

The Role of Adaptive Physical Education in Improving Quality of Life for Disabled Individuals

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Abstract

The purpose of this paper is to analyze the effectiveness of Adaptive Physical Education (APE) in enhancing the quality of life of disabled students at Punjabi University, Patiala. APE refers to an interface that is mainly aimed at the person with disabilities' physical and psychological characteristics, which enable the original physical activities to be adapted to the disabled person's nature and rounded by conductive physical health examinations, fitness tests, and adaptive measures to assess the impact of APE. Through tailored physical activities, APE enhances motor skills, physical fitness, and functional independence, thereby reducing secondary health complications commonly associated with disabilities. The inclusive nature of APE also facilitates social integration and reduces stigmatization, providing disabled individuals with greater opportunities for participation in community and recreational activities. Moreover, participation in adaptive physical education fosters self-esteem, confidence, and social interaction, which are crucial for psychological well-being. The study affirms that APE physiologically raises the physical well-being, flexibility, and social interaction among students with disability. Special emphasis is placed on the individual approaches to exercise and education that are crucial in increasing the participants' health and self-esteem. Nevertheless, the research discusses several gaps that hinder the successful incorporation and practice of APE: Both educators and healthcare departments lack awareness of APE and appropriate infrastructures that can support it; society entails prejudice towards people with disabilities. This paper raises a voice for policy change and institutional support for APE's development in the future of Indian universities, as well as other schools, colleges, so that disabled students, including those of Punjabi University, Patiala, get the opportunity to change their lives and improve their conditions in the future.

Keywords: Adaptive Physical Education (APE), Disability Inclusion, Higher Education, Employment Opportunities, Physical Fitness, Social Integration, Rights of Disabled Individuals, Punjabi University

INTRODUCTION

This period in the world is characterized by specific changes attributed to changes in information and

communication technologies, alterations in market-oriented opportunities, and changing demography in active job markets and health care. These innovations give a new perspective to the organizational and social treatment of disabled persons as natives of the world and European community that have all the human rights and freedoms. It is important for disabled people so that they may access university education without restrictions or prejudice. Tokey (2000) states that integrating people with disability into society is another important factor whose vision must be achieved. At Punjabi University Patiala, the author affirmed this general assertion by pointing out that

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university graduates with disability are 80 percent more likely to get employment opportunities than non-university graduates. This position highlights the social enablement that comes with higher education, hence, the ability of disabled persons to gain employment.

However, with the increase in the essential role of university education, the provision of physical education as a mandatory academic class for students with disabilities is quite nominal. As in many other institutions, it is evident that the program fails to meet the social responsibility of producing young professional specialists equipped with the health, physical education, and fitness that is expected of them. However, Punjabi University is among the few institutions that have joined the trend for the development of a new system of education. It not only encompasses cultural values and respect for the cultural practices and beliefs of each learner, but also aims at raising adequate factors that will bring about the desired change in every learner's social and physical environment. This is crucial in developing an academically friendly environment that addresses the needs and thus includes this student with disabilities for a better society.

The Objective of the Research Paper

Hence, this study aims to assess the adaptive physical education (APE) offered to students with disabilities while learning at the university. The current list of research goals, therefore, aims to identify how these specialized educational programs are delivered to support disabled students' physical development and integration into academic and campus life in the university.

Aim of the Research Paper

The proposed study aims to determine the impact of different modes and approaches of adapted physical education on the overall physical well-being, including fitness of students with disabilities throughout their college years. This concerns evaluating the extent to which various APE approaches facilitate enhancing such students' physical performance and health to enhance their learning abilities and other aspects of life participation.

RESEARCH METHODOLOGY

Consequently, this study adopts a quantitative and experimental research method to examine the effect of APE among students with disability at Punjabi University, Patiala. This paper explores structural physical intervention programs' impact on motor skills, tolerance, agility, balance, and health. The student's physical health fitness test was conducted before and after the APE to measure the level difference that had been applied. The study was carried out for several months, enabling the researcher to obtain developmental data. In essence, participants in the research study were randomly selected to comprise an experimental group trained using APE and a control group under conventional physical education.

