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Inter-rater reliability of the kinematics and temporal parameters of gait in normal paediatric population using digital goniometry and cinematography

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Gait analysis using digital goniometry and cinematography is easy, less expensive and feasible in clinical set up. The aim of the study was to find out the inter reliability of kinematics of hip knee and ankle joint and temporal parameters during the gait cycle in the normal paediatric population using digital goniometry and cinematography. It was a cross sectional analytical study done on 100 normal school going children with age 6 to 12 years. Videos of sagittal views of the subjects were recorded. Once the video graphic data (100 videos) was obtained, each video was converted into 500 frames using "video converter to jpg" software. The data measurements were divided into: Frame selection; measurements of kinematics of hip, knee and ankle joints using digital goniometer (M B ruler). Kinematics measurment was done 3 rater two time with gap one week on saem videos for inter intra rater reliability. Data analysis was done using intra class coefficient (r value) of correlation among three raters in different phases of gait and it revealed, Hip: initial contact r=0.901, mid stance r=0.77, terminal stance r=0.73, mid swing: r=0.81. Knee: initial contact r=0.57, mid stance: r=0.63, terminal stance r=0.69, mid swing: r=0.95. Ankle: knee: initial contact r=0.58, mid stance r=0.87, terminal stance r=0.94, mid swing: r=0.96. This study shows that there is a good inter rater reliability of the kinematic measurements of hip knee and ankle joint during the gait cycle in the normal pediatric population using digital goniometry and cinematography.

Biography

Bhalerao Gajanan is working as an Associate Professor and Head of Department of Physiotherapy in Neurosciences at Sancheti Institute College of Physiotherapy, Shivajinagar, Pune. He is pursuing his PhD in Physiotherapy from Maharashtra University of Health Sciences (MUHS) Nashik and completed Master of Physiotherapy (Neurosciences) from Pune University. He was Pune University topper in Master Program 2007. He completed his basic & advance NDT certificate course from NDTA USA. He has done certified training in basic and advance research methodology, basic and advance medical education teaching technology and 2D & 3D gait analysis. He is a member of Indian Association of Physiotherapy and Maharashtra State Occupational and Physiotherapy Council, India.

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