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Physical Fitness Level of Children with Special Needs in Special Needs School

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Abstract

This study aims to describe the physical fitness level of students with disabilities in Special Education Schools using the Harvard Step Test method. The subjects consisted of 13 students aged 11–20 years with various types of disabilities, including intellectual disability, physical disability, hearing impairment, speech disorder, autism spectrum disorder (ASD), and attention deficit hyperactivity disorder (ADHD). The test was carried out through a five-minute step-up exercise, followed by pulse measurement during the recovery phase to calculate the Fitness Index. The findings revealed that most students were in the low fitness category. A total of 76.9% of participants fell into the very poor category, 15.4% into the poor category, and only 7.7% achieved the average category, with an overall mean Fitness Index of 52.4. Variation in results was found only among students with intellectual disabilities, while students with physical disabilities, speech disorders, autism spectrum disorder, and ADHD were entirely in the very poor category. These results may be influenced by physical limitations, low levels of daily physical activity, and the lack of adaptive exercise programs in schools. The findings are consistent with recent studies that highlight the importance of structured, inclusive, and continuous physical activity programs to improve physical fitness and quality of life among students with disabilities.

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INTRODUCTION

Physical fitness is one of the fundamental aspects that determines a person›s quality of life, including children with special needs (Ives et al., 2021; Rismayanthi, 2012).For students attending Special Needs Schools (SLB), being physically fit not only supports success in learning but also plays a vital role in helping them adapt to their environment, increasing their independence, and strengthening their self-confidence (Smith et al., 2022). Regular physical activity has been shown to have a positive impact on organ function, motor coordination, balance, and emotional stability (Wijaya et al., 2023).

Unfortunately, in practice, students with disabilities often face barriers that prevent them from achieving optimal levels of physical fitness. These barriers can include limited disability-friendly sports facilities, a lack of training programs tailored to the needs of each type of disability, and a lack of support from professionals who understand the principles of adaptive training (Martin Ginis & West, 2021) Furthermore, the portion of physical education in special education curriculums is generally relatively small compared to academic subjects. As a result, students› opportunities to develop their physical fitness to their full potential are limited.

This condition is reflected in the results of research in various regions. In this research Raharjo et al. (2021) showed that only 16.7% of students with special needs had a physical fitness level in the "good" category, 21.6% were in the "moderate" category, while 48.3% were in the "poor" category and 28.3% were in the "very low" category. Similar findings were obtained from research Maulana et al. (2023) A 2023 survey of mentally retarded students in special needs schools across Pekalongan City found that 61.1% were in the "bad" category, 11.1% were in the "very bad" category, only 2.8% were in the "good" category, and 25% were in the "fair" category. These data indicate that the majority of students with disabilities still have physical conditions that are far from ideal.

If left unaddressed, low physical fitness can negatively impact the long-term health of students with disabilities. Poor fitness puts them at risk for decreased endurance, poor posture, obesity, and even metabolic diseases. Conversely, a good level of fitness can help them maintain energy, reduce excessive fatigue, improve vital organ function, and enhance their readiness for learning and daily life (Gibson-Moore, 2019).

This gap is also influenced by structural factors, such as a lack of training for physical education teachers in delivering adaptive learning. In this context, the Adapted Physical Education (APE) approach becomes relevant. APE is a physical education strategy specifically designed to suit the abilities, needs, and characteristics of students with disabilities. Its implementation has been proven to improve cardiorespiratory capacity, muscle strength, flexibility, and coordination, as well as bring psychological benefits such as increased self-confidence, motivation to learn, and future quality of life (Oliver, 2018).

Physical fitness is the body›s ability to perform physical activities efficiently without causing excessive fatigue, so that the individual still has energy reserves to carry out other activities (Dewi et al., 2025; Wijaya & Hafid, 2024). In the world of special education, physical fitness is also closely related to students› ability to develop psychomotor skills, maintain health, and increase active participation in learning.

