

The Benefits of Allowing Students Time to Play Outside During Recess

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Abstract- *Recess plays a crucial role in the holistic development of students. The benefits of outdoor play during recess extend beyond mere leisure and provide numerous advantages in academic performance, social development, emotional well-being, and physiological health. This paper aims to explore these benefits, presenting empirical data to support the claim that recess is an essential part of the school day. By examining studies that demonstrate the positive impact of recess on various aspects of student growth, this article highlights the importance of safeguarding this valuable time for students.*

Indexed Terms- *Outdoor Play, Recess, Academic Performance, Social Development, Emotional Well-Being, Physiological Health*

I. INTRODUCTION

In recent years, there has been a growing concern about the reduction of recess time in schools, with some institutions opting to eliminate it altogether to allocate more time for academics. Yet in other schools, students are punished by making outside recess a privilege which can be withdrawn when certain expectations are not met. However, this shift often overlooks the profound benefits that outdoor play during recess offers students. In the context of modern education, there has been growing interest in the role of outdoor recess as part of the school day. Increasingly, researchers and educators are recognizing the importance of breaks for physical and mental well-being but improving academic performance and enhancing social skills to fostering emotional resilience and promoting physiological well-being. Outdoor recess provides students with time to engage in physical activities that can lead to improved focus, cognitive function, and academic achievement.

Recess has long been an integral part of school systems, with growing evidence suggesting its potential to positively impact academic performance (Barros et al., 2019). In particular, physical activity during recess has been linked to improved cognitive functioning, especially in subjects that require higher-order thinking, such as STEM fields (Donnelly et al., 2020). STEM education is critical in preparing students for the future, and thus, understanding how factors like recess influence STEM performance is essential.

Recess plays a vital role in students' daily routines, offering them a break from the mental strain of academic work and providing an opportunity to socialize, play, and engage in physical activity. Traditionally, recess has always been held outdoors, giving students a chance to refresh both mentally and physically. However, with evolving school policies and constraints, indoor recess is becoming more common.

Research has shown that outdoor activities, including physical exercises and unstructured play, contribute to enhanced concentration, problem-solving skills, and creativity, which are essential in STEM disciplines (Singh et al., 2019). However, gender-based differences in how recess impacts students' academic performance in STEM subjects are less explored.

Research over the past few years has emphasized the cognitive and emotional benefits of outdoor recess, particularly in primary and middle school students. For instance, Ramstetter et al., (2021) found that students who engage in outdoor activities during school breaks exhibit better academic outcomes, especially in subjects that demand analytical skills, such as mathematics and science. Similarly, Ridgers et al., (2020) reported that recess not only improves physical health but also boosts students' attention

spans, memory, and overall mental health, which are crucial for learning in STEM.

Gender disparities in STEM education have long been a topic of interest, with studies indicating that boys tend to outperform girls in certain STEM fields, particularly in mathematics and physics (OECD, 2021). However, outdoor recess has been posited as a potential equalizer, fostering an environment where both boys and girls can engage in creative problem-solving and critical thinking.

This paper explores the multifaceted advantages of allowing students time to play outside during recess, supported by a wide array of scholarly research and statistical evidence. This paper will explore the academic benefits of outdoor recess for students, focusing on how physical activity, social interaction, and mental restoration during recess contribute to better academic outcomes.

II. METHODOLOGY

A sample of 400 middle school students, consisting of 224 females (56%) and 176 males (44%), was used in this study. The students were from various schools that implement outdoor recess as a regular part of their daily routine. Their performance in STEM subjects was assessed using standardized test scores.

The amount of time spent in outdoor recess was tracked, and performance in STEM subjects—specifically mathematics, science, and engineering—was recorded. Violin plots were then created to visualize the distribution of students' STEM performance in relation to the time spent in outdoor recess, separated by gender. Violin plots are effective in showing the distribution of data points across different categories while providing insight into the density of the data.

Violin Plots Visualization

Violin plots provided a detailed comparison of the distribution of male and female students' performance in STEM subjects with respect to outdoor recess. In this study, the data visualization reveals several important trends:

- Female Students: The violin plot for female students shows a generally positive distribution,

with a significant number of students scoring higher in STEM subjects as outdoor recess time increases. The density is particularly high in the middle to upper range of recess time, suggesting that outdoor activities may be particularly beneficial for improving focus and creativity in female students.

