FDO TO ADDRESS INTOEING IN CHILDREN WITH CEREBRAL PALSY

1. DEFINITIONS
   A. Femoral Anteversion
      • The relationship, or angle, between the femoral neck and the plane of the posterior femoral condyles.
   B. Hip Rotation
      • The relationship between the femur, defined by the plane of the posterior femoral condyles, and the pelvis.
   C. Pelvic Rotation
      • The relationship between the pelvis and the environment, or lab space.
   D. Foot Progression Angle
      • The relationship between the Line of progression of a single segment foot to the environment, or lab space.

2. THE PROBLEM WITH INTOEING IN CP
   A. Natural History
      • Primary problems such as loss of selective motor control, abnormal tone and loss of normal balance control mechanisms ultimately lead to secondary problems such as muscle contracture and bony deformity.
      • These secondary problems cause lever arm dysfunction, (LAD) manifesting as gait anomalies that can be severe.
   B. Abnormal Femoral Anteversion
• Also referred to as
  o Persistent fetal alignment
  o Medial thigh rotation
• A significant contributor to LAD
• Can lead to
  o Intoeing
  o Hip abductor weakness
  o Patellofemoral malalignment
  o Anterior pelvic tilt

C. Several Contributors to Intoeing are Interrelated

• Compensation for excessive femoral anteversion
• Tibial torsion
• Pelvic Rotation

D. Surgical Correction

• Femoral derotation (and varus) osteotomy
  o Can be performed proximally – intertrochanteric
  o Or distally
    ▪ May be combined with varus or valgus knee correction
    ▪ May be combined with DFE0/PTA

E. Surgical Indications = Some Combination of

• Excessive Femoral Anteversion
  o With or without coxa valga
• Internal hip rotation
• Internal foot progression angle (Intoeing)