Therefore, a study is needed that can objectively capture the physical fitness levels of students with disabilities in special needs schools. The results of this study are expected to provide a foundation for schools, teachers, and other stakeholders in designing adaptive, effective physical education programs that align with each student›s characteristics. This way, the goal of inclusive education, which places all students on an equal footing in developing their potential, can be truly realized.

Based on the background described earlier, the research problem can be formulated as follows: "What is the level of physical fitness of students with disabilities in Special Schools?"

In line with the research problem, the objective of this study is: "To determine the level of physical fitness of students with disabilities in Special Schools."

This study carries novelty by highlighting the physical fitness conditions of students in Special Schools through a more comprehensive approach. The focus is not only on measuring fitness levels but also on examining influencing factors such as limited facilities, lack of professional assistance, and the small portion of physical education within the curriculum. In addition, the study connects its findings with the urgency of implementing Adapted Physical Education, which has rarely been explored in Special Schools. The results are expected to serve as a foundation for developing adaptive and inclusive physical education strategies to improve the quality of life of students with disabilities.

METHOD

The research method is a way to obtain data, analyze it, and conclude the research results through a method that is in accordance with the procedures used. The research method used in this study is a quantitative approach with a descriptive method, according to Sugiyono (2014) What is meant by descriptive method is a method that functions to describe or provide an overview of the object being studied through data or samples that have been collected as they are.

This research is a quantitative descriptive study, which aims to describe phenomena, events, symptoms, and incidents that occur factually, systematically, and accurately. This study uses a quantitative descriptive method that aims to explain a phenomenon using numbers that describe the characteristics of the subjects being studied.

The population in this study was students at the Hidayah Dreamable Special Needs School in Bandung Regency. Due to the relatively limited number of students, a total sampling technique was used, where the entire population was used as the sample. The sample size for this study was 13 students with various disabilities.

The research instrument for measuring physical fitness refers to the scale created by Brouhaha (1943)and modified by Ryhming (1953). This instrument consists of a step test, which is a modification of the Harvard test using a 30 cm high ladder.

The data analysis in this study used quantitative descriptive data analysis techniques. The data obtained from the test results were raw results confirmed by the Harvard Step Test assessment standards. They were then analyzed using research data analysis techniques on the test results using percentages obtained using the following formula.

Index = (Test Duration in seconds × 100) / (2 × (pulse 1 + pulse 2 + pulse 3))

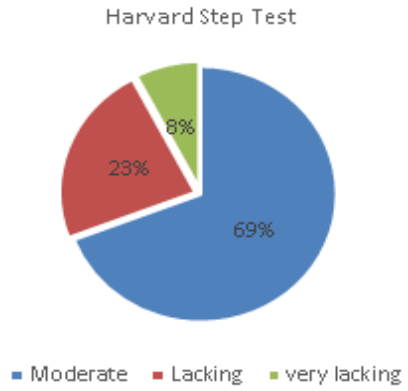
RESULTS AND DISCUSSION

The quantitative data obtained from the test and measurement results constitute raw data that must be processed using Microsoft Excel 2021. The purpose of this data processing is to ensure that the collected data is meaningful and can be used as a benchmark for answering the research questions and drawing conclusions. The data obtained and presented in tabular form are as follows **Table 1**.

Table 1. Test Results

Age	Type Disability	Results	Criteria
19	Intellectual Disability	62.5	Poor
15	Hearing Impairment	62.5	Poor
11	Intellectual Disability	45.4	Very Poor
20	Intellectual Disability	53.6	Very Poor
16	Physical Disability	40.5	Very Poor
13	Intellectual Disability	62.5	Poor
12	ADHD	50	Very Poor
20	Intellectual Disability	46.9	Very Poor
15	Physical Disability	50	Very Poor
16	Autism	52.6	Very Poor
20	Intellectual Disability	68.1	Average
14	Speech Disorder	50	Very Poor
15	Physical Disability	41.6	Very less

Based on the results **Table 1** of the Harvard Step Test on 13 respondents aged 11–20 years with various disabilities, it was found that their cardiorespiratory fitness levels tended to be low. The highest score achieved was 68.1, categorized as Moderate, while the lowest was 41.6, categorized as Very Poor. The average test result was around 52.4, categorized as Very Poor.