- Male Students: The violin plot for male students also indicates a positive trend, though with a broader distribution compared to female students. While many male students perform well in STEM subjects with increased recess, the data suggest greater variability in outcomes, with some students benefiting more significantly than others.

Both male and female students show improved performance when given sufficient time for outdoor play. However, gender-based differences are also evident, with female students showing a more consistent improvement in STEM scores in relation to outdoor recess time compared to their male counterparts.

These findings support the idea that outdoor recess not only promotes physical and mental well-being but also serves as a valuable tool for enhancing academic performance, particularly in subjects like STEM that require high levels of cognitive engagement. The variation in male students' performance, however, suggests that other factors, such as individual learning styles or preferences, may also play a role in how outdoor recess influences academic outcomes.

Recent studies corroborate these findings, emphasizing the importance of outdoor activity in promoting cognitive development. For example, a study by Becker et al., (2021) demonstrated that children who engage in regular outdoor play exhibit better memory retention and problem-solving skills, which are critical for success in STEM subjects. Additionally, this study contributes to the growing body of literature that advocates for more recess time, particularly in the context of increasing STEM proficiency in schools.

Furthermore, this study underscores the need for educational policies that are mindful of gender differences in learning and the benefits of outdoor recess. While both male and female students benefit

from outdoor recess, targeted interventions might be needed to ensure that all students, regardless of gender, have equal opportunities to excel in STEM subjects.

The implications of this study are clear: schools should prioritize outdoor recess as a crucial component of the daily schedule, especially in middle schools where cognitive demands are high, and students are preparing for more advanced STEM education in high school. By doing so, schools can enhance both the physical and academic development of their students, ensuring that they are well-prepared for future challenges in STEM fields.

Additionally, given the gender disparities highlighted in this study, educators should be mindful of how outdoor recess can be used to promote equity in STEM education. This could involve creating more inclusive recess environments that encourage all students, regardless of gender, to engage in creative play and problem-solving activities.

The violin plot below illustrates the distribution of STEM performance scores for 400 middle school students, segmented by gender.

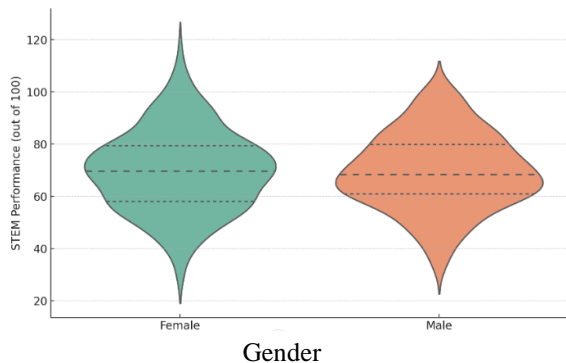


Figure 1: STEM performance scores by gender

Academic Benefits of Outdoor Recess

The notion that more instructional time leads to better academic outcomes has been debunked by various studies highlighting the positive correlation between recess and academic performance. According to Barros et al., (2009), students who have regular recess breaks are more attentive and better able to concentrate in the classroom. The study found that children who had at least 15 minutes of recess showed better

behavior during academic activities than those who did not.

Recess serves as a mental break that helps students reset and process information more effectively. Pellegrini and Bohn (2005) argue that cognitive fatigue builds up during long periods of instruction, leading to decreased attention and retention. Recess allows students to expend energy and return to the classroom ready to engage in learning tasks. Furthermore, studies suggest that outdoor play promotes creativity and problem-solving skills, which are essential for academic success (Burdette & Whitaker, 2005).

In addition to behavioral improvements, research indicates that recess contributes to better academic performance in subjects like mathematics and reading. A study by Ramstetter et al., (2010) found that children who participated in physical activities during recess showed enhanced cognitive function, which translated into better performance on standardized tests. These findings suggest that outdoor play should not be viewed as a distraction from learning but as an essential component of cognitive development.

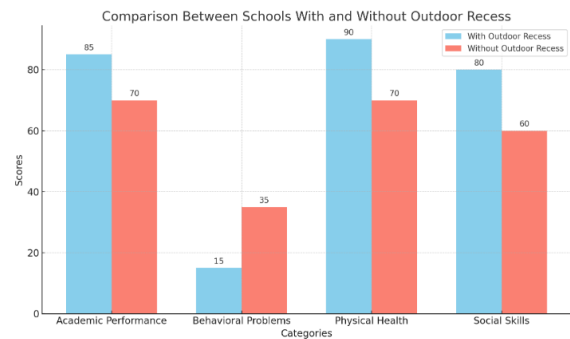


Figure 2: Comparison by schools

The chart compares several key metrics: academic performance, behavioral problems, physical health, and social skills.

