic and scholarship achievements. Unfortunately, numerous studies show these measures to be counter-productive. Academic performance of elementary school age children is hurt, not helped, by less physical activity.

Concurrently, the escalating and lifestyle-caused obesity epidemic is ravaging the future of children by spawning Early Chronic Diseases (ECD), shortening life spans, reducing quality of life, and costing untold millions of healthcare dollars.

## Research Objective

The objective of this document is to encapsulate an Early Sport Foundation (ESF) study which assembled the research data, assimilated the discoveries, and summarized the evidence for policy makers and administrators who determine elementary school policy. Contact ESF for a free copy of the peer-reviewed references used herein. An emailable pdf version of the full study is also available upon request.

The express purpose of presenting these science-based data is to demonstrate to policy makers the urgent need to initiate appropriate, measurable, and validated physical activity in elementary schools. This will improve academics while stopping the obesity and ECD epidemic. Disbanding regular physical activity in schools causes irreparable harm to children academically, physically, and psychologically.

The evidence is clear and compelling: regular, vigorous, appropriate physical activity helps improves grades, is best administered in schools, and prevents obesity and ECD.

### FIGURE 2: Teachers Prefer PE in Schools.

Teachers overwhelmingly favor requiring students to take physical education every day at every grade level, with **81%** saying **YES** to PE in schools.

Source: Robert Wood Johnson Foundation, 2003

### 81% of Teachers Say Yes to daily PE in schools



## Regular Physical Activity Improves Academics

Physically active students learn faster and retain understanding longer than inactive kids,<sup>1</sup> with elementary and middle-school age students receiving the most academic benefit.<sup>2</sup> Attention, focus, and comprehension required for learning are all positively affected as children strengthen their concentration skills through participation in physical activity.<sup>8,9,10,11</sup>

The benefits in understanding and achievement experienced by active kids provide a strong argument for physical activity being part of every school day.<sup>2</sup>

### FIGURE 3: Educational Impact on Children of Physical Activity in Schools.

Physical activity improves academic performance, benefiting both students and teachers in the following educational areas:

- Concentration
- Focus
- Balance
- Self esteem
- Energy
- Behavior
- Conflict resolution
- Imagination
- Sportsmanship
- Movement control
- Attention
- Spatial skills
- Eye movement
- Skill mastery
- Body image and build
- Relationships
- Creativity
- Teamwork
- Problem-solving
- Handwriting

Source: See full research report for multiple sources

### Math Scores Improve

School physical activity programs increase children's ability to concentrate, resulting in improved math scores.<sup>9</sup> Children's understanding of math and language concepts increase through participation in games, plus spatial and other math ideas are developed through the ability to function within a defined physical space.<sup>6</sup>

### Reading Scores Improve

Children who are physically active demonstrate better reading and comprehension skills than those who are less physically active.<sup>3</sup> In-school physical activity programs increase concentration in the classroom.<sup>7</sup> Reading, writing, and behavior improve as a result.<sup>9</sup> In addition, physical activity improves children's balance, coordination, and eye movement, which are all skills needed for reading, writing, and comprehension.<sup>8</sup>

### Self-Esteem Increases

As children learn new physical skills, they develop a sense of mastery and well-being that has benefits for learning in the classroom.<sup>14</sup> Young children who participate in regular physical activity have better brain function, higher energy and concentration, and improved body build, all which improve self-esteem and result in better behavior and classroom learning.<sup>4</sup>

### Classroom Behavior Improves

While playing, children learn how to better get along with others and settle differences and are more creative and imaginative.<sup>15</sup> Exercise reduces bad behavior of troublesome students; the more vigorous the exercise, the greater the behavior improvement.<sup>13</sup>

**The quality-of-life impairment is profound for obese children. They have self-reported scores for quality-of-life as bad as those of children with cancer undergoing chemotherapy.<sup>34</sup>**

## Physical Activity Is Best Administered in Schools

“Comprehensive school health programs represent an efficient means to improve both the health and education of Americans.” This recommendation from the Journal of School Health emphasizes the need for more effective physical activity and health programs in schools.<sup>9</sup>

### Schools are Most Effective in Reaching Children

Young people are not as naturally active as we generally believe. One-fourth of children engage in no vigorous activity, and 14% report no recent activity at even the light-to-moderate level.<sup>28</sup> In many instances, children are not allowed out of their homes after school for safety reasons.

**In-school programs are the only way to ensure that all children have access to regular physical activity.**

Children in the Tween age group (8 to 12) are forming habits, ideas, attitudes, and perspectives that will stay with them for life. At these ages, they are in danger of exposure to early forms of chronic diseases which may continue with them into adulthood.

