34th Annual Meeting European Academy of Childhood Disability - EACD 2022

Submission date 18/12/2021

Submission time 8:46 AM

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Summary	
Reference number	20
Title	CoMoveIT Smart: a new high-tech powered wheelchair steering system for people with complex movement disorders.
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Text	

Statement of problem: People with complex movement disorders as in severe dyskinetic and spastic quadriplegic cerebral palsy are often unable to steer a traditional joystick. Without a proper controlling device these people are 'mobility lock-in' and remain highly dependent from others.

Description of the product: CoMoveIT Smart is a head-foot steering system that unlocks people with complex movement disorders to control a powered wheelchair. It is based on combined rehabilitation, mechatronics and IT evidence. This head/foot steering system exists of an electronic control unit (ECU), three sensor pads in a head array (left/right/back) and two foot sensors (left/right). A smart algorithm allows the system to continuously and automatically adapt to the user and translates the user's movement into a smooth drive control of the powered wheelchair. CoMoveIT Smart connects and communicates to the wheelchair via the universal R-Net protocol.

Findings to date: CoMoveIT Smart has been developed in close collaboration with children and adolescents with complex movement disorders. Several parameters as usability, ease-of-use, ergonomics and functional impact were evaluated by 23 physiotherapists and 19 occupational therapists using the System Usability Scale (SUS) and GRID analysis. Good to very good results were found with respectively a total mean score of 74,1% for the SUS and a score range between 7.6/10 and 8.2/10 for the GRID analysis.

Practical application & conclusion: The CoMoveIT Smart is very promising to unlock independent mobility for the most severe CP population with complex movement disorders and also results in increased self-confidence and less frustration for end-users.

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