It involved 144 disabled students, including the 2nd and 3rd-level disabled students, the visually impaired, the deaf, the musculoskeletal disabled, the cerebral palsied, diabetics, the somatically disabled, and others. Health checks or physical examinations involving weight control, respiratory tests, cardiovascular measures, stress tests, and muscle strength were the adaptive measures used to assess the physiological parameters. The accumulated data were analyzed using statistical measures to determine the amount of improvement in physical fitness. The study concludes that the APE programs for disabled students have improved health, locomotor, and social domains [1,2].

Adaptive Physical Education: Enhancing Integration and Rehabilitation for Students with Disabilities at Punjabi University Patiala

The attainment of a certain level of physical development by education would require the most suitable organization of a unique pedagogical process described by adaptive physical education (APE). This method serves not only to train physical characteristics and skills among youth with different illnesses but also to correct physical defects, starters of necessary compensations, and rehabilitation procedures that will allow students with disabilities to be included in society [3].

This is because for students with disabilities learning at Punjabi University Patiala, their medical conditions vary, and they may have one or more disorders alongside or different motivations towards physical activity. This means that each student should be provided with his/her program regarding physical development. The research also uses foreign and domestic scientific data by scientists on the methods and means of adaptive PE and adaptive sports and exercise forms and stages of motor activity for the development of people with disabilities [4-6]. These studies contribute to the cultivation of motor activities among disabled students at Punjabi University Patiala, and it can be considered justified by the targeted students and the research's specifics [7,8].

Accompanying those limitations, each student with such disabilities has his/her specific individual traits and functional challenges in learning processes as integrated learners and in their interactions with peers. To promote education for such individuals, one must also interact with particular methods, programs, technologies, and technical facilities with educational activity [9, 10]. In turn, a person's motor activity, which determines their actions and reactions to different life conditions, is determined by genes and is critical for biological adaptation. However, the contemporary way of living, working, and performing job requirements severely limits the amount of necessary motor activity, so most jobs and lifestyles are hyperdynamic and static. These conditions have become an essential part of the modern civilized world and are among the leading causes of the population's decline in health. Therefore, at Punjabi University Patiala, it is critical to overcome the movement deficit among students with disabilities, which is often provoked by their health issues. Scholastic impairments of vision and hearing, limb amputations, cerebral palsy, heart diseases, diabetes mellitus, and other similar conditions are severe restrictions for sufficient motor activity; however, they should not be regarded as prohibitive or exclusionary factors in physical education [11].

The experience of working with students with disabilities at Punjabi University Patiala leads to the conclusion that the mentioned students can organize given forms of motor activity independently if they receive the theoretical knowledge and, more importantly if they are motivated to do it. Nevertheless, the current public and professional approach of avoiding exercise when a disorder signal is noted poses considerable difficulties. This stereotype provides precedence to drugs and other related health solutions to physical exercise as a result of low cultural appreciation and misleading advertisements by producers of medical products. The insufficient movement is insidious, as daily negative morpho-functional changes are hardly noticeable. However, their cumulative effect leads to a decline in the functional activity of organs and systems, regulatory disruptions, and other health issues. By incorporating adaptive physical education into the curriculum, Punjabi University Patiala is actively working towards overcoming these challenges, emphasizing the necessity of movement and physical activity in improving the quality of life and integration of students with disabilities into broader society.

Therefore, one of the significant concerns in APE for children with different medical needs at Punjabi University Patiala is the prevention of the outcomes of inactivity, engaging all the working functions and body systems, and preventing disease. Of course, it has to be admitted that there are no cases in which adaptive physical education could not somehow be beneficial, aside from crucial stages of terminal and palliative care. The outcomes of APE depend on the choice of exercises, the best intensities needed, subsequent development of work schedules, and appropriate resting periods, among others.