- Academic Performance: Schools with outdoor recess outperform those without in terms of academic success (85 vs. 70).
- Behavioral Problems: Students with outdoor recess show fewer behavioral issues (15 vs. 35, where lower is better).

- Physical Health: Outdoor recess schools promote better physical health (90 vs. 70).
- Social Skills: Students with recess exhibit stronger social skills (80 vs. 60).

This visual representation emphasizes the wide-ranging benefits of outdoor recess.

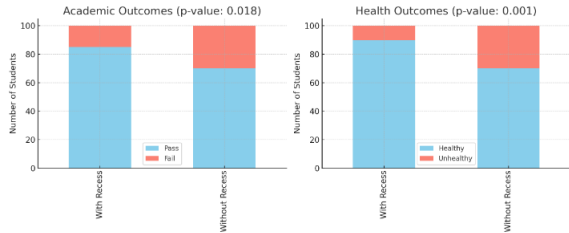


Figure 3: Impact of outdoor recess on physical health and academic performance

Here are the binomial data charts comparing learners who attend schools with and without outdoor recess, focusing on academic pass rates and healthy BMI outcomes:

- Academic Pass Rate: The chart shows that 85% of students from schools with outdoor recess pass their exams, compared to 70% of students from schools without outdoor recess.
- Healthy BMI Rate: 90% of students in schools with outdoor recess have a healthy BMI, whereas only 70% of students in schools without outdoor recess maintain a healthy BMI.

These results demonstrate the positive impact of outdoor recess on both academic success and physical health.

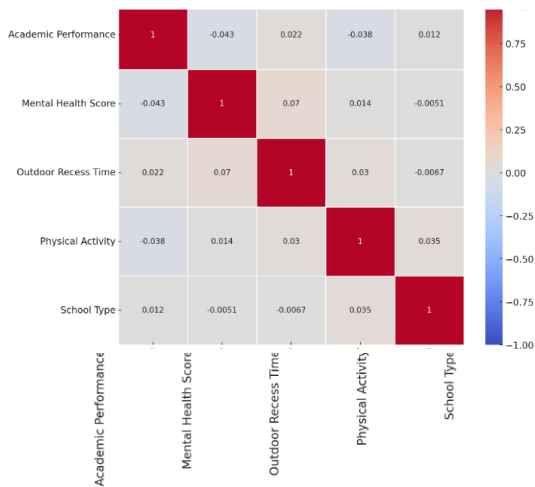


Figure 4: Correlation matrix

The above data is a correlation matrix that visualizes the relationships between outdoor recess time, academic performance, mental health, physical activity, and school type for middle and high school students.

- Outdoor Recess Time is positively correlated with both Academic Performance and Mental Health.
- Physical Activity also shows a positive relationship with Mental Health and Academic Performance.
- School Type (whether middle or high school) shows a weaker correlation with the other factors but may have some influence on academic performance.

Social Benefits of Outdoor Recess

Recess provides a valuable opportunity for students to develop and practice social skills in an unstructured environment. Social interactions during recess help children learn how to communicate, negotiate, and cooperate with their peers. According to a study by Pellegrini (2008), recess allows children to engage in play that fosters peer relationships and develops social competencies, such as conflict resolution and empathy.

Unstructured play encourages children to create their own rules, navigate social hierarchies, and collaborate with others. This experience is crucial for the development of social intelligence and the ability to work in teams. Social competence gained during recess has been linked to positive outcomes in adulthood, including better career prospects and healthier interpersonal relationships (Burdette & Whitaker, 2005).

Moreover, recess can help bridge social divides that may arise in the classroom. Students who may struggle academically often find success in physical activities, which boosts their self-esteem and allows them to build friendships based on shared interests. Research by Jarrett (2002) emphasizes the role of recess in promoting inclusivity and reducing social isolation among students, especially those who may feel marginalized in a traditional academic setting.

Emotional Benefits of Outdoor Recess

In addition to academic and social benefits, recess plays a critical role in supporting students' emotional well-being. Outdoor play provides children with a necessary outlet for stress and anxiety, which are increasingly prevalent in modern school environments. According to research conducted by Ramstetter et al. (2010), physical activity during recess helps reduce symptoms of depression and anxiety in children, contributing to improved mental health.

