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Original Article

Role Of Occupational Therapists In Enhancing Motor Skills Through Sports In Special Education Settings

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ABSTRACT

Introduction: The development of motor skills is vital for the functional and social progress of children with disabilities and those in special education settings. Occupational therapy (OT) practitioners meticulously design motor skill development programmes, incorporating specific needs of children and families to promote holistic growth. In recent years, the use of sport as a therapeutic tool has received renewed attention as it provides an active, enjoyable context for motor learning. This research focuses on the role of occupational therapists in providing sports-based motor skill interventions for children who are developmentally atypical. Methodology: A qualitative exploratory design was adopted. It consisted of 16 participants from four special education schools, including 8 occupational therapists, 4 adaptive physical education teachers, and 4 school administrators. Data were gathered using semi-structured interviews, non-participant observation of therapy sessions, and document review. Thematic analysis was performed using a framework approach to determine the constituents of an identified theme. Results: Four major themes emerged: (1) sports activities integrated with individualised therapy services; (2) participation enhanced by supporting task and sensory strategies; (3) planning done collaboratively between OTs and PE teachers; and (4) positive changes in motor and psychosocial skills observed. Other identified barriers included a lack of resources and time, as well as inadequate awareness among stakeholders. Discussion: Study findings support the application of sports into occupational therapy as a versatile, inclusive, and effective client-centred approach aimed at enhancing motor skills. The research underlines the importance of interdisciplinary partnerships and adaptive sports programming within special education to enhance children's motor skills and motor engagement. However, sustained implementation still requires supportive infrastructure and policies. Conclusion: The role of occupational therapists using sports as a therapeutic tool for attaining defined goals in special education contexts is one of great impact. Other school system stakeholders must actively support furthering the scope of these practices through their involvement, training, and inclusive frameworks. The findings demonstrate the need to consider sports within occupational therapy service delivery frameworks in schools to aid in the comprehensive development of children with disabilities.

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Introduction

Motor skill development is a basic marker of childhood progress that enables functional autonomy, learning, and social interaction, and is foundational to many other life activities. In children with disabilities, particularly those in special education, the range of underlying neurological, developmental, or musculoskeletal disorders results in delays in gross and fine motor skills. They often experience a decline in physically active recreational pursuits, social participation with peers, and an increase in overall dependency with daily activities. Improving the motor skills of such individuals is, thus, not only a clinical need, but an educational and socially endorsed need as well.

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To address these motor difficulties, occupational therapy (OT) provides very relevant and effective solutions.

Occupational therapists evaluate motor development and implement strategies designed to enhance a child's performance in activities done at home, school, and in the community while considering the individual needs of the child. Although therapeutic exercises still play an important role, there is greater appreciation for the inclusion of sports activities into OT practice, especially in school-based and encompassing educational settings.

Sports are a unique, fun, and social way to motivate children to learn new motor skills. Unlike repetitive motor tasks, sports and physical activities such as running, jumping, throwing, catching, and balancing draw techniques from coordination, timing, bilateral integration, and sensory processing. Motor tasks required in sports mimic those performed in real-life situations. Sports also enhance the development of gross and fine motor skills and provide natural opportunities for skill generalisation, problem-solving, and social-emotional skill advancement.

The comprehensive role of occupational therapists within this framework is to evaluate motor skills and restrictions for each student and establish defined targets. Afterward, the occupational therapist works with the teachers and PE specialists to design inclusive sports that are easy to participate in and have therapeutic value.

Interventions may consist of task breakdown, changing environments, employing adaptive devices, and implementing strategies for sensory integration to foster optimal participation for every child [4]. Moreover, therapists frequently take on the role of advocates, informing and teaching school staff and family members about the benefits of participating in recreation and play activities for motor skill development.

In special education environments where learners may present with a blend of intellectual, psychological, and physical disabilities, sport is the most appropriate medium for occupational therapy intervention. Involvement in adapted or inclusive sports contributes not only to motor outcomes but also positively influences the development of self-esteem, social interaction, and the ability to control one's behaviour—important elements of holistic development [5]. In addition, encouraging physical activity at a young age has been associated with long-term health benefits such as lower chances of obesity, better cardiovascular health, and improved mental health.