Consequently, learners with disabilities are subjected to various challenges that deny them an opportunity to engage in physical activities. They are the absence of motor experience, passive characters and behaviours, low motivation and initiative, social inaptitude, indecision, absence of family practice in motor activities, and deficiencies in unique cognition and information. Furthermore, there is often a lack of specialized literature, programs for physical and sports and recreation, and available areas where there can practice for people with disabilities. However, one or another form of motor activity is an inestimable means of integrating everyone with a disability. As such, they are important because they offer some form of development to physically disabled people regarding their physical well-being and social interaction, which is an important aspect of their well-being. In the context of

physical education at Punjabi University Patiala, addressing these issues is vital for improving the options of providing people with APE to include all students with different physical abilities in the benefit and integration of physical activities for the university.

METHODS OF THE RESEARCH

The research employed approach to evaluate students with disabilities for their physical condition. This assessment strategy gathers complete health information by measuring standing height using centimetres and body weight in kilograms during the morning before eating, handgrip strength in kilograms, resting heart rate in beats per minute, blood pressure in mmHg along with heart rate recovery time following 20 squats in 30 seconds. The assessment indicators create a five-level scoring system that ranges from low to above average to high to determine students' physical health through point-based measurements. The physical fitness assessment of students utilized the state-mandated requirements and test protocols for evaluation purposes. The assessment system enabled teachers to measure students' physical quality development through gathered data, which served to refine educational programs specializing in physical education disability services. The study included structural and functional techniques from Adyrkhaiev (2016) to improve adaptive physical education quality [5]. These techniques provide unique support to disabled students through innovative adaptive physical education methods, which result in substantial improvements in the studied indicators [12].

PARTICIPANTS OF THE RESEARCH

Study Participants at Punjabi University Patiala

Under the research conducted at Punjabi University Patiala, scientists studied a diverse population of 144 disabled students. The research sample involved participants from the second and third disability levels who had a variety of conditions, such as visual and hearing disabilities, musculoskeletal issues, cerebral palsy, diabetes, and other somatic disorders.

Demographic Breakdown

The data comprised 83 male and 61 female participants to establish equal gender distribution in the sample. The entire research group consisted of students between ages 18 to 25. The diverse mix of students at Punjabi University Patiala forms a complete research base for studying how adapted physical education affects disabled students [13, 14]. The research investigates specialized university sports education programs that improve these students' health and fitness standards and wellness while fostering their academic and social integration. The research attempts to determine effective methods for optimizing educational programs that serve students with different disabilities to promote inclusive learning spaces throughout the university.

RESEARCH RESULTS AND DISCUSSION

The specified indicators and tests helped establish students' physical health and fitness levels. The study showed how motor abilities developed throughout the study months while the experimental group actively worked on changing these abilities. Exercise sets with different levels of complexity were chosen according to requirements, and the procedural algorithm applied uniform protocols through individualized approaches designed for health advancement. The method enabled students to perform different exercises coupled with changing physical activity criteria.

