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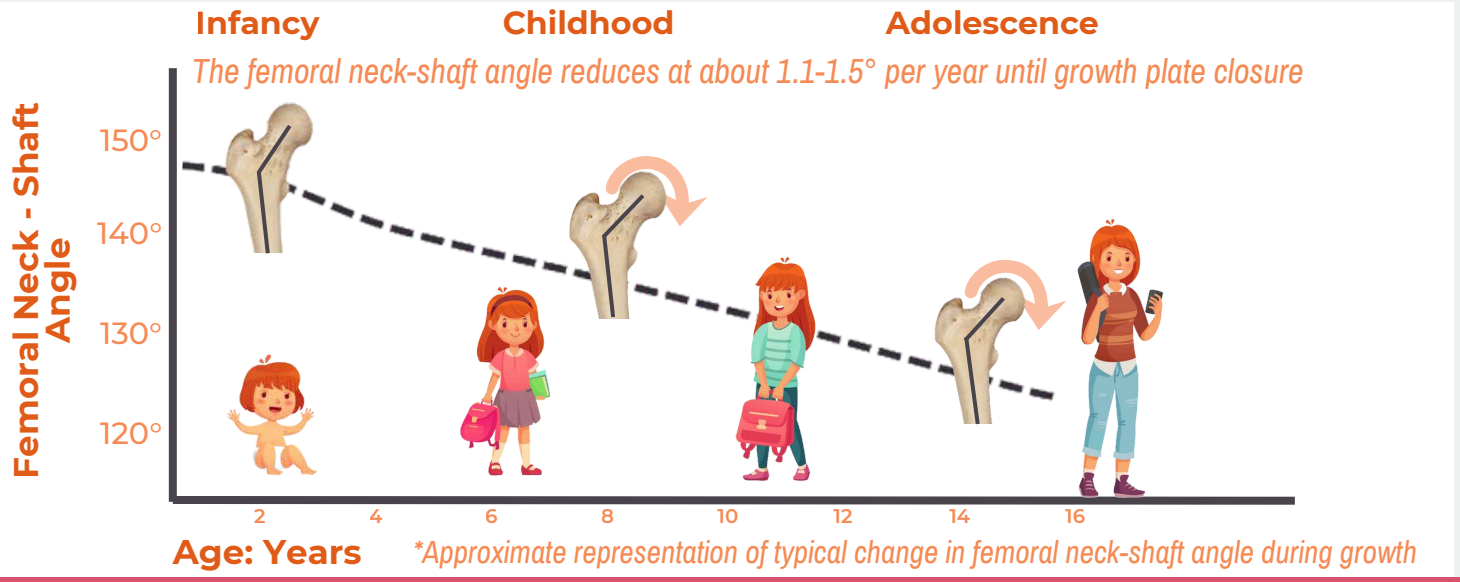
HIP FACTS FROM THE LITERATURE #84

FEMORAL NECK-SHAFT ANGLE IS GREATEST AT BIRTH, THEN GRADUALLY REDUCES DURING GROWTH



FEMORAL NECK-SHAFT ANGLE INFLUENCES HIP JOINT STABILITY, CONTACT FORCES AND MUSCLE FUNCTION. IT'S USEFUL TO UNDERSTAND TYPICAL MORPHOLOGY.

Femoral neck-shaft angle is greatest at birth, then gradually reduces during growth. At birth, the femoral neck-shaft angle is very high - between 140 and 150° - this would be referred to as 'coxa valga' in an adult (>140°).

As children start to walk and participate in all types of weightbearing activity, the angle of the femoral neck gradually reduces to a mean of around 128° in adults. The stimulus of weightbearing activity is just SO IMPORTANT for the normal development of hip morphology. We really need to encourage physical activity in our less active youth!

Van Geel P, Cools W, Laumen A. Evolution of head-shaft angle and neck-shaft angle in childhood. Acta Orthop Belg. 2021 Sep;87(3):435-441. PMID: 34808716. & other sources

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What's the relevance?

A high femoral neck-shaft angle in adults influences hip joint stability, contact forces and muscle function. Coxa valga reduces joint stability and increases vertically oriented joint forces.

It also reduces the ischiofemoral interval (the space between the ischium and the femur) and therefore increases the risk of ischiofemoral impingement (presenting as retro-trochanteric pain).

In those with coxa valga, the gluteus medius and minimus also have a mechanical disadvantage, meaning that they need to have better health and strength in the hip abductors to achieve optimal function.

Perhaps femoral neck-shaft angle is more important than you thought?

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