Early Physical Therapy Intervention for Children with Arthrogryposis Multiplex Congenita

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PICO Question
- Will children diagnosed with Arthrogryposis Multiplex Congenita benefit from early intervention physical therapy to help improve gross motor function in comparison to waiting until missed motor milestones?

Physical Therapy Treatment
- 94% of children diagnosed with AMC receive physical therapy throughout their lifetime²

Common Physical Therapy Interventions
- Increase mobility in joints
  - Massage and stretching of joints within muscle attachments³
  - Splinting, orthotics, and casting¹
- Development stimulation
  - Stimulation of sensory systems (proprioception, reflexes, etc.).³
  - Functional positioning³
- Strengthening
  - Muscles involved to attain key functional motor skills
  - Postural muscles for head and trunk control²
- Family Education
  - Individualized motor stimulation²
  - Handling and functional positioning²

Drawbacks of Physical Therapy Alone
- For best outcomes, a multidisciplinary approach needs to be used for patients diagnosed with AMC
- Orthopedic surgery may be required for optimal function

Importance of Early Intervention
- Overall improvement of gross motor function to maximize age appropriate activities¹
- Improve motor development and postural control²
- Decrease risk of severe contractures with early mobility²
- Help stimulate exploration and communication for social interaction between peers²
- Inclusion in school systems, recreational activities, and normal daily life

What is Arthrogryposis Multiplex Congenita (AMC)?
- Non-progressive congenital neuromuscular syndrome¹
- Joint contractures in two or more areas of the body¹
- Sensation intact, deep tendon reflexes often diminished or absent¹
- Multifactorial causes¹
  - Anterior horn cell dysfunction
  - Decreased fetal movement
- Equal sex distribution¹, 1 in every 3,000 newborns affected³

Fig. 1: Infant with arthrogryposis multiplex congenita at 1 month of age.¹

Fig. 2: International Classification of Functioning, Disability and Health (ICF) graphic depiction of clinical reasoning process adapted from Atkinson HL and Nixon-Kae K.31¹

Conclusions
- Patients diagnosed with AMC have improved results with physical therapy early interventions and the use of a multidisciplinary approach
- Although children diagnosed with AMC will be less physically active than peers initially, they will still be able to hit motor milestones efficiently later in life with continued therapy interventions

Future Research
- Future studies need to include specific interventions, suggested dosage, and preferred techniques for children diagnosed with AMC for optimal results.

References