



## The effect of different physical therapy interventions in post BTX-A treatment of children with cerebral palsy

Franki I (PT)<sup>1</sup>, Van den Broeck C (PHD)<sup>1</sup>, De Cat J (PT)<sup>2,3</sup>, Molenaers G (MD, PHD)<sup>2,4,5</sup>, Himpens E (PT)<sup>1</sup>, Van Waelvelde H (PHD)<sup>1</sup>, Fagard K (PT)<sup>2</sup>, Desloovere K (PHD)<sup>2,3</sup>

1 Physiotherapy Ghent, University College Arteveldehogeschool, Ghent University  
 2 Clinical Motion Analysis Laboratory, University Hospital, Pellenberg  
 3 Department of Rehabilitation Sciences (KU-Leuven)  
 4 Department of Pediatric Orthopaedics, Belgium  
 5 Department of Musculoskeletal Sciences (KULeuven)



### Objective:

To distinguish the effects of different physical therapy programs in a post BTX-A regime for children with Cerebral Palsy (CP).

### Methods:

A group of 38 children (mean age 7y7m, GMFCS I-III, 27 diplegia, 11 hemiplegia) receiving an individually defined Neurodevelopment Treatment (NDT) program, was matched and compared with a group of children with the same age, GMFCS and diagnosis, receiving more conventional physical therapy treatment. All patients received selective tone-reduction by means of multilevel BTX-A injections and adequate follow-up treatment, including physical therapy. Three-dimensional gait analysis and clinical examination were performed pre and two months post-injection. Treatment success was defined using the Goal Attainment Scale (GAS).

### Results:

- The average converted GAS score was higher in the group of children receiving NDT than in the group receiving conventional physical therapy ( $p < 0.05$ ).
- In the NDT group, overall treatment success was achieved in 76% of the goals, compared to 68% of the goals defined for the conventional physiotherapy group. Especially for the goals based on gait analysis ( $p < 0.05$ ) and in the group of diplegic children ( $p < 0.05$ ), treatment success was higher in the NDT group.
- For the NDT group, the average time per therapy spent on functional training was 42% per session. In conventional physiotherapy, this was only 28% per session which was significantly less (0.001).

### Conclusion:

In a post-BTX-A regime, the short-term effects of a NDT approach are more pronounced than these from a conventional physical therapy approach. NDT more frequently implements functional training than conventional physical therapy and thereby attempts to benefit more optimally from the use of BTX-A.

