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Enhancing Mental Health in School Children Through Physical Activity Programs: A Narrative Review

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Abstract: Maintaining a healthy weight can be aided by exercise and enhance your general well-being, mental health, and quality of life. Any kind of movement is considered physical activity. Exercise promotes general health and wellbeing. Every child has to have a strong feeling of self-worth. Several hypotheses explain why engaging in physical activity may contribute to increased self-esteem: achieving goals, developing and perfecting a skill, becoming more attractive to others, making plans for one's own survival, and fostering social support.

Keywords: Mental Health, Physical Activity, School Children

Introduction

Maintaining a healthy body weight is not the only benefit of exercise but also promotes living quality, mental health and general wellbeing. Physical activity is defined as any action. (1) Children's and adolescents' weekly physical activity should consist of two types of exercises: aerobic exercises and bone and muscle strengthening exercises. (2) Children between the ages of 6 and 17 should exercise for at least 60 minutes a day, incorporating aerobic, muscle, and bone strengthening exercises. (3) Encourage children to participate in more challenging activities, involving athletic competition, as well as to build both their muscles and bones through activities like climbing and jumping rope. (4) Around the world, 380 million kids and teenagers are obese. The most affected countries worldwide are those with low and medium incomes. India will be responsible for almost 11% of pediatric obesity cases worldwide if present trends persist by 2030. While childhood obesity rates in India have risen disproportionately among rural and urban communities with low incomes, children from wealthier and metropolitan families are more prone to grow up obese. (5)

Exercise's vital function in preserving health

Maintaining general health and wellbeing can be achieved through exercise.

1. Better focus in the class: Increased brain activity after exercise, which improves recall and retention of information. Pupils do better and remember more information throughout the lesson as a result of this.
2. Boosts attendance at school: Kids who engage in regular physical activity experience fewer absences and illnesses. The defense mechanism turns into strengthened and better prepared to protect yourself against diseases.
3. Improved academic achievement: Regular physical activity is linked to enhanced focus, memory, and classroom conduct, all of which enhance educational results. Studies show that children who participate in physical activities typically achieve better grades, perform better on standardized tests, and graduate at a greater rate.

4. Maintains a robust, fit body: Engaging in regular exercise promotes cardiovascular health by strengthening the heart and lungs and reducing the likelihood of developing long-term illnesses such as type 2 diabetes, obesity, and hypertension. Additionally, it aids in weight regulation by maintaining a healthy body composition, limiting the buildup of extra fat, and balancing calorie intake with energy expenditure.
5. Enhances the quality of sleep: Children naturally feel tired before bed because they use up energy when they are physically active, which needs to be replaced. Their physical exhaustion makes people fall asleep faster and lowers their risk of insomnia or other sleep-related problems. Exercise also aids in lowering tension and anxiety levels, which are major obstacles to getting to sleep and staying asleep. Physical activity fosters a state of calm and lowers stress hormones, which facilitates restful relaxation.
6. Decreased chance of sadness and anxiety: Frequent exercise can reduce the likelihood of developing anxiety and sadness. Your body releases feel-good and calming hormones when you exercise, which helps lessen depressive and anxious symptoms.
7. Improves social skills and problem-solving aptitude: Exercise gives people the chance to interact with others and overcome obstacles, which enhances their social and problem-solving skills. Participating in team sports and group activities fosters leadership, communication, and teamwork. Overcoming physical obstacles while exercising can also improve your critical thinking and problem-solving skills.(6)
8. Increase your confidence. Engaging in regular exercise can increase your self-confidence. Exercise increases your strength and fitness, which makes you feel better about yourself and more capable of performing daily tasks.
9. Enhanced strength. Your strength increases with regular exercise because it strengthens your muscles. Your muscles grow stronger and more acclimated to the strain as you exercise, making it easier for you to lift larger objects and carry out physical duties.
10. It's enjoyable. Because it frequently incorporates activities you enjoy, like dancing, biking, or playing sports, exercising may be fun. When you find something you enjoy doing, it becomes more enjoyable than job, which makes it easier to continue with and makes you feel good while doing it.