Even though the potential of sport as a therapeutic tool is evident, there is little research regarding the role of occupational therapists in special education settings and the enhancement of motor skills through sport. Research has concentrated more on general physical activity programmes or exercises from traditional therapy models, with no focus on the distinctive blend of OT principles and sport-based interventions.

This study intends to fill this gap by focusing on the role of occupational therapists in improving motor skills through sports for learners in special education schools.

The study will analyse intervention methods, stakeholder perceptions, and the impact these programmes have on children's functional motor skills. It aims to further advocate for the inclusion of sports as essential components of occupational therapy in school settings and advance evidence-based practice.

METHODOLOGY

Research Design

This study undertook a qualitative exploratory approach focused on the role of occupational therapists in motor skills enhancement through sports in special education settings. With such sparse information, a qualitative approach captures more information about professionals' experiences, practices, and the environment that inform sports-based motor intervention [6]. This approach was best as it helped capture the myriad of data from therapy work done within schools.

Study Setting

This research was carried out in four special education schools located in the urban and peri-urban regions of Punjab, India. All these schools provided integrated occupational therapy and organised adaptive physical education classes. These schools accept children with a wide range of physical and cognitive disabilities along with developmental disabilities like autism spectrum disorder (ASD), cerebral palsy (CP), Down Syndrome, and developmental coordination disorder (DCD).

Study Population and Sampling Technique

The research focused on occupational and adaptive physical education teachers, as well as school principals who actively participate in the planning and implementation of sports-based therapy programmes for disabled students.

Participants who were implementation or supervision-level gatekeepers to motor skills interventions through sport were selected using purposive sampling. The final sample consisted of:

8 licensed occupational therapists with a minimum of two years' experience in special education.

4 physical education teachers collaborating with therapists to adapt sports activities.

4 administrators responsible for coordinating special education programmes and therapeutic services.

This sampling ensured that participants from different disciplines were included while OT-centric multidisciplinary approaches towards occupational therapy were prioritised.

Methods of Collecting Data

Data was collected through semi-structured interviews, non-participant observation, and document analysis, which enhanced the credibility of the results by allowing triangulation [7].

Semi-Structured Interviews

All participants took part in in-depth interviews based on a set guide. The matters of concern included:

The strategies used by OTs to enhance the child's motor milestones achievement using sports.

The category of sports or physical activities selected.

The level of changes and evaluations performed during intervention.

The expected outcomes and the obstacles to achieving them.

The duration was approximately 45 to 60 minutes for each interview, which, with consent, were recorded and transcribed verbatim.

Non-Participant Observation

The researchers attended eight school-based OT-led sports sessions.

Notes were kept on the interaction of the therapist and the child, the performance of various motor tasks, the application of adaptations or assistive tools, and pupil behaviour and performance from a motor and behavioural perspective.

Document Review

In order to comprehend the design, execution, and assessment of sports-based motor programmes, programme calendars, therapy progress notes, IEPs, and session notes were analysed.

Data Analysis

All data were analysed using thematic analysis with the six-step process presented by [7].

Get to know the data

Initial coding
Look for themes
Review of themes
Define and name them
Complete the report

Qualitative data were managed and coded with NVivo (Version 12). Inductive analysis was applied to derive themes that were constantly compared and peer reviewed to enhance rigor and minimise bias during the refinement process.

Trustworthiness of Data

The credibility, dependability, confirmability, and transferability of the study were ensured as qualitative strategies of rigor were established:

Data source, interview, observation, and document triangulation

Participant validation of transcripts and interpretations with five others

Experts in qualitative research did peer reviews

Description so a similar context can adapt

Ethical Considerations

Approval for ethics clearance was granted by the Desh Bhagat University Ethics Review Board. All respondents consented and voluntarily participated. Respondents were assured confidentiality and anonymity as their responses were coded and securely stored.

Participants were made aware of their ability to withdraw from the study at any point without any negative repercussions.

RESULTS

This section outlines the results of semi-structured interviews, non-participant observations, and document reviews conducted within four special education settings. Data was analysed thematically to understand the role of occupational therapists in the motor skills advancement of children with special needs through sports.

A total of 16 participants were involved in this study:

8 Paediatric Occupational Therapists not ROT registered (OTr), all females, with a mean school-based paediatric OT experience of 5.3 years.

