# Physical Fitness of Middle School Students in Selected American Public Charter Schools

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**Introduction:** Adolescent physical fitness is vital for long-term health and cognitive function, yet a research gap exists regarding the combined influence of gender, sleep, and extracurricular activities within American public charter schools. To address this, this study assesses the BMI, aerobic fitness, and muscular endurance of middle school students. The findings will guide the development of a tailored, collaborative physical education program designed to foster lifelong healthy habits and holistic student success.

**Methodology:** This quantitative, descriptive-correlational study examines relationships between sex, sleep habits, after-school physical activity, academic performance, and physical fitness among 320 stratifiedly sampled middle school students from American public charter schools. Data collection utilizes a hybrid instrument combining a researcher-designed survey for demographic and lifestyle factors with standardized FitnessGram (Version 10) assessments for cardiovascular endurance, muscular strength, flexibility, and body composition. Following safety screenings by school nurses, physical education teachers will administer the physical tests to ensure standardized procedures. Data will be analyzed using descriptive and correlational statistics, strictly adhering to PHREB ethical guidelines regarding informed consent and data confidentiality.

**Results:** Despite high rates of abnormal sleep, predominantly male middle school students generally maintained strong academic performance and physical fitness. While a significant minority faced BMI-related risks due to inactivity, after-school participation emerged as the dominant predictor of physical health; this factor demonstrated a large effect size that overshadowed any weak associations with gender, sleep quality, or grades.

**Conclusion:** Drawing on Social Cognitive and Self-Determination Theories, this study reveals that student physical fitness relies on the interplay of personal, behavioral, and environmental factors. Specifically, structured after-school activities significantly improve fitness by boosting self-efficacy and fulfilling psychological needs like autonomy and competence. While academic performance and sleep have weaker direct links, they indirectly influence engagement by shaping self-belief. Consequently, effective adolescent fitness programs must be holistic, prioritizing self-efficacy and intrinsic motivation to ensure sustained physical activity.

**Practical Value:** Participation in after-school activities is the strongest predictor of physical fitness in middle schoolers, significantly outweighing factors like gender, sleep, or academic performance. To address the health risks facing inactive students, physical education programs should integrate accessible extracurriculars grounded in Social Cognitive and Self-Determination Theories. Shifting from traditional skill-based instruction to a holistic approach—one that fosters autonomy and self-efficacy while incorporating nutrition and sleep hygiene—will effectively promote sustained engagement and overall well-being.

**Direction for Future Research:** To improve middle school physical fitness, future research must prioritize longitudinal studies connecting after-school activities to long-term health, while accounting for psychological factors and parental involvement. Concurrently, interventions should target non-participants to address BMI risks through improved sleep hygiene and modernized PE curricula. To ensure equity and efficacy, the scope of study must expand to include socioeconomic and environmental determinants, ultimately identifying the most accessible and beneficial activities for diverse student populations.

*Keywords: physical fitness, BMI, aerobic fitness, muscular endurance, middle school, descriptive-correlational*

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