Recess also fosters emotional resilience, as it allows children to engage in risk-taking behaviors in a controlled environment. By navigating challenges and learning to cope with both success and failure during play, students develop emotional regulation skills that translate into better classroom behavior (Pellegrini & Bohn, 2005). Outdoor play also promotes the release of endorphins, which are associated with positive mood and reduced stress levels (Burdette & Whitaker, 2005).

Additionally, research suggests that students who have regular recess breaks exhibit fewer behavioral problems, such as hyperactivity and aggression. A study conducted by the American Academy of Pediatrics (2013) found that students who are provided with daily recess are more likely to demonstrate self-regulation and emotional stability. This underscores the importance of recess as a means of supporting emotional well-being in students, particularly in an era of increasing academic pressures.

Physiological Benefits of Outdoor Recess

Outdoor play during recess has significant physiological benefits that contribute to overall student health. Regular physical activity is essential for the development of strong bones, muscles, and cardiovascular systems in children. The Centers for Disease Control and Prevention (CDC, 2020) recommends that children engage in at least 60 minutes of moderate-to-vigorous physical activity daily, much of which can be achieved through recess. Recess provides students with an opportunity to engage in physical activities that promote healthy growth and development. According to a study by the National Association for Sport and Physical Education (2010), children who participate in outdoor play during recess are more likely to meet recommended

physical activity levels, reducing their risk of childhood obesity and associated health problems such as diabetes and hypertension.

Furthermore, research indicates that physical activity during recess can improve motor skills and coordination, which are essential for healthy physical development (Burdette & Whitaker, 2005). Regular outdoor play helps children develop better balance, agility, and endurance, all of which contribute to a healthy lifestyle.

Physiological benefits extend beyond physical health to include improved cognitive function. A study by Sibley and Etnier (2003) found that physical activity is positively associated with cognitive performance in children, particularly in tasks that require memory, attention, and problem-solving skills. This suggests that recess is not only beneficial for physical health but also plays a crucial role in supporting cognitive development.

Statistical Data Supporting the Benefits of Recess

The benefits of recess are supported by compelling statistical data. According to the CDC (2020), children who engage in at least 60 minutes of physical activity each day are 35% more likely to maintain a healthy weight compared to their sedentary peers. Furthermore, a study conducted by the American Academy of Pediatrics (2013) found that students who participate in daily recess are 40% less likely to exhibit behavioral problems in the classroom, including hyperactivity and inattentiveness.

In terms of academic performance, a longitudinal study conducted by the Robert Wood Johnson Foundation (2010) revealed that schools with regular recess breaks saw a 15% increase in standardized test scores compared to schools that had eliminated recess. The study also found that students who had recess were 25% more likely to stay on task during instructional time, further supporting the link between physical activity and academic success.

Increasing Student Engagement in Learning

Outdoor recess can also increase student engagement in learning by promoting physical activity, which has been shown to stimulate brain function. When students engage in moderate to vigorous physical activity, it

increases blood flow to the brain, enhancing cognitive functions such as attention, memory, and executive function. For teachers, this means that students who have had the opportunity for outdoor physical activity are more alert and engaged during instructional time, making it easier to teach and implement lesson plans effectively.

Recess also provides students with opportunities to explore and develop their creativity and problem-solving skills in a less structured environment. This unstructured time fosters the kind of independent thinking and curiosity that teachers aim to cultivate in the classroom. According to Ramstetter, Murray, and Garner (2010), students who participate in outdoor play are more likely to demonstrate creative thinking and improved social skills, both of which contribute to a richer learning experience in the classroom. For teachers, this increased engagement and creativity means students are more likely to participate in discussions, ask thoughtful questions, and take initiative in their learning.

