

APTA, Academy of Pediatric Physical Therapy (APPT) Research Agenda
2017-2020

Goal of the Research Agenda:

To promote research in pediatric physical therapy that advances and enhances health or movement abilities for all individuals during infancy and childhood, and for families and individuals with chronic childhood conditions throughout the lifespan.

Objectives:

1. To identify key research priorities for the practice of pediatric physical therapy and share these priorities with key research partners and funding agencies.
2. To support the continuing development of a research infrastructure within the Academy that is responsive to the needs of its membership.
3. To enhance knowledge translation and dissemination of research into clinical practice.

Resources used to develop the research agenda:

Section on Pediatrics member resources

SOP Research 2013

CSM abstract submissions

Pediatric grant proposals submissions

SOP Strategic plan 2013-2016

Pediatric Research Summit I-IV Dissemination

IV Step Conference Proceedings and Participation

General research resources:

APTA Revised Research Agenda for Physical Therapy, 2011

PCORI National Priorities for Research and Research Agenda, 2012

NCMRR Research Initiatives and Opportunities for Medical Rehabilitation Research, 1993

NICHD Scientific Vision: The Next Decade, 2012

NIH Workshop on the State-of-Science and Treatment in Cerebral Palsy in November 2014

(http://www.ninds.nih.gov/news_and_events/proceedings/Cerebral-Palsy-Workshop-2014.htm)

Report on Workshop on Basic and Translational Research in Cerebral Palsy

(http://www.ninds.nih.gov/news_and_events/proceedings/cerebral_palsy_workshop_032016.htm

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Organizing Framework

The following resources were used to identify and design the organizing framework to address the research priorities.

- A. The International Classification of Function, Disability and Health Model (WHO, 2001)
- B. The Guide to Physical Therapist Practice, patient management model

APPT Research Agenda Objective 1. To identify key research priorities for the practice of pediatric physical therapy and share these priorities with key research partners and funding agencies

Research Priorities (See Table below for examples in each priority)

- A. Basic Science Research
- B. Clinical Research
- C. Epidemiology & Health Services Research
- D. Measurement Development and Validation
- E. Knowledge Translation

This table includes examples in each priority area, and is not an all-inclusive list.	
<p>A. Basic Science Research (fundamental theoretical or experimental investigative research to advance knowledge in areas related to pediatric physical therapy; may be human subjects research or cellular or animal models)</p> <p>Body Structure & Function</p> <ul style="list-style-type: none"> - Explore factors that affect growth and development of muscles, bones, neural networks, and other tissues and systems that contribute to movement - Explore the mechanisms of tissue damage and repair in the musculoskeletal, neuromuscular and cardiorespiratory systems <p>Activity</p> <ul style="list-style-type: none"> - Describe development in infants and children that are typically developing, at risk for movement disorders, or are diagnosed with movement disorders - Investigate critical/sensitive periods for neuroplasticity and motor development (e.g. in infancy or after neural injury) - Examine relationships between motor development and other domains of child development (e.g. cognitive, social, emotional, and language) <p>Participation</p> <ul style="list-style-type: none"> - Explore physical activity levels in children with or without movement disorders 	
<p>B. Clinical Research (investigation of etiology, prevention, diagnosis or treatment of movement-related health conditions in children, or in adults with developmental disabilities)</p> <p>Body Structure & Function</p> <ul style="list-style-type: none"> - Identify impairments in children with or at risk for movement disorders - Explore factors associated with movement-related impairments - Determine the effects of PT interventions* on: <ul style="list-style-type: none"> - skeletal muscle and tendon (e.g. development and modification of muscle architecture, strength, power, muscle and tendon length, activation patterns, and recovery from injury or surgery) - bones and joints (e.g. development and modification of bone density and architecture, infant head shape, alignment of joints, and recovery from injury or surgery) 	

- central and peripheral nervous system (e.g. development and modification of neural pathways and networks, activity-dependent neural adaptation, regeneration, restoration and compensatory changes after nervous system damage)
- the cardiorespiratory system, metabolism and caloric balance (e.g. energy expenditure, aerobic capacity, blood glucose regulation, exercise tolerance, body weight and composition)
- pain
- Improve effects of PT interventions on body structures and functions, by incorporating new scientific discoveries into current interventions, developing new interventions, and/or combining PT interventions with complementary treatments (e.g. medications, regenerative and cellular therapies, brain stimulation)

Activity

- Identify activity limitations in children with or at risk for movement disorders
- Determine the effects of PT interventions on motor development, motor control and motor learning for postural control, locomotion, upper limb movement, and other motor skills, in children with or at risk for movement disorders
- Examine relationships between impairments and activity limitations

Participation

- Identify participation restrictions in children with or at risk for movement disorders
- Determine the effects of PT interventions on participation in life situations and on quality of life (e.g. school, recreation, domestic life, interpersonal interactions, family relationships, employment)
- Examine the impact of PT interventions, including health promotion, on physical activity in children who are inactive, overweight or obese.
- Examine relationships between impairments, activity limitations, participation, and quality of life.

Environmental Factors

- Investigate the effects of technological advances and equipment on the effectiveness of PT interventions, participation, and quality of life (e.g. robotic devices, interactive gaming systems, virtual reality systems, adaptive exercise equipment)
- Investigate the effects of assistive mobility devices, orthotics and prosthetics on gait and other forms of locomotion or developmental skills in children and adults with developmental movement disorders
- Identify parent, family, home and school characteristics that influence motor development/skill acquisition and responsiveness to PT interventions

Personal Factors

- Identify personal characteristics that influence child development/skill acquisition and responsiveness to PT interventions (e.g. motivation, attention, experience, behavior patterns)

C. Epidemiology & Health Services Research

- Investigate factors that influence health policy and health services for children with movement disorders
- Improve the profession's capacity to conduct child-centered outcomes research by building data infrastructure and by connecting researchers with potential collaborators, mentors, funding agencies, clinicians and consumers.
- Identify doses of PT interventions that achieve optimal responses (e.g. timing episodes of care, session frequency, duration, intensity, and content, and recommendations for follow through)
- Evaluate service delivery models for pediatric PT, including early intervention, and their effects on child-centered outcomes, family-centered outcomes and cost-effectiveness (e.g. integrative and consultative services, primary-provider model, care coordination, natural environments)
- Examine differential outcomes as a function of health disparities (across diagnoses, ages, and transitions)
- Examine the incidence, prevalence and natural course of movement-related health conditions commonly managed by pediatric physical therapists.
- Evaluate the extent to which pediatric physical therapist decision making is based on available evidence and/or recommended practice guidelines.
- Evaluate the effects of health promotion efforts by pediatric physical therapists on longitudinal trends in child health and development.
- Identify factors that contribute to utilization and consumer choice in the selection of pediatric physical therapy services.

D. Measurement Development & Validation

Body Structure & Function

- Develop and refine measurement tools to identify impairments and monitor changes in the musculoskeletal, neuromuscular and cardiorespiratory systems. (e.g. cardiorespiratory