4 Adapted physical education teachers (APET), all certified in physical education of children with disabilities.

4 School administrators who supervised therapy and sports programming within special education.

4.2 Emergent Themes

Thematic analysis produced four primary themes:

Theme 1: Sports Integration into OT objectives

Every reporting therapist confirmed that sport activities were purposefully integrated into the motor skill objectives set forth in the students' IEPs. Adapted soccer, beanbag toss, obstacle courses, and relay races were employed to enhance gross motor coordination, balance, bilateral integration, and postural control.

"We embed therapeutic goals into movement-based games. Winning isn't the point– masterful sequences get won through repetition." — OT1
Using cones, mats, low-height hurdles, and tactile markers, therapists sought to fit each child's level of motor skills by using modifications for each child.

Theme 2: Task Remodelling and the Application of Upper Assistive Tools

Moreover, the therapist modified the tasks with equipment, visual aids, and simplified the task to achieve active participation. For instance, some students with dyspraxia were encouraged to spin larger balls to improve their eye-hand coordination. Other modifications included the use of sensory breaks and visual aids to control sensory overload during high-arousal sports.

"For kids with sensory modulation challenges we use light balls, tactile grips, and time intervals to foster participation." — OT4

Analysis of session documents showed that posters with motor tasks including the grading of tasks within sessions were planned, checking off each task along prepared visuals for each activity.

Theme 3: Interdisciplinary Professional Collaboration

Therapists noted strong collaboration from OTs and Physical Education (PE) teachers and their students, which emerged as a notable theme throughout the data. Teachers offered perspectives on game interactions and behaviours in class while therapists supported with motor planning and therapeutic elements.

"The therapist modifies the drills and we watch and make changes together based on the child's level of fatigue or response." — PE Teacher 3
This foresight from collaborative planning supports alignment in skill enforcement academically and therapeutically.

Theme 4: Skills and Behavioural Improvements Noticed

Both therapists and teachers observed changes in the learners' ability to control bodily movement and behavioural self-regulation.

The cited examples consisted of enhanced endurance, improved balance, reduction in avoidance behaviour, and greater willingness to participate in group activities.

"He couldn't walk a straight line before, but now he completes an entire relay with minimal support." — OT7

Out of the 8 cases observed, 6 were pupils and progress was verified through progress tracking documents and evaluation notes from post-tests done after the intervention. All 6 showed some degree of improvement in motor skill refinement and attention span retention.

Barriers Identified

In any case and regardless of the advantages stated, participants noted other barriers such as:

Limited space and facilities suitable for sports.

Restricted available time slots within the school timetable.

Some parents have inadequate understanding of the therapeutic benefits of sports.

Summary Table of Themes and Evidence

Theme	Key Findings	Data Source
Integration of OT goals with sports	Sports used to meet motor skill goals in IEPs	Interviews, Document Review
Task adaptation and sensory supports	Modified tools, pacing, and structured environments employed	Observations, Session Logs
Interprofessional collaboration	OTs and PE teachers co-designed sessions	Interviews
Motor and behavioral improvements	Increased endurance, motor planning, participation, and attention	Observations, Therapist Feedback
Barriers to implementation	Space, scheduling, and parental misconceptions identified as hindrances	Interviews, Field Notes

Such outcomes highlight the qualitative aspects confirming the importance of occupational therapists in enhancing motor skills through sport activities in special education settings. The combination of therapy with play and team activities promotes motor, cognitive, and psychosocial growth.

Discussion

This study analysed the role of occupational therapists (OTs) in enhancing motor skills related to sports in special education settings. Results indicate that occupational therapists use sports as a medium through which they implement therapeutic activities aimed at fulfilling functional objectives associated with motor skills, such as body coordination, balancing, sensory processing, and social participation. Such findings add to the increasing evidence towards the use of sports as a legitimate and useful tool for occupational therapy activities among children, especially in school-based services.

Sports as a Therapeutic Modality

Including sports in occupational therapy services is consistent with the client-centred and occupation-based focus that underpins contemporary service delivery. Sports entail a range of activities that incorporate gross motor coordination, rhythm, timing, and visual-motor integration – all fundamental components of functioning for children with neurodevelopmental disorders. In this study, therapists employed

structured games and sports not solely as activities for enjoyment, but as meaningful, goal-directed tasks planned to meet the students' Individual Education Plans (IEPs).

