

## عنوان مقاله:

The Relationship between Structure of the Corticoreticular Tract and Walking Capacity in Children with Cerebral Palsy

## محل انتشار:

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## نویسندگان:

Shahla Azizi - *Department of Medical Physics and Biomedical Engineering, Faculty of Medicine, Tehran University of Medical, Tehran, Iran*

Parmida Moradi Birgani - *Department of Medical Physics and Biomedical Engineering, Faculty of Medicine, Tehran University of Medical, Tehran, Iran*

Meghdad Ashtiani - *Department of Biomedical Engineering and Medical Physics, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran*

Ashkan Irani - *Department of Occupational Therapy, Faculty of Rehabilitation, Shahid Beheshti University of Medical Sciences Health Services, Tehran, Iran*

Amin Shahrokhi - *Faculty of Medicine, Tehran University of Medical, Tehran, Iran*

Khadijeh Meydanloo - *School of Public Health, Tehran University of Medical Sciences, Tehran, Iran*

Mohammad Mehdi Mirbagheri - *Department of Medical Physics and Biomedical Engineering, Faculty of Medicine, Tehran University of Medical, Tehran, Iran*

## خلاصه مقاله:

**Background:** Disruption in the descending pathways may lead to gait impairments in Cerebral Palsy (CP) children. Though, the mechanisms behind walking problems have not been completely understood. **Objective:** We aimed to define the relationship between the structure of the corticoreticular tract (CRT) and walking capacity in children with CP. **Material and Methods:** This is a retrospective, observational, and cross-sectional study. Twenty-six children with CP between 4 to 15 years old participated. Also, we used existed data of healthy children aged 4 to 15 years old. CRT structure was characterized using diffusion tensor imaging (DTI). The DTI parameters extracted to quantify CRT structure included: fractional anisotropy (FA), mean (MD), axial (AD), and radial (RD) diffusivity. Balance and walking capacity was evaluated using popular clinical measures, including the Berg balance scale (BBS), Timed-Up-and-Go (TUG; balance and mobility), six-minute walk test (6 MWT; gait endurance), and 10-meter walk Test (10 MWT; gait speed). **Results:** There are significant differences between MD, AD, and RD in CP and healthy groups. Brain injury leads to various patterns of the CRT structure in children with CP. In the CP group with abnormal CRT patterns, DTI parameters of the more affected CRT are significantly correlated with walking balance, speed, and endurance measures. **Conclusion:** Considering the high inter-subject variability, the variability of CRT patterns is vital for determining the nature of changes in CRT structure, their relationship with gait impairment, and understanding the underlying mechanisms of movement disorders. This information is also important for the development or prescription

## کلمات کلیدی:

Diffusion tensor imaging, Motor pathway, Muscle Weakness, Muscle Spasticity, cerebral palsy

## لینک ثابت مقاله در پایگاه سیویلیکا:

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