Interventions for Children With Developmental and Movement Challenges, Part II

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Course Description

• PTs and PTAs working in pediatrics must meet the developmental, postural, and movement needs of young children with a wide variety of diagnoses.
• Part two of this course continues the concept of using evidence-based interventions to meet the developmental, postural, and movement needs of young children with a wide variety of diagnoses.
• This session continues with interventions to foster head, trunk and extremity control, transitional movements, gait and participation activities for toddlers and older children, with an emphasis on hippotherapy, powered mobility, and participation activities.
• All interventions utilize concepts of child motivation and interaction within the environment for cognitive growth and communication/participation with family members and peers.
• Course participants will utilize patient cases and the best, current guidelines to determine intervention plans and support families.

Session Learning Objectives

After completing this session, you will be able to:
1. Practice and demonstrate interventions to promote movement control and strengthening in the toddler and older child.
2. Identify the best treatment options for toddlers and older children with an emphasis on hippotherapy, upright mobility, and powered mobility.
3. Utilize recent articles and best practice guidelines to inform pediatric practice, including concepts of child motivation.
4. Plan intervention programs to meet developmental challenges, to foster cognitive and communication growth and participation, and to support families.
5. Develop a practical plan to maintain currency in intervention skills.

Real Objectives

• To inspire people to think and/or act differently.

• To engage in on-going evidence-based practice

Course Outline

10:00 Brief review of Part I
10:10 Discuss and demonstrate interventions for older children with emphasis on hippotherapy, powered mobility and participation based on current literature and practice guidelines.
11:00 Gain consensus on the best practices to support families and foster participation by toddlers and older children.
11:20 Questions and Answers
11:30 Close session

Disclosure

• Margaret McGee, PT, PhD, BSN, PCS has no relevant financial relationship to disclose.
• Venita Lovelace-Chandler, PT, PhD, PCS has no relevant financial relationship to disclose.
Overview of Content Areas Covered in Part I

- Effectiveness of Early Intervention
- Pain
- Strengthening and Movement
- Family Centered Care
- ICF
- Dosing
- Participation

Difference Between Hippotherapy and Therapeutic Riding

**Hippotherapy**

- A physical, occupational, or speech and language therapy treatment strategy that utilizes equine movement.
- Hippotherapy literally means “treatment with the help of the horse” from the Greek word, “hippos” meaning horse.
- The therapist directs the movement of the horse; analyzes the client’s responses; and adjusts the treatment accordingly.

**Therapeutic Riding**

- A term that has been used for many years to encompass the variety of equine activities in which people with disabilities participate.
- Though still commonly used, this “umbrella” term has caused confusion among the medical community.

Benefits of Hippotherapy: Theoretical Rationale

- 3-Dimensional movement of the horse’s center of gravity during gait
- Movement of the horse similar to the human pelvis during gait
- Continuous vestibular input provided by horse
- Rider must adjust to the movements of the horse

Hippotherapy: Variety and Complexity of Common Pediatric Diagnoses

- Cerebral Palsy – incidence and types
- Down Syndrome – incidence
- Autism Spectrum Disorder – incidence
- Spina Bifida
- Genetic Syndromes
- Scoliosis

Improvements Noted Following Hippotherapy Intervention: The Evidence

- Improvements noted in the following areas for children with Cerebral Palsy:
  - Gross Motor Function
  - Gait
  - Postural Control
  - Coordination
  - Balance

Improvements Noted Following Hippotherapy Intervention: The Evidence

- Improvements noted in the following areas for children with Down Syndrome:
  - Gross Motor Function
  - Balance
  - Strength
  - Decreased Energy Expenditure with Walking
Improvements Noted Following Hippotherapy Intervention: The Evidence

- Improvements noted in the following areas for children with Autism:
  - Language
  - Joint Attention
  - Gross Motor Function

How are these benefits achieved with Hippotherapy Intervention?

- Tack
  - Surcingle and Pads
    - Types of surcingles and pads
  - Saddle
    - Types of saddles
  - Halter leading vs. Long-lining

How are these benefits achieved with Hippotherapy Intervention?

