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Title: The Influence of Crouch Gait on Sagittal Trunk Position and Lower Lumbar Spinal Loading in Children with Cerebral Palsy

Authors: D Kiernan, R O'Sullivan



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Manuscript Title:**The Influence of Crouch Gait on Sagittal Trunk Position and Lower Lumbar Spinal Loading in Children with Cerebral Palsy.**Kiernan D ^{A,*}, O'Sullivan R ^A^A Gait Laboratory, Central Remedial Clinic, Clontarf, Dublin 3, Ireland.

*Corresponding author at: Central Remedial Clinic, Vernon Avenue, Clontarf, Dublin 3, Ireland.

Email: dkiernan@crc.ie

Ph: 00353 1 8542467

Fax: 00353 1 8542570

“Each of the authors has read and concurs with the content in the final manuscript. The material within has not been and will not be submitted for publication elsewhere except as an abstract.

Highlights

- Trunk position and lower lumbar spinal loading during crouch were examined.
- A crouch gait pattern does not elicit a compensatory response of the trunk.
- No differences were present in lower lumbar loading between groups.
- It is unlikely that a crouch gait pattern will affect the health of the spine.

Word Count: Abstract: 250, Main Text: 2998, Number of Tables: 3, Number of Figures: 2**KeyWords:** Cerebral Palsy; Crouch gait; Trunk; Inverse Dynamics; L5/S1 spine;**Introduction**

Crouch gait is a common gait pattern in children with cerebral palsy (CP) and manifests primarily as knee flexion outside normal limits for a significant proportion of the stance phase of gait [1]. Crouch gait has been reported to be present in more than 45% of children with CP with Gross Motor Function Classification System (GMFCS) level I and in more than 60% with GMFCS levels II to IV [2]. This type of walking moves the ground reaction force (GRF) away from the hip and knee centers and increases the internal extensor joint moments [3],

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