An addition to existing strength measures in children with cerebral palsy

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This dissertation aimed to check whether therapy that claims to be functional used the criteria of functional therapy to describe their intervention and to investigate clinimetric properties, i.e. reliability, validity and responsiveness, of the different tasks of the developed TAAC, which measures functional strength, in children with unilateral CP in relation to the different measurement purposes. We concluded that the included studies have not used the formulated criteria of functional therapy of the Dutch CP guidelines.[2] It is important that the use of these criteria to define functional therapy needs to be implemented to realise a clear standardized description of functional therapy interventions. This will enhance the use of those interventions into clinical practice. There is also a need for a new measure that matches the criteria of functional therapy, such as the newly developed TAAC. The results of clinimetric properties study showed that the TAAC is a reliable and valid instrument, and is an addition to strength measurements for diagnostic purposes. For evaluative purposes, the TAAC is not yet suitable compared to other measures.

The new information about functional strength gathered with the TAAC is relevant for therapists. Functional strength is the strength while performing an ADL task. With the new information therapists get an impression about the performance of an ADL task; why an ADL task is performed badly or cannot be performed at all. When strength is the reason of the poor performance, functional strength can be trained during therapy. So, treatment content can be formulated or adjusted based on the information provided by the TAAC.

The results of this dissertation are also important for our study population. Children with CP have a lot of problems with performing ADL tasks. These problems are mainly caused by a loss of muscle strength. Muscle strength is strongly correlated to activity; therefore reduced strength leads to activity limitations. With the information therapists obtain about the strength while performing ADL tasks with the TAAC, treatment can be formulated for each child individually and better suited for each task.

Children and therapists who participated in a task-oriented strength study and intervention camps of Adelante already had experience with the TAAC. Results of the measurements of the TAAC are discussed in papers, but also at national and international conferences. Also, based on the obtained knowledge of the TAAC, another functional instrument, the ADL-TTD was developed. For example, the ADL-TTD is more appealing for children, as it looks more child-friendly by using attractive LED lights and gaming to measure task-oriented strength. We believe that these adjustments will help the implementation in clinical practice. Currently, the newly developed ADL-TTD is being researched on its clinimetric properties. When the ADL-TTD is usable in clinical practice, it will come commercially available at Procare. Therapists will then need to be trained in performing measurements and providing functional training with the ADL-TTD. In the future, therapists and the children and/or parents should be involved in developing new measures or therapies.