

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

RESNA Annual Conference
June 2010

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/stops
- 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

Tanen & Sloci, 2000

Cosmetics

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

Doubt & McCall, 2000

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

Bednarczyk & Sanderson, 1994 & 1995

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

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