These findings reinforce the claim made by emphasising that the performance of physical activities, including sports, is associated with improved physical functions and psychosocial wellbeing among children with physical disabilities.

The incorporation of relays, obstacle courses, and specialised games within this study indicates an effort to promote participation in physical activity within a positive and engaging context.

Task Modification and Sensory Adaptations

A blend of adapted devices and sensory aids deemed appropriate for the tasks at hand was unmistakably thematic. Alterations to the size of the balls, visual presentation of the task, and the provision of active rest periods are examples of the implementation of the sensory integration hypothesis, which holds that children who have atypical sensory processing require an environment offering challenges that are not too easy or too difficult. Such efforts are especially significant for students in special education, who often experience coexisting sensory modulation and motor delays.

This approach serves to inform occupational therapists' guidance with students who have autism and other developmental disabilities, advocating for flexible individualised modifications tailored to the needs of the child. The therapists in the study demonstrated strong application of these concepts in ensuring students could actively and safely engage in meaningful sports activities.

Interprofessional Collaboration and Educational Sectors

A different intriguing finding is the partnership among OTs and PE teachers. This interprofessional collaboration is beneficial because it integrates the expertise of the therapists concerning the child's motor development and adaptive strategies with the knowledge provided by the PE teachers regarding the organisation of activities and classroom operations.

According to [2], effective collaboration among school staff is critical for providing therapy that is integrated, functional, and aligned with the educational objectives for the students.

Such collaboration culminates in an improved sequence of care in which skills learned in therapy can also be reinforced during regular PE classes, thereby aiding in generalisation. This level of collaboration exemplifies the best inclusion practice and is in line with the WHO framework regarding integrated service provision for children with developmental delays.

Observed Benefits and Challenges

The study noted improvements in both motor and behavioural outcomes, including the balance, motor planning, and endurance of students participating in sports-based OT, as well as enhanced overall participation. Such findings are consistent with the expanding literature attesting to the therapeutic value of participation, particularly within the context of group activities that are fun and motivating [1]. Improvements in self-regulation and readiness to engage also highlight the impact of these interventions on the affected persons physically as well as psychosocially.

Lack of space, minimal specialised equipment, and a general lack of understanding about the value of sports therapy from parents were the most commonly identified challenges. These findings indicate that there is an under-supported system that creates barriers to completely taking advantage of sports-based occupational therapy in special education through infrastructure and stakeholder education.

Discussion

This research, in particular, adds to the extensive scholarship advocating for the application of occupation-based client-centred interventions—especially sports and physical activities—at the special education level.
As developmental specialists, occupational therapists (OTs) evaluate the role of sports both as a medium for therapy and a tool for comprehensive growth of a child—from the perspective of a holistic child development specialist. This reflection focuses on the implications of the study results within occupational therapy's educational theory, ideology of therapeutic education, and multidisciplinary teamwork.

Healing Through Exercise in the Context of Students with Special Needs

The use of sports as a therapeutic measure aligns with the occupation-based model of practice, promoting an active engagement approach. In special education, sports are not only recreational but also serve as formalised techniques for addressing motor skill planning and coordination, balance, strength, and cognitive self-regulation. In this study, therapists implemented specialised therapeutic activities like modified football, obstacle courses, and beanbag activities which require bilateral coordination, proprioceptive control, and sequencing—core deficits in children with disabilities such as cerebral palsy and autism spectrum disorder (ASD).

These findings support the other work in [1] who stated that therapeutic participation in physical activities is beneficial for improving the level of participation and functional skills of children with motor challenges. In addition, participation of this nature enhances the development of executive function skills, emotional control, and social participation skills which are often neglected in standard therapy frameworks.

Principles of Occupational Therapy and Adaptive Action

The therapists in this study exemplified how different motor-challenged children could participate in sports by smoothing out and adapting environmental settings and task demands in alignment with the PEO model "Person-Environment-Occupation Model." The therapists designed interventions through changing equipment to lighter balls with tactile grips, rule simplification, and introducing strategic sensory regulation such as arranging sensory decompressing and calming routines as sensory breaks. This is particularly relevant for children dealing with perception issues, as task execution relies on whether sensory input can be successfully regulated [8].

