How does the use of orthotics impact children who demonstrate idiopathic toe-walking?

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What is idiopathic toe-walking? (ITW)
- Defined as an abnormal gait pattern with no known cause involving:
  - Lack of heel strike at the onset of stance in gait
  - Persistent ankle plantar flexion
- ITW prevalent in 4.9-12% of the general pediatric population
- Toe-walking pattern eventually resolves spontaneously in the majority of children

Treatment
- Physical Therapy
  - Taping
  - Manual Therapy
  - Therapeutic Exercise/Activities
  - Orthotic Training
- Observation
- Surgery
- Orthotics
  - Rigid Footplate
  - AFO
  - SMO
  - Casting

Drawbacks of Treatment
- Lack of research
- Generalizability of results are weak due to idiopathic nature
- Non-surgical and surgical treatment of ITW does not have a lasting effect
- Presents across a wide range of ages

Literature Review
- Early identification and intervention for this diagnosis may eliminate the need for invasive surgeries and associated risks in this population
- Surgical treatment of ITW should be reserved for the few cases with a fixed ankle-joint contracture
- 52.1% of children treated by casting were described with persistent toe walking. 43.6% of surgically treated children were described with persistent toe walking (p = 0.27).
- Non-surgical treatment of ITW does not have a lasting effect
- Casting indicated to increase ankle dorsiflexion and decrease persistence of ITW
- Non-invasive procedures, such as serial casting, can be successful in very young children diagnosed as idiopathic toe walkers
- Further research is needed

Resources

http://cascadedafo.com/products/jumpstart-bunny