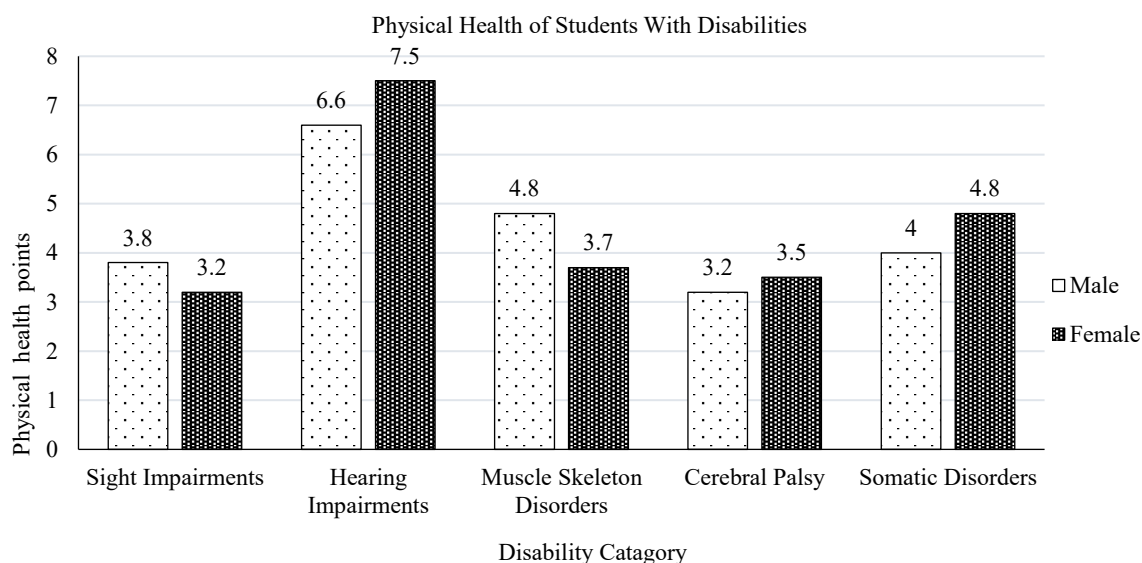


Figure 1. Physical health of students with disabilities at the beginning of the pedagogical experiment

Physical health and fitness stood as the essential evaluative measure alongside requirements for daily exercises that progressed toward higher difficulty levels and practical student applications of their learned skills. The students received systematic additional practice of earlier learned exercises because this method facilitated skill mastery while ensuring practice reinforcement.

Figure 1 and Figure 2 illustrate the student improvement trajectories resulting from the continuous physical health assessments implemented at the beginning and during the education process. The outcomes revealed that individualized adaptive physical education strengthens students with disabilities physically and overall health

Legend: 3 or less points as low; 4–6 points as below average; 7–11 points as average; 12–15 points as above average; 16–18 points as high (levels of physical health).

A study at Punjabi University Patiala provides valuable information about physical health conditions and fitness measurements of students with disabilities when they join the institution. Male students at Punjabi University Patiala with different disabilities showed results for physical health, which fell below average in their initial assessment. The physical health scores of boys affected by cerebral palsy, visual impairments, somatic disorders, and musculoskeletal disorders at Punjabi University Patiala ranged between 3.2 and 6.6, with results showing an average health range [15, 16]. The physical health score rating among male students with hearing disabilities at Punjabi University Patiala reached 6.6 points and matched previous academic assessments. The initial health status of female students with hearing impairments appeared better than other disabled groups since their scores reached 7.5 points, respectively, within the average range.

