EFFECT OF DANCE-BASED MOVEMENT THERAPY ON MOTOR COORDINATION IN CHILDREN WITH DEVELOPMENTAL DELAYS

Dr. Kurimeti Dayakar
Lecturer RGR Siddhanthi College of Education, Hyderabad, Telangana

ABSTRACT

Motor coordination plays a pivotal role in the overall physical, cognitive, and social development of children. Children with developmental delays often struggle with impaired motor control, leading to difficulties in performing basic movements, communication, and participation in group activities. This study explores the effectiveness of Dance-Based Movement Therapy (DBMT) as a holistic intervention aimed at improving motor coordination in such children. A total of 60 children aged 5 to 10 years with diagnosed developmental delays were selected from three therapy centers. The children were divided into an experimental group that received 12 weeks of DBMT and a control group that received conventional physiotherapy. The Movement Assessment Battery for Children (MABC-2) was used to measure motor coordination pre- and post-intervention. The results indicated a statistically significant improvement in the motor coordination scores of the experimental group compared to the control group. The study concludes that DBMT can be a powerful, engaging, and therapeutic tool for enhancing motor functions in children with developmental challenges.

Keywords: Dance-based movement therapy, developmental delays, motor coordination, special education, therapeutic dance, gross motor skills, fine motor skills, neurodevelopmental intervention, early childhood therapy, movement-based learning.

INTRODUCTION

Double Blind Peer-Reviewed Refereed Indexed On-Line International Journal

www.ijobsms.org under the Publication aegis of SWARNP3 Pvt.Ltd.

Developmental delays in children encompass a wide range of challenges affecting physical, cognitive, social, and emotional growth. Among the most commonly observed symptoms are delays in motor development, including difficulty in balance, coordination, spatial awareness, and movement precision. These deficits not only restrict the child's ability to perform age-appropriate physical tasks but also hinder self-confidence, communication skills, and social inclusion. Conventional therapeutic methods often focus solely on structured physical or occupational therapy. While these are effective to a certain extent, they may not always engage the child's interest or creativity.

Dance-Based Movement Therapy (DBMT) is a therapeutic approach that integrates rhythmic body movements with emotional expression and social interaction. Rooted in both physical therapy and creative arts, DBMT enables children to explore movement patterns in a playful, imaginative, and structured environment. The rhythmic nature of dance stimulates brain areas responsible for motor control and coordination, particularly the cerebellum and basal ganglia. In addition to physical benefits, DBMT fosters emotional connection, self-expression, and peer bonding — aspects crucial for holistic development.

This research investigates the efficacy of DBMT in improving motor coordination among children with developmental delays and aims to provide empirical evidence for its inclusion in early intervention programs.

DATA ANALYSIS

The study comprised 60 children with officially diagnosed developmental delays such as Down syndrome, autism spectrum disorder, and global developmental delay. They were

Double Blind Peer-Reviewed Refereed Indexed On-Line International Journal

RESEARCH JOURNAL SINCE: 2012 PEER REVIEWED ISSN: 2277-7547 BEHAVIORAL SOCIAL & MOVEMENT SCIENCE

THE UNIVERSITY ACADEMICS www.theuniversityacademics.com Research & Academic Publishing

www.ijobsms.org under the Publication aegis of SWARNP3 Pvt.Ltd.

equally divided into two groups: Experimental (DBMT) and Control (conventional physiotherapy). Both groups underwent pre- and post-assessment using the MABC-2 scale.

Statistical Overview:

- **Mean Pre-Score (Experimental Group):** 54.2
- **Mean Post-Score (Experimental Group):** 71.6
- **Mean Improvement:** +17.4 points
- **Mean Pre-Score (Control Group):** 55.1
- **Mean Post-Score (Control Group):** 60.4
- **Mean Improvement:** +5.3 points
- **T-test result:** $t(58) = 4.73$, $p < 0.01$

The experimental group showed significant improvement in balance, manual dexterity, and ball skills. Gender-wise, girls showed slightly higher coordination improvements in rhythmic sequences, while boys showed greater enhancement in gross motor tasks.

These results suggest that DBMT is more effective than traditional physiotherapy in improving motor coordination in children with developmental delays.

METHODOLOGY

A quasi-experimental design was used to compare the outcomes of DBMT with traditional therapy. Sixty children aged 5–10 years were selected from three urban therapy centers specializing in neurodevelopmental disorders. Children with severe orthopedic conditions or non-verbal IQ below 40 were excluded to ensure safety and participation capability.

Groups:

- **Experimental Group (n=30):** Received Dance-Based Movement Therapy
- **Control Group (n=30):** Received conventional physiotherapy (balance and fine motor exercises)

Intervention:

DBMT was conducted three times a week over 12 weeks (36 sessions total). Each session lasted 45 minutes and included:

- Warm-up (stretching and rhythmic tapping)
- Movement games with music
- Thematic dance stories (e.g., animals, weather, vehicles)
- Cool-down with breathing exercises

Measurement Tool:

- *Movement Assessment Battery for Children – 2nd Edition (MABC-2)* This standardized test assesses three core motor skill areas: manual dexterity, aiming and catching, and balance.

Ethical Approval:

Parental consent was obtained, and therapy sessions were conducted under the supervision of certified pediatric therapists and movement specialists. The study adhered to child safeguarding norms and received institutional ethical clearance.

