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## **The Pelvis as Functional Link between Spine and Lower Limbs. Comparison between Adult and Neonatal Pelves**

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We have shown that a sagittal pelvic parameter, the “angle of incidence”, is mainly responsible for individual variations in sagittal spine curves. Its extreme values correspond to pathological situations. The three-dimensional orientation of the acetabula determines the axes of the lower limbs. In a sample of 50 adult and 20 neonatal pelves, we collected data for 47 homologous landmarks using the “Polhemus” system. J. Hecquet developed a software package, “DE-VISU”, which reconstructs the articular parameters controlling pelvic function. Each coxo-femoral joint is represented by a portion of sphere, whose center, radius, covering arc and directional axis are calculated.

The angle of incidence is far lower in newborns than in adults. The mean angle of acetabular inclination is close in adults and newborns. The mean angles of acetabular anteversion and coverage are far lower in newborns. We show how the relationships between acetabular anteversion and femoral neck anteversion are very probably antagonist during gait acquisition. The neonatal pelves present a greater functional variability than the adult ones. During postnatal growth, variability of functional features seems to decrease with learning to walk, while variability of sexual dimorphism seems to increase.

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