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Contribution ID: **218** Type: **1 - Scientific Poster**

Gross Motor Coordination in Pediatric Oncology Patients Compared to Normative Motor Quotients

Wednesday 22 July 2026 12:25 (20 minutes)

Introduction: Children undergoing cancer treatment frequently exhibit motor impairments; however, objective comparisons with normative motor development standard remain limited. Understanding the coordination deficits is essential to guide early and targeted rehabilitation strategies in pediatric oncology. **Methods:** This cross-sectional study evaluated gross motor coordination (GMC) using the standardized Körperkoordinationstest für Kinder (KTK) in children and adolescents aged 5 to 15 years undergoing oncology treatment at Joana de Gusmão Children's Hospital, Florianópolis, Brazil. Performance in the four test tasks -balance beam, lateral jumps, hopping for height, and shifting platforms- was converted from raw scores into age- and sex- standardized Motor Quotients (MQ). According to reference values, MQ <85 indicates below-average coordination and MQ ≤70 reflects significantly impaired performance. **Results:** Twenty-two participants were evaluated (mean age of 8.57±2.70 years; 65.38% female), undergoing outpatient treatment for solid (54.5%) or non-solid tumors (45.5%). Clinical characteristics included a mean treatment duration of 21.9±24.09 months, a high prevalence of underweight, and reports of pain (45.5%) or peripheral neuropathy (9.1%). All participants exhibited motor coordination impairments relative to normative expectations. Every child scored MQ ≤70, placing the sample in the very poor coordination category. The mean raw KTK score (87.50±50.53) was lower than the normative expected value (199.77±44.51), representing an average deficit exceeding 110 points. Individual deviations ranged from −79 to −142 points, indicating underperformance across all motor tasks. Although age was positively associated with KTK components, even older participants remained significantly below normative classifications. **Discussion:** The reduction in GMC suggests that motor impairments are a pervasive consequence of pediatric cancer treatment. These deficits reflect combined effects of fatigue, muscle weakness, prolonged treatment duration, and limited physical activity. Conclusion: Children undergoing cancer treatment present severe GMC deficits compared with normative MQ values, underscoring the need for early, structured, and individualized motor rehabilitation strategies in pediatric oncology.

Keywords

Childhood Cancer; Motor Skill; Psychomotor Performance; Physical Fitness.

Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

yes

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Session Classification: Poster Session