### Ignoring the Evidence can be Deadly

Ten percent of children ages 2 to 5 are already overweight,<sup>22</sup> leaving them at risk for many health disorders. High cholesterol, blood fats, and blood pressure in overweight children are indications of early heart disease. High insulin levels in less-active and overweight children put them at risk for Type 2 (adult onset) diabetes.<sup>23</sup>

**Of the children born in the year 2000, 33% will develop Type 2 Diabetes; 50% of minority children will develop this debilitating disease. — CDC, 2002**

### FIGURE 4: Long-Term Effects of Childhood Obesity.

Children who are obese may suffer from one or more of the following Early Chronic Diseases (ECD):

- Type 2 Diabetes<sup>25, 26</sup>
- Arthritis<sup>25</sup>
- Colorectal cancer<sup>25</sup>
- Atherosclerosis<sup>25</sup>
- Gastrointestinal disorders<sup>23</sup>
- Twice the risk of death when children become adults<sup>25</sup>
- Asthma<sup>24, 10</sup>
- Liver fibrosis/cirrhosis<sup>26</sup>
- Sleep apnea<sup>26</sup>
- Pulmonary dysfunction<sup>23</sup>
- Orthopedic complications<sup>23, 26</sup>

Source: See full research report for multiple sources

## Measured Physical Activity Stops Obesity & ECD

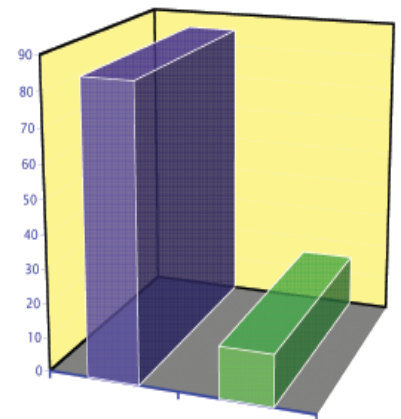
Chronic conditions such as obesity and heart disease begin early in life. Regular, vigorous, measured exercise along with proper diet reverses the damage caused by ECD.<sup>38</sup>

When children remain physically active, they also reduce the likelihood that these lifestyle-related diseases will afflict them as adults. Vigorous, regular, aerobic activity that sustains elevated heart rates provides the full health benefits of exercise. Only aerobic and weight-bearing activity elevates heart rates sufficient to help prevent diabetes, improve cardiovascular health, increase bone mass, and decrease the risk for obesity and ECD.

### Physical Activity Prevents Diabetes

One in four children and one in five teens who are overweight or obese have Type 2 Diabetes.<sup>41</sup> As the number of overweight and obese children increases, so does the number of children at high risk for the disease. Since diabetes is lifestyle based, the best methods for prevention, control, and treatment are improved diet and increased exercise.<sup>42</sup>

### 85% of Parents Say Yes to daily PE in schools



**FIGURE 5: Parents Prefer PE in Schools.** Parents overwhelmingly favor requiring students to take physical education every day at every grade level, with **85%** saying **YES** to PE in schools.

Source: Robert Wood Johnson Foundation, 2003



**FIGURE 6:**  
**Measuring Effects of Physical Activity.**

The only scientifically accurate method to measure and determine the effectiveness of school-based physical activity is to use heart rate monitors.

Source: Beth Kirkpatrick & Burton H. Birnbaum, *Lessons From the Heart*, 1997

### Physical Activity Prevents CVD

Overweight, obesity, and artery damage begin early in life.<sup>46</sup> About 61% of overweight 5- to 10-year-old children already have one or more signs of cardiovascular disease.<sup>19</sup> The most effective prescription for preventing cardiovascular disease is regular physical activity.<sup>2</sup>

### Jumping Develops Bone Mass

Vigorous exercise and appropriate intakes of calcium and vitamin D are critical during the growth spurt that happens in children just before puberty. When children, especially girls, do not get enough vigorous exercise, their bone mass forms slowly, increasing the risk of osteoporosis later in life. Jumping is the most effective exercise for increasing bone mass.<sup>48</sup>

### Aerobic Activity is Assessed Through Objective Measurement

Effective programs use heart rate monitors to assess and ensure the aerobic activity of each child. Monitoring ensures that all children perform within their capabilities and allows children to assess their own progress rather than to make inappropriate comparisons against the performance of their classmates.

### A New Science-Based Protocol Impartially Assesses the Effectiveness of Physical Activity Programs

A new physical activity testing protocol was validated in a study conducted at Silver Mesa Elementary School in Sandy, Utah. The study showed that a daily physical activity program which maintains children's heart rates in a training zone (135-190 bpm) for 30+ minutes improves medically recognized biomarkers for obesity and Early Chronic Diseases (ECD).

## CONCLUSION

### Vigorous, Regular, Aerobic Physical Activity Improves Grades, Stops Obesity, and Reduces the Risk of ECD

The need for regular, vigorous, and aerobic in-school physical activity is clear and compelling:

1. Regular, vigorous, and aerobic, physical activity improves scholarship and academic performance of school children.
2. Physical activity resources are most appropriately and best administered in schools; they add an indispensable dimension to the educational process.
3. Measured and validated aerobic activity programs based on scientific data are more effective in improving academics, stopping obesity, and preventing ECD.

### FIGURE 7: Silver Mesa Study Confirms That Measured Activity Reduces the Risk for ECD in Children. In just five weeks, children in the Silver Mesa Study realized the following benefits:

- Exercised in the "heart rate training zone" 60-70% of the time (135-190 bpm)
- Ran almost 700 yards further (in ten minute tests)
- Reduced total cholesterol 6x more
- Reduced HDL cholesterol 8x more
- Reduced HbA1c readings (a measure of diabetes) by 2x
- Reduced C-reactive protein (CRP) level (a measure of heart disease) by 3x

Source: Silver Mesa Study, 2003. A copy is available upon request.



**Every Child a Champion™**

A Non-Profit Organization Dedicated to Preventing Childhood Obesity and Early Chronic Diseases (ECD)

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