- Positioning
  - Forward facing
  - Rear facing
  - Supine
  - Prone over the barrel
  - Half-hitch

How are these benefits achieved with Hippotherapy Intervention?

- Patterns
  - Circles
  - Figure 8s
  - Other Schooling Patterns

How are these benefits achieved with Hippotherapy Intervention?

- Various Activities While on the Horse
  - Hand-eye coordination activities
  - Balance activities
  - Strengthening activities

- Warmth of the Horse
- Movement Provided by the Horse
Powered Mobility

• Exploration and interaction with the environment is crucial for child development and powered mobility can provide children with physical disabilities these opportunities.

Benefits of Early Provision of Powered Mobility

1. Improvements in psychosocial and cognitive developmental skills
2. Increases in curiosity and outgoing social interaction
3. Improvements in level of independence
4. Improvements in communication
5. Sudden interest in other forms of movement
6. Improvements in perceptual awareness
7. Improvements in energy expenditure
8. Participation in age-appropriate activities

Parent Reported Improvements with Early Provision of Powered Mobility

1. Social and Play Skills
2. Ability to move independently
3. Sleeping patterns
4. Public perception of their children
5. Positive impact on child and family quality of life

GoBabyGo

• GoBabyGo project launched in 2006 with Sunil Agrawal.

• Since then, Cole Galloway has collaborated with engineers and fashion designers, with parents and grandparents, to provide mobility to kids who have trouble moving on their own.
GoBabyGo

• Galloway started with custom robot-driven devices and later began modifying off-the-shelf toy racecars to provide mobility to children with crawling and walking problems, empowering them to be part of the action at home, in the daycare center, and on the playground.

“Fun is key here—it unlocks brain development and exploratory drive for the child, and ignites active, engaged play from adults and peers,” Galloway says.

How Do Children with Disabilities Learn to Use Power Mobility?

• Continuum of learning
• Length and duration of practice
• Encourage exploration and independent learning
• Training in more than one environment

How Do Children with Disabilities Learn to Use Power Mobility?

• Younger children may benefit more from blocked practice
• Older children may benefit more from random practice

International Classification of Functioning, Disability and Health

• Interactive, complex interactions between individual and the environment
  1. Functional and structural integrity of body parts/systems
  2. Promotion of age appropriate postural and movement activities
  3. Appropriate interaction among the neonate, family and professionals
• Allows for consideration of impairments, activity limitations and participation restrictions.

Participation (ICF-CY)

• Defines participation as “involvement in a life situation”
• New tests and measures being developed to measure just participation
• “Participation is the context in which children develop skills”
• Successful participation is critical in achievement of successful outcomes
Participation

• Positive relationship between overall functional level and participation

• Important because low participation in physical activities has impact on health and overall fitness level

Participation

• For children with disabilities, participation in activities at home, school and community is crucial for their overall development.

• For school-aged children, peer support and friendship groups may further support participation, especially in physical activities.

Factors Which May Impact Participation

• Level of physical involvement

• Socioeconomic status of the family

• Community resources

Conceptual Model of Optimal Participation
For Children with Disabilities

• Model developed for optimal participation in recreational and leisure activities

• Model developed on review of contemporary theories and frameworks, empirical research and the authors’ practice knowledge.


Conceptual Model of Optimal Participation
For Children with Disabilities

• Implications for Rehabilitation:
  – Optimal participation is proposed to involve the dynamic interaction of multiple systems and attributes of the child, family and environment.
  – The model emphasizes self-perceptions and experiences of children with physical disabilities


• Implications for Rehabilitation:
  – Optimal participation may positively influence quality of life, health and emotional and psychosocial well-being.

Conceptual Model of Optimal Participation For Children with Disabilities

• Implications for Rehabilitation:
  – Knowledge of child, family and environmental determinants of physical, social and self-engagement will be important in establishing meaningful goals and determining therapy approaches.


Participation Measures for School-Aged Children

• Children’s Assessment of Participation and Enjoyment (CAPE)
• Preferences for Activities for Children (PAC)
• Child and Adolescent Scale of Participation (CASP)
• Participation and Environment Measure for Children and Youth (PEM-CY)

Questions???

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Thank You!!!!

Hippotherapy References


Powered Mobility References


Participation References


