Revisited pathophysiology of equinus gait in children with cerebral palsy
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Introduction.– Children with cerebral palsy (CP) usually land their foot on the ground, flat or by forefoot, in equinus when walking. The associated early braking of ankle dorsiflexion might be an adaptive function instead of being imposed by triceps surae dysfunction. Thus, wearing negative heel shoes (NHS), allowing in dorsiflexion flat landing and braking, would induce quick adaptation decreasing equinus at initial contact.

Methods.– Eleven children with CP (8.5 ± 2.5 years of age, 5 diplegics and 3 hemiplegics) with spastic triceps that were not or a bit contracted and walking without aids underwent tridimensional gait analysis when walking barefoot, with standard shoes and with NHS of 10°.

Results.– Within 2 to 5 gait cycles, the NHS touched the ground roughly as the barefoot did (flat or by the forefoot) but in dorsiflexion (7° ± 6°) and not in plantar flexion (–6° ± 6°), without alteration of knee flexion and walking speed and with maintained elevated early braking of dorsiflexion.

Discussion.– The early deceleration of dorsiflexion might play a functional role such as contributing to dynamic balance during gait. Thus it might be a primary regulated biomechanical variable explaining the quick adaptation of foot kinematics according to the shoe design.

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Sagittal radiological analysis of spine in walking children with cerebral palsy
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Introduction.– We have performed a radiological evaluation of static data of spine-pelvis-femur complex in walking children with cerebral palsy (CP). The data are discussed about GMFCS and after about radiological data in asymptomatic subjects.

Material and method.– The CP population is comprised of 119 children and the asymptomatic population of 652 children.

Results.– There is no significant difference concerning the form parameter (pelvic incidence = PI), on the other hand there is a significant difference on position parameters (pelvic tilt = PT and sacral slope = SS). There is a correlation between GMFCS and PI (P = 0.013) and between GMFCS and PT (P = 0.021).

Discussion.– The PC population is not structurally different than the asymptomatic population. It will be the growth, in pathologic context, which disturbs parameters. A lumbar lordosis which is not correlated with PI has to be considered like a result of the disease (postural troubles, neuro-motor disorders related with growth...) and requires a specific and early evaluation and treatment.

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Is gait kinematics in children with cerebral palsy correlated with their lower limbs’ bone deformities?
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