The distribution of the results shows that only one respondent (8%) is in the Average category, two respondents (23%) are in the Poor category, and the majority, namely ten respondents (69%), are in the Very Poor category.

This finding indicates that the respondents' cardiorespiratory capacity is not yet optimal in supporting sustained physical activity. Further

analysis shows that students with Intellectual Disability (ID) obtained scores ranging from Very Poor to Average. In contrast, all respondents with Physical Disability, Speech Disorder, Autism Spectrum Disorder (ASD), and ADHD fell into the Very Poor category. Meanwhile, one respondent with Hearing Impairment scored in the Poor category, suggesting that hearing impairments may not directly affect cardiorespiratory fitness, although they can still influence participation in physical activities and sports.

The phenomenon of the dominance of results in the very poor category can be explained by several factors supported by recent research. First, children with disabilities tend to have lower levels of physical activity than children without disabilities. Environmental barriers, limited access to sports facilities, and lack of social support are key factors contributing to low participation in physical activity. This is reinforced by the UK's physical activity guidelines for children with disabilities, which emphasize the importance of getting at least 20 minutes of exercise per day, with strength training three times a week. However, many children with disabilities do not achieve this recommendation due to limited resources, resulting in decreased fitness (Gibson-Moore, 2019).

Second, physical limitations and motor impairments also contribute to poor outcomes. Recent systematic studies confirm that children and adolescents with intellectual disabilities have lower fitness levels due to reduced daily activity, lack of structured exercise programs, and limited body coordination (Maicas-Pérez et al., 2024). When there is no regular exercise intervention, cardiorespiratory capacity is difficult to develop, so that most respondents only reach the very poor category.

The limited implementation of adaptive sports in schools also contributes to this situation. School-based training just once a week can improve anaerobic performance and reduce fat mass in adolescents with physical disabilities (Azarindy et al., 2025; Kurniasih et al., 2024). Thus, the absence of similar programs in the respondents' daily lives could be a strong reason why their physical fitness is at a low level.

In addition to environmental and facility factors, the role of measurement instruments is also important to consider. Research from Fitriatun & Susanto (2023) has developed a modification of the Harvard Step Test specifically for children with special needs, demonstrating that instrument adaptations are necessary to ensure more valid and appropriate results. However, if the standard instrument is used without modification, children with motor impairments or certain disabilities may experience greater difficulties, leading to lower test scores. Other research has even developed a digital-based Harvard Step Test to improve accuracy, reliability, and ease of administration, particularly in populations with disabilities (Mubarak, 2017; Ramadhan, 2021).

Overall, the high proportion of respondents in the very poor category reflects not only their physiological condition but also limitations in daily physical activity, the lack of adaptive exercise programs, and the environmental and social barriers they experience. Evidence from recent studies reinforces that improvements in these conditions can only be achieved through structured, inclusive, and consistent physical interventions. Therefore, collaborative efforts between schools, families, health professionals, and policymakers are crucial to creating adaptive exercise programs that can improve cardiorespiratory capacity while supporting the quality of life of children with disabilities more broadly.

CONCLUSION

The findings of this study indicate that the physical fitness level of students with disabilities remains low, with the majority (69%) categorized as Very Poor, 23% as Poor, and only 8% as Average, with a mean Fitness Index score of 52.4. Variation in performance was observed only among students with Intellectual Disability (ID), while those with Physical Disability, Speech Disorder, Autism Spectrum Disorder (ASD), and ADHD were consistently classified in the Very Poor category. These low outcomes are strongly influenced by physical limitations, reduced levels of daily physical activity, and the absence of structured adaptive exercise programs. Recent research reinforces these findings, highlighting the importance of inclusive and systematic physical activity interventions tailored to the needs of students with disabilities. Therefore, collaboration among schools, families, healthcare professionals, and policymakers is essential in designing regular and individualized adaptive exercise programs to enhance cardiorespiratory capacity and overall quality of life for children with disabilities.

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