Cinderella’s Glass Slipper...and other times proper fit is important for kids who use wheelchairs.
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Presenters

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Overview

• Growth patterns
• Common trends
• Why size matters
• Chair prescription and growth
• After delivery
Growth Patterns

- Most reference data on children's growth is based on general pediatric population
- Children with Cerebral Palsy (CP) are shorter/lighter than general population

Growth Patterns

- As the CP children age:
  - Overall rate of growth slower
  - Growth rate is not stable
  - 5% shorter at age 2
  - 10% shorter at age 8

Krick et al, 1996

Growth Patterns

- “Significant asymmetry of growth in children with hemiplegia, the involved side being smaller and shorter in measures of breadth, circumference, and length.”

Stevenson, et al., 1995
Common Trends

- Strapping the symptoms
- Overestimating growth potential
- Parents over kids
- Staying pediatric too long

Strapping the Symptoms

- Unnecessary positioning equipment
- Back height
- School bus

Overestimating Growth Potential

- Too wide
- Too deep
- Weight
Parents over Kids

- Ease of transport vs ease of propulsion
- Stroller vs wheelchair

Staying Pediatric Too Long

- Age when growth slows/stop
- Weight

Why Size Matters....

- Common injuries and over use in w/c users
- Play/Function
- Cosmetics
Common Injuries

- Increased rate of rise of the total force during propulsion: median nerve damage
- Increased forces: injuries and/or pain in wrist
- Rate of carpal tunnel syndrome, shoulder, elbow, and neck pain increase the longer an individual uses a manual wheelchair
- Higher peak forces lead to injury

Common Injuries

- Repetitive stress injuries:
  - Chronic upper extremity pain
  - Lower quality of life
  - Increased dependence on others

Play

- Play is identity forming
- Children with disabilities
  - Solitary play
  - Adult play
  - Lower status roles
  - Isolation and decreased self worth

Tamm & Skar, 2000
Cosmetics

• Self image
• Wheelchairs
  • Highest function
  • Ease of use
  • Peer interaction
  • Isolation and decreased self worth

Chair Prescription and Growth

• Adults propel with faster velocity
• Propulsion cycle is equal
• Angular change over time is equal

*Published data from adults can be applied to children

Chair Prescription and Growth

• Lightweight wheelchairs
• Adjustable axles
• Narrow as possible
• Appropriate seat slope
Chair Prescription and Growth

- Growth Programs
- Depth Adjustable Backs
- Less is more
- Weight of seating
- More maneuverable = more active

After Delivery

- Propulsion training
- Advanced skills

Questions and Discussion
References


• Doubt, L., McColl, M., & Willms, P. (2003). The growth pattern of physically disabled teenagers in secondar...