These changes are also aligned with the UDL framework, which proposes that learners should be offered multiple means in accessing material and demonstrating mastery of skills. By removing barriers and personalising sports, OTs guarantee that every learner, irrespective of their skill level, can participate in motor learning.

Collaboration within Professions and Integration of Disciplines

An important focus of this study was the collaboration between occupational therapists and adaptive physical education teachers. This study supports interprofessional education (IPE) models, which advocate for collaborative design and orchestration for service delivery within educational contexts. OTs offered insights from development and therapy while PE teachers provided expertise on specific sports, ensuring that the sessions were physically engaging and developmentally appropriate.

This collaboration emphasised the importance of integration noted by [2], which advocates that school-based OT practice remains effective if other specialists in education are collaboratively integrated into the team.

Interdisciplinary collaboration integrates shared objectives, enhances consistency in motor skill acquisition, and improves student performance.

Psychosocial and Functional Outcomes

Behaviourally, students showed increased engagement, self-confidence, and overall participation. These psychosocial aspects, while stemming from secondary motor skill development, are crucial in encouraging self-direction and motivating learners. As a socially stimulating activity, sports can increase social engagement, collaboration, and leadership skills that are often underdeveloped in children with developmental disabilities [5].

These outcomes also correspond to the ICF-CY classification, which places emphasis on participation as a core component of well-being. Therefore, an occupational therapist's role extends beyond improving the functionality of bodily structures and movement patterns to include facilitating access and fuller engagement in school.

Challenges and Systemic Barriers

Even with the promise that sports-based OT interventions hold, the study also found barriers such as inadequate funding, under-resourced and over-scheduled schools, and lack of parental advocacy. These systemic limitations resonate with other studies in comparable contexts where developmental supports are stifled by policy and planning gaps alongside practical constraints within inclusive physical education [9].

To address these issues, the study proposes the creation of supporting policies for inclusive therapeutic sports that specify funding for equipment, provisions for therapy time within class schedules, and training for school staff. These steps will assist in the integration of the use of sports as a form of therapy in health and physical education classes.

CONCLUSION

The current study has highlighted the unique and complex contributions of therapists in implementing sports-based motor development interventions in special education. The results indicate that adapted sports, when thoughtfully designed to meet therapeutic objectives, serve as highly motivating activities that enhance coarse motor skills, balance, endurance, and sensory integration in children with developmental delays. During the therapy process, occupational therapists applied person-driven strategies such as ecological and sensory approaches and cooperative teaching with PE teachers to promote and uphold meaningful participation for all students.

The documented improvements in motor skill performance alongside active participation and self-reported satisfaction illustrate the impact of sport on development and movements of self-esteem, prosocial behaviour, and self-control.

While some of these results were expected, the findings also highlighted a number of ongoing issues including inadequate facilities, rigid school timetables, and general apathy from other academic departments which pose challenges to the widespread use of sports therapy in education. These barriers indicate the need for greater advocacy and supports at the organisational level for policies that enable occupational therapists to work dynamically in these contexts.

RECOMMENDATIONS

Considering the findings, the following recommendations, which are informed by evidence, are made:

Integrate Occupational Therapy Sports Programmes Into Schools

The ministries of education and school boards should integrate more sports-based occupational therapy into the special education components of the curriculum. This also requires that time be designated in the school timetable for organised active drive sessions led by occupational therapists.

Enhance Interprofessional Cooperation

Create sustained interprofessional working relationships among occupational therapists, adapted physical education teachers, and subject teachers. Motor functioning at all levels—therapeutic and educationally instructional—has to be strategically integrated through joint training and planning [2].

Allocate Resources for Inclusive Sports Facilities Aimed at Facilitating and Enabling Progressive Motor Development

Investments should be made by schools in inclusive sports facilities and in adaptive sports equipment such as light weight balls, tactile markings on floors, and modified hurdles to foster and enable varying levels of participation and motor skill progression.

Develop Community and Parental Engagement

Campaigns and educational initiatives targeted at parents should be developed to promote the understanding of sports as an effective therapeutic tool and the need for active parental participation in home-based support activities [3].

Promote Continuous Review and Evaluation Procedures

Create mechanisms for monitoring motor development and functional level using standardised tools of measurement. Routine evaluation of results will foster and allow for responsive innovation in therapy redesigning and enable accountability to goals set for inclusive education [1].

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