Orthotic and Physical Therapy Treatment in Children with Spina-Bifida

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Orthotic Treatment:
- AFO’s have been shown to improve gait patterns and reduce energy expenditure in children with spina bifida.
- Increases walking speed, decreases duration in double stance, and increase stride length.
- Improve stability, compensate for muscle weakness, and control deformities at the ankle.

Areas for Further Research:
- One area for further research that must be addressed is the effect lower limb orthoses can have on children with high-level spina bifida because most of the research is related to lumbo-sacral myelomeningocele.
- The degree of rigidity of orthoses and its effect on optimal gait patterns.
- The effect of traditional physical therapy alone on children with spina bifida.
- More research needs to be done on specific orthoses because AFO’s are predominately used.

References:

Conclusion:
- Children with Spina Bifida are at a higher risk of developing secondary impairments because of a sedentary lifestyle from being restricted by their disabilities.
- This negative spiral can have severe effects on quality of life in these children.
- Orthoses have been shown to improve the ease of performing activities of daily living related to mobility.
- Orthotic treatment has been shown to be effective in treatment for Spina-Bifida and should be considered as a viable option in addition to physical therapy alone.

PICO Question:
- In children with Spina-Bifida is orthotic treatment in addition to traditional therapy compared to traditional therapy alone more effective for contractures?

What is Spina Bifida?
- A congenital defect in which the spinal column does not close completely.
- Three Types:
  - Spina Bifida Occulta: Gap in the vertebrae, but the spinal nerves are usually not involved and therefore, children do not present with signs or symptoms.
  - Spina Bifida Meningocele: The meninges push out through the opening in the vertebrae and therefore, children present with minor disabilities.
  - Spina Bifida Myelomeningocele: The meninges and spinal cord push out through the opening in the vertebrae and therefore, children present with neurological impairments.

Physical Therapy Treatment:
- Addresses muscle weakness, musculoskeletal deformities, muscle tone impairments, gait defects.
- PT can prevent secondary impairments that are brought on by a sedentary lifestyle due to restricted mobility.

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- Orthotic treatment has been shown to be effective in treatment for Spina-Bifida and should be considered as a viable option in addition to physical therapy alone.