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HIGHLIGHTS

- Hip joint centre mislocation in gait analysis of children with cerebral palsy is investigated.
- Hip joint centre mislocation affects hip and knee kinematics in a direct kinematics framework.
- Hip joint centre mislocation affects all joints' kinematics in an inverse kinematics framework.
- Paediatric models are more sensitive than adult models to hip joint centre mislocation.
- Hip joint centre errors in anterior-posterior and medio-lateral direction should be minimized.