Case Study

Case A – Aarav (Male, 7 years, Autism Spectrum Disorder):

Double Blind Peer-Reviewed Refereed Indexed On-Line International Journal

RESEARCH JOURNAL SINCE: 2012 PEER REVIEWED ISSN: 2277-7547 BEHAVIORAL SOCIAL & MOVEMENT SCIENCE

THE UNIVERSITY ACADEMICS www.theuniversityacademics.com Research & Academic Publishing

www.ijobsms.org under the Publication aegis of SWARNP3 Pvt.Ltd.

Aarav displayed limited coordination, frequent toe-walking, and poor eye-hand integration. After participating in 12 weeks of DBMT, his MABC-2 score improved from 45 to 69. He began synchronizing his movements with music, maintained group rhythm, and showed increased confidence during social activities. His teacher also reported improvement in classroom participation.

Case B – Meera (Female, 6 years, Down Syndrome):

Meera had hypotonia and struggled with balance and muscle control. Her initial score was 51, which rose to 74 after DBMT sessions. She developed improved balance, could participate in hopping games, and began initiating social play with peers during sessions. Her parents noted reduced frustration and greater joy during movement.

These cases highlight how DBMT addresses both physical coordination and emotional connectivity in developmentally delayed children.

QUESTIONNAIRE

Part A – Demographics

1. Name (Optional): _____
2. Age: _____
3. Gender: Male / Female / Other
4. Diagnosed Condition: _____
5. Therapy Group: DBMT / Conventional

Part B – Observations and Feedback

1. Does your child enjoy movement-based activities?
2. Can your child follow movement sequences (e.g., jump, clap, turn)?

Double Blind Peer-Reviewed Refereed Indexed On-Line International Journal

RESEARCH JOURNAL SINCE: 2012 PEER REVIEWED ISSN: 2277-7547 BEHAVIORAL SOCIAL & MOVEMENT SCIENCE

THE UNIVERSITY ACADEMICS www.theuniversityacademics.com Research & Academic Publishing

www.ijobsms.org under the Publication aegis of SWARNP3 Pvt.Ltd.

3. Has your child shown improvements in balance or coordination after therapy?
4. How often does your child participate in group movement or dance?
   - Never
   - Once a week
   - Twice a week
   - Three or more times a week
5. Please share any changes in your child's social behavior post-therapy:

Table 1: Pre and Post MABC-2 Scores in Experimental vs Control Group

Group	Pre-Test Score (Mean)	Post-Test Score (Mean)	Improvement
Experimental	54.2	71.6	+17.4
Control	55.1	60.4	+5.3

Table 2: Gender-Based Motor Coordination Improvement in DBMT Group

Gender	Balance Score Improvement	Manual Dexterity Gain	Total Score Increase
Male	+6.8	+4.5	+16.7
Female	+7.5	+5.3	+18.1

CONCLUSION

The research conclusively demonstrates that Dance-Based Movement Therapy is a highly effective intervention for improving motor coordination in children with developmental delays. Unlike traditional therapy methods, DBMT offers a multisensory and engaging experience that appeals to both the body and mind. Its structured yet creative approach helps

Double Blind Peer-Reviewed Refereed Indexed On-Line International Journal
www.ijobsms.org under the Publication aegis of SWARNP3 Pvt.Ltd.

children gain better control over their limbs, enhances rhythm perception, and fosters social interaction through group movement. The substantial improvement observed in post-test motor scores, combined with case observations and caregiver feedback, affirms DBMT as a viable therapeutic method in early intervention programs.

Given the increasing incidence of developmental disorders, integrating DBMT into special education and rehabilitation centers could revolutionize child-centric therapy. Further studies may explore long-term effects, neural activation patterns during movement, and scalability of such programs in rural and under-resourced regions.

REFERENCES

1. Koch, S. C., Kunz, T., Lykou, S., & Cruz, R. (2014). Effects of dance movement therapy and dance on health-related psychological outcomes: A meta-analysis. *The Arts in Psychotherapy*, 41(1), 46–64.
2. Piek, J. P., Hands, B., & Licari, M. K. (2012). Assessment and intervention for children with developmental coordination disorder: A focus on dance. *Developmental Medicine & Child Neurology*, 54(3), 212–218.
3. Capello, P. (2011). Dance/movement therapy with children. *American Journal of Dance Therapy*, 33(1), 41–56.
4. Lobo, Y. B., & Winsler, A. (2006). The effects of a creative dance and movement program on the social competence of head start preschoolers. *Social Development*, 15(3), 501–519.

5. Hackney, M. E., & Earhart, G. M. (2010). Effects of dance on movement control in Parkinson's disease: A comparison of Argentine tango and American ballroom. *Journal of Rehabilitation Medicine*, 41(6), 475–481.
6. Tortora, S. (2006). The dancing dialogue: Using the communicative power of movement with young children. *Paul H. Brookes Publishing.*
7. Sherborne, V. (2001). *Developmental Movement for Children.* Worth Publishing.
8. Koshland, L., Wilson, L., & Wittaker, J. (2004). Dance/movement therapy as a holistic approach for children with autism. *American Journal of Dance Therapy*, 26(2), 65–78.
9. Srinivasan, S. M., & Bhat, A. N. (2013). A review of "motor and social interventions for children with ASD": Dance as a therapeutic approach. *Frontiers in Public Health*, 1, 53.
10. Hammill, D. D., & Pearson, N. A. (2010). *Movement ABC-2: Movement Assessment Battery for Children.* Pearson Publishing.