Exercise's importance for mental health

Through a variety of processes, such as lowering neuro inflammatory response, encouraging vascularization, boosting antioxidant capacity, modifying energy metabolism, and enhances brain function via regulating neurotrophic factors and neurotransmitters. The reciprocal regulation of dopamine (DA), noradrenaline (NE), and serotonin (5-HT) plays a role in these activities. In particular, 5-HT₄ receptors mediate the rise in striatal dopamine release that is brought on by serotonin.(7)

Dopamine (DA) is released when the locus coeruleus is stimulated because it activates the ventral tegmental nucleus's dopaminergic neurons. Furthermore, neurons in the ventral tegmental nucleus can be indirectly activated by nearby glutamatergic neurons.(8)

An expanding number of studies indicates that maintaining physical fitness is a useful strategy for improving mental health. Frequent exercise can improve mood and mental health, lessen the negative health impacts of stress and even improve memory and cognitive performance.

The brain regions responsible for the body's stress response experience an increase in norepinephrine during physical activity. Furthermore, exercise causes the release of serotonin and dopamine, both of which improve mood.

Physical activity improves the brain's white and gray matter, which enhances cognitive abilities like perception, recall, reason, and focus.

Exercisers typically have improved episodic memory, which facilitates the connection of objects, people, and events from everyday life. Furthermore, exercise enhances spatial navigation, which strengthens the memory and recall of known places and routines.(9)

The Psychological Advantages of Physical Activity

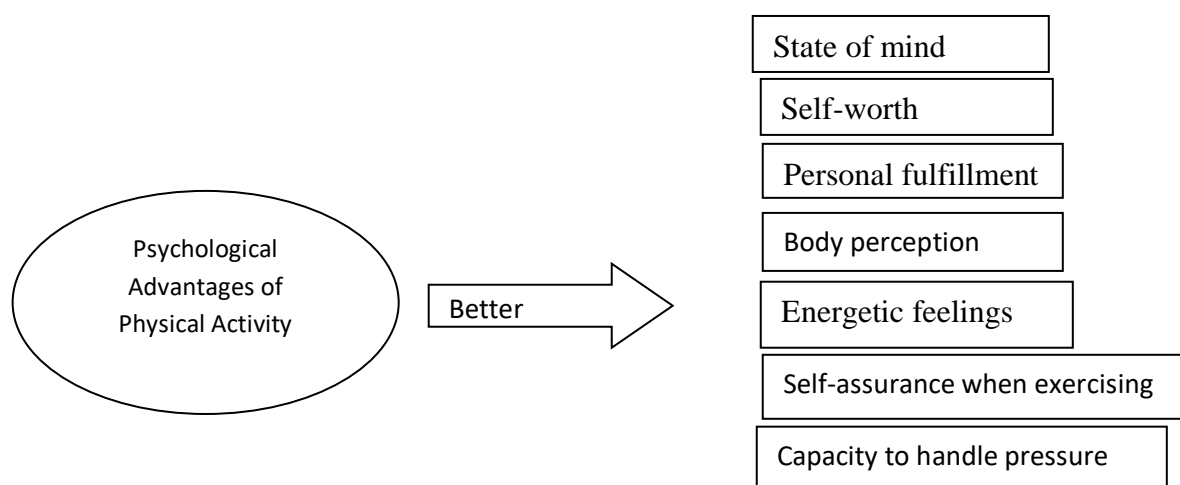


Fig. 1 Psychological advantages of physical activity

One of the advantages of physical activity on the mind is that it lessens depressive symptoms. (10) Exercise increases one's sense of self-worth.(11) Each child has to have a strong feeling of self-worth. Engaging in physical activity is linked to improved better self-esteem for a number of reasons, including goal achievement, skill improvement, acquisition of new abilities, social attractiveness, strategies for preserving oneself and receiving societal approval.(12)