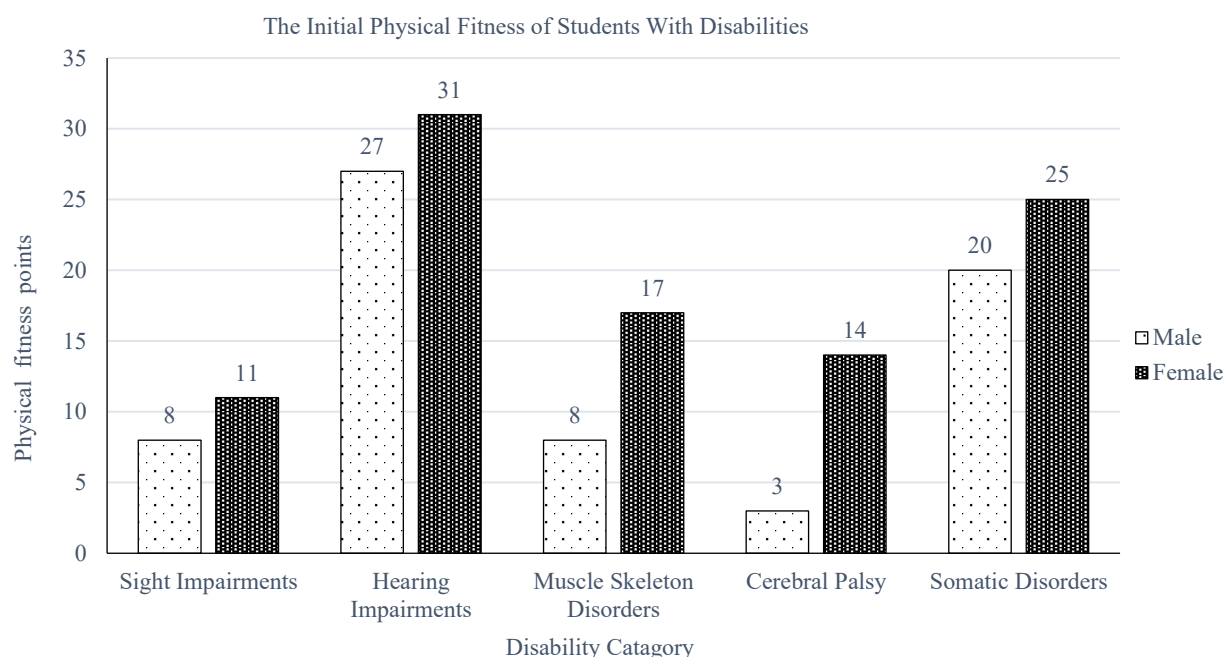


Figure 2. The initial physical fitness of students with disabilities

At Punjabi University Patiala, the physical fitness assessment methods for students with disabilities continue to adapt to standardized non-disabled student protocols despite the lack of consistency in assessing their abilities. Developed standards for educational fitness assessment of students with disabilities are necessary to build effective programs that accommodate their diverse needs. The detailed study conducted at Punjabi University Patiala regarding physical fitness levels of deaf and visually-impaired students demonstrates substantial differences between groups. Students with hearing challenges demonstrate fitness results that match the average, yet visual-impaired students display below-average physical abilities. These disparities underline the necessity for Punjabi University Patiala to implement specialized adaptive physical education programs that serve various requirements in each student group, leading to enhanced educational support.

Legend: 45–50 points as high; 35–44 points - above average; 24–34 points as average; 15–24 points below average; 10–14 points as low (physical fitness)

Research conducted at Punjabi University Patiala, which studied disabled students' physical health using APE-based educational technology, revealed important data. Students who have cerebral palsy performed worse than normal in all physical fitness categories. These students could not meet the performance criteria for 70% of tried normative physical fitness tests created for their normal group. The boys with a vision impairment, muscle-skeleton disorders and cerebral palsy had the low level of physical fitness. It was especially true for the boys-students with cerebral palsy

Four tests comprised the evaluation process of their abilities: speed, strength and coordination alongside flexibility (their points were, respectively, 8, 8 and 3). The boys who had vision impairments and musculoskeletal disorders demonstrated poor physical fitness most prominently among those who had cerebral palsy since their motor abilities were severely restricted. Male students with hearing disabilities achieved average physical fitness results while outperforming others, particularly in coordination and swimming tests, demonstrating enhanced motor abilities.

The average test results for boys with somatic disorders demonstrating moderate motor abilities were 20 points. Studies showed that female students demonstrated superior physical fitness characteristics than the male peers. The hearing-impaired female students obtained 31 points in testing while they

performed all standard tests effectively with strong ratings. The females with somatic disorders demonstrated average motor abilities through their test scores of 25 points. The motivation scores for girls with musculoskeletal disorders and cerebral palsy were both below average at 17 points and 14 points, respectively, because patients with cerebral palsy were unable to do the endurance or coordination tests. The physical fitness levels of girls with vision impairments remained at the lowest mark of 11 points, preventing them from performing endurance or strength-based tests. The addition of APE at Punjabi University Patiala has resulted in enduring positive transformations in the physical fitness levels of students with disabilities. Implementing targeted educational methods showed year-over-year improvements in almost every measured aspect, thus demonstrating their effectiveness in educating students with disabilities. Adaptive physical education programs should expand to better meet the diverse requirements of disabled students and support their complete participation in university activities and post-university life.