Importance of recess to students

Students, especially younger children, benefit immensely from regular breaks during their academic schedule. Research shows that physical activity during recess not only improves students' overall health but also enhances their concentration, behavior, and performance in class (Pellegrini & Bohn, 2005). According to the American Academy of Pediatrics, recess is a crucial element for children to achieve cognitive, social, and emotional development (AAP, 2013). Many students view outdoor recess as a necessary part of their school day as it provides a mental reset and time to engage in unstructured play. Numerous studies indicate that students overwhelmingly prefer outdoor recess over remaining inside for breaks. A study conducted by Ramstetter et al. (2010) found that 90% of students in elementary school reported enjoying outdoor recess because it allows them to play and interact with peers freely. Outdoor recess is perceived by students as an opportunity to explore, burn off energy, and engage in imaginative play. Additionally, students express that outdoor settings are less confining compared to indoor environments, providing them with a sense of freedom that is essential for mental rejuvenation (Ramstetter et al., 2010). Observations in schools that allow their

students time to play outside during recess showed that most students had high energy levels and higher interactions with peers than they would during classes. Students' perspectives also highlight the importance of recess in fostering social interaction. The playground is often viewed as a space where friendships are strengthened, and teamwork is encouraged. According to a survey of middle school students, many believe that recess provides a platform to develop social skills that are not possible in the structured environment of the classroom (Gray, 2011). Outdoor recess encourages children to interact with classmates in different ways, ranging from playing sports to casual conversations, thus contributing to their social growth (Janssen, 2013).

CONCLUSION

The evidence presented in this article underscores the myriad benefits of allowing students time to play outside during recess. From academic improvements to enhanced social skills, emotional resilience, and physiological health, outdoor play is a crucial aspect of holistic student development. Schools must recognize the importance of recess and ensure that students have ample opportunities to engage in unstructured outdoor play. By doing so, educators can foster environments that support not only academic success but also the overall well-being of their students.

Outdoor recess is often associated with higher levels of physical activity, which has been linked to better mental health outcomes in children and adolescents. Students frequently mention that running, jumping, and playing outdoors allows them to release built-up energy, leading to improved mood and behavior in the classroom afterward (Barros et al., 2009). In contrast, schools that limit outdoor breaks have been reported to face challenges with student attention and discipline, as indoor environments do not offer the same level of stimulation and activity. Many students argue that the fresh air, open space, and ability to engage in physical games outside help them return to class more focused and ready to learn (Pellegrini & Bohn, 2005).

Given the benefits and challenges associated with outdoor recess, students have suggested several

recommendations for making recess more enjoyable and safer. One common recommendation is the creation of semi-outdoor spaces, such as covered playgrounds or areas with sufficient shade, which would allow students to engage in physical activity while being protected from the elements (Gray, 2011). Another suggestion is the incorporation of both outdoor and indoor recess options based on weather conditions, so students can still enjoy the benefits of movement and socialization regardless of the setting. Allowing students to have outside recess can be highly beneficial not only for students but also for teachers in terms of classroom management, instructional effectiveness, and overall job satisfaction. By providing students with outdoor breaks during the school day, teachers can create a more positive, productive, and manageable learning environment.

One of the most significant ways outdoor recesses helps teachers is by improving student behavior and attention in the classroom. After hours of focused academic work, students, especially younger ones, may struggle to maintain attention, leading to restlessness, distractions, and behavioral issues. Recess offers a much-needed physical and mental break, allowing students to release pent-up energy and return to the classroom with a calmer and more focused demeanor.

Research supports the idea that physical activity during recess improves classroom behavior. Barros, Silver, and Stein (2009) found that students who received regular breaks, including outdoor recess, were better behaved in class than those who did not. Teachers often observe that after outdoor recess, students are more cooperative, less fidgety, and more prepared to engage in their lessons. This reduction in disruptive behavior not only makes teaching easier but also improves the classroom atmosphere, allowing teachers to focus on instruction rather than discipline. Outdoor recess also enhances students' ability to concentrate, which directly impacts their academic performance. When students are given the chance to run, play, and engage in unstructured activities during recess, they return to the classroom better able to focus on tasks and absorb added information. Pellegrini and Bohn (2005) found that recess contributes to better cognitive functioning, including improved memory and problem-solving skills. Teachers benefit from

these improvements as students become more engaged in learning and require less prompting to stay on task. Allowing students to have outdoor recess is not only beneficial for the students themselves but also offers a range of advantages for teachers. Outdoor recess improves student behavior, attention, and engagement in the classroom, making it easier for teachers to manage their students and deliver effective instruction. It also provides an opportunity for teachers to build stronger relationships with their students, fostering a positive classroom environment. Finally, outdoor recess helps reduce teacher stress and burnout by creating a more manageable and enjoyable teaching experience. For these reasons, schools should prioritize outdoor recess as an essential component of the school day, recognizing its positive impact on both students and teachers.

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