Clinical evidence of physical activity on mental health: Following studies are evaluated to evaluate the impact of physical activity on mental health. (Table 1)(13-22)

Author name	Country and year of the study	Objectives of the study	Findings
I Kliziene et al.,(13)	Lithuania July 2021	To evaluate the impact of physical education programs on the mental and physical well-being of elementary school pupils.	The intervention program in this study resulted in a reduction in the experimental group's levels of hostility, delinquent behaviors, somatic complaints, sadness, and social disengagement.
S. Marsigliante et al. , (14)	Italy February 2023	To determine how successfully 10-minute physical activity sessions during daily school recess and 10-minute physical activity breaks during curriculum lessons affect school-aged children's fitness, psychological health, cognitive performance, and ability to prevent obesity.	Regarding the total amount of responses and the grades for the performance in concentration, there were notable distinctions between the two groups.
A. Cocca et al. , (15)	Mexico 2020	To evaluate the impact of a game-based physical education program on primary school children' physical and mental well-being	By the time of the post-test, the physical fitness of both groups had increased, but not fitness for cardiorespiratory exercise. On the follow-up exam, there were not any noticeable variations between the groups. The findings show that game-based exercises can be just as

			successful as conventional training techniques, but they also imply that, regardless of the kind of exercise, physical education might not be enough to significantly increase cardiorespiratory fitness.
Pooja S et al. ,(16)	Online mode 2021	To investigate the connection between screen use, physical exercise, and mental health in US kids during the epidemic.	This study demonstrates the link between enhanced mental health and increased physical activity.
Kazi Rumana A et al. ,(17)	Dhaka, Bangladesh 2023	To assess the impact on teenagers' mental health of a multicomponent, school-based physical activity intervention.	An effective multicomponent physical activity intervention implemented in schools can improve adolescents' mental health indices.
• Shirley T et al. ,(18)	India 2016	To evaluate how yoga or physical exercise affects schoolchildren's conduct and performance as judged by teachers, as well as their cognitive function and self-esteem.	Incorporating yoga and physical activity into the school routine is beneficial, as the former particularly boosts social self-esteem.
Seyed Reza M et al. ,(19)	Iran 2016	This study sought to determine how eight weeks of aerobic exercise affected medical students' self-esteem.	Findings show that aerobic activity raises one's sense of self. Only the experimental group showed improvements in their self-esteem levels related to education, families, social interactions, and general matters.
Kum. Tayamma N et al. ,(20)	India 2019	The purpose of the study was to examine and understand how meditation training affects physiological development.	After sixteen weeks of aerobic exercise, the subjects' physical, physiological, and psychological performance characteristics significantly improved.
Susan Annie G et al. , Jose(21)	India 2021	To assess the effects of music therapy and aerobic exercise on lowering stress and anxiety in boarding school-residing high school girls.	According to the study's findings, high school boarding students can effectively lower their levels of tension and anxiety through both music therapy and aerobic activity.
Dr. Savitri S Patil et al. ,(22)	India 2018	To evaluate how aerobic exercise and meditation affect psychological factors in secondary school students, particularly their levels of stress and anxiety.	When compared to aerobic exercise, eight weeks of meditation training has demonstrated considerable benefits in psychological performance variables.

Table 1 Review of previous literature (13-22)

Conclusion:

Physical activity for 6 to 10 years old children helps to maintain growth and development. Physical activity plays an important role in mental health of children. Research continuously shows that regular physical activity is linked to increases in mood, self-esteem, and cognitive function in children. Additionally, school-based therapies provide a special and useful framework for incorporating physical exercise into kids' everyday schedules. These initiatives not only improve physical health but also help to build a welcoming and inclusive school climate that supports students' general mental health.

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