

Regaining independent mobility doesn't always mean a full physical recovery: The presence of high level physical difficulties in children with moderate-severe acquired brain injuries

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Introduction

- Participation in sports based activities is important for children's physical, emotional and social development (Verschuren et al. 2016).
- Children with acquired brain injuries (ABI) participate in fewer sports based activities than their age matched peers (Katz-Leurer et al. 2010).
- Several factors are likely to contribute to the reduced participation, with one potential cause being reduced high level physical skills.

Aim

To determine whether children who regain independent mobility following an acquired brain injury (ABI) continue to have high level physical difficulties which could impact upon their participation in physical activities.

Patients & Method

- A service evaluation of routinely collected clinical data.
- 26 children/young people with moderate-severe ABI were included.
- 12 female;14 male, average age at assessment 12.8 years, range 5-17, average 19 months post injury.
- The Bruininks-Oseretsky Test of Motor Proficiency 2 (BOT2) was carried out as part of routine clinical practice.
- Analysis of overall motor proficiency, as well as fine motor control, manual coordination, body coordination, strength and agility was undertaken.

Results

- Most children scored in the below average range for their age. Only 7/26 children score within the average range. No children scoring above average (Table 1).
- The fine motor subsection is the only subsection in which the mean of the children's scores falls within the average range expected (although this is at the low end of average).

Table 1: BOT2 assessment

	Mean standard score	Range of standard scores	No. of children scoring in the 'well above average' range	No. of children scoring in the 'above average' range	No. of children scoring in the 'average' range	No. of children scoring in the 'below average' range	No. of children scoring in the 'well below average' range
Overall motor score	34.9	24 – 48	0	0	7	16	3
Fine motor control	41.8	23 – 66	0	2	10	12	2
Manual coordination	35.9	22 – 61	0	1	8	11	6
Body coordination	37.9	22 – 52	0	0	10	11	5
Strength and agility	37.1	27 – 51	0	0	10	11	5



Conclusions

- Children continue to have high level physical impairments following ABI despite regaining functionally independent mobility.
- Impairments of balance, coordination, strength, speed and agility may contribute to the reduction in participation in sports based activities seen in this population.
- These children may not meet the criteria for community physiotherapy services; however targeted intervention and advice might improve both their impairments and participation in physical activities.

Implications for Practice

Given the known benefits of physical activity for health and development, children with moderate-severe ABI should be screened for high level motor difficulties.

References

- Katz-Leurer, M., H. Rotem, O. Keren and S. Meyer (2010). "Recreational physical activities among children with a history of severe traumatic brain injury." *Brain injury*, 24(13-14): 1561-1567.
- Verschuren, O., M. D. Peterson, A. C. Balemans and E. A. Hurvitz (2016). "Exercise and physical activity recommendations for people with cerebral palsy." *Developmental Medicine & Child Neurology*, 58(8): 798-808.



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