The performed study of dynamics of physical health and fitness of the students with Disabilities during their university studies after introducing the structural and functional Technologies of adaptive physical education into the educational process had indicated that gradual positive changes were observed for most indicators every year. Significant positive changes (their percentage estimations differ for different cases) in physical health and fitness of the students with disabilities were noticed at the end of the long-term pedagogical experiment (see Table 1).

The Punjabi University Patiala APE program utilizes an established organizational structure that draws scientific evidence from Winnick's 2010 study and other national and international experts. The program implements a broad methodology to design lessons that address the educational and health requirements of disabled students while integrating new sports technologies into innovative health programs. Designed sports activities within lessons to accommodate students' medical conditions, boosting their physical activity involvement. The approach stands vital for restraining physical inactivity and hyper dynamic and helps raise physical activity levels and improve respiratory and cardiovascular systems. Through such activities, we develop stronger immunity against diseases.

Table 1. Comparative influence of means, methods and forms of adaptive physical education on physical health and physical fitness of students with disabilities (% of changes against the original level).

Indicators of Physical Health and Fitness	Sight Impairment	Hearing Impairment	Muscle-Skeleton Disorder	Cerebral Palsy	Somatic Disorders
Level of Physical Health, Points	48/58	22/16	75/50	31/26	72/59
Running 3000 m, min., from Running 2000 m, min., from	-	04/07	-	-	-
Pulling on the crossbar, times	45/-	40/-	44/-	-	58/-
Arms flexion/extension lying on the floor, times	43/69	14/52	25/57	13/27	16/27
Trunk lifting forward into the sitting position in 1 min., times	32/14	7/24	32/31	-	26/47
Standing long jump, cm	10/11	8/3	9/8	-	11/12
Bent suspension, sec.	53/29	42/3	14/47	13/37	10/14
Shuttle run 4×9 m, sec.		7/4	-		10/10
Trunk torsion forward from the sitting position, cm	39/15	15/17	100/59	75/36	21/9

The program requires individualized assessments as its central mechanism, which boosts students' motivation through manageable motor tests to achieve better rating outcomes. The program uses differentiated strategies based on students' physiological and emotional state differences to determine

their physical exercise level according to their unique medical requirements during the transition to standard physical activities. The customized intervention approaches support the complete inclusion of disabled students while they experience positive outcomes at Punjabi University Patiala on both physical wellness, social engagement, and psychological welfare.

CONCLUSIONS

The adaptive physical education (APE) study conducted at Punjabi University Patiala demonstrates how strategic physical education programs implemented effectively boost disability students' life quality. These research results will be essential in creating future academic guidelines because they determine the methods through which all students can succeed academically. This research investigation leads to the following complete analysis:

1. This study shows that students with disabilities need physical education because it leads to additional well-being benefits and better social inclusion. This acknowledgment represents an essential movement toward education practices that welcome all students equally.
2. Research shows that specific APE education programming produces substantial favourable changes in student physical health and fitness. Individualized program designs guarantee access to physical education and produce positive benefits for all students.
3. APE constitutes a target-focused educational system that efficiently uses proper instructional approaches to provide suitable solutions for student medical and physical requirements. Motor activity benefits from this method, which promotes both educational objectives and health goals to develop an optimal learning environment.
4. The study reveals that student health and fitness metrics improve yearly, but individual medical factors produce different results according to personal healthcare requirements. APE techniques require ongoing refinement because the student must show continuous changes, demanding repeated updates in practice delivery.

Directions for Improvement

Primary Focus Means and Methods represents a core element for APE success so the program should make these most effective strategies and methods central to ongoing program development. Implementing a differentiated strategy that evaluates student capabilities with health conditions creates maximum physical education benefits for each learner. APE programs need adaptation according to students' functional abilities health status, and personal interests to be effective. The customization brings learning content closer to the students' experiences, making learning experiences meaningful and enjoyable for better educational results.

Integration and Confidence: Punjabi University Patiala has successfully integrated students with disabilities into its wider university community. Students experiencing comfort growth alongside increased confidence inside university space lead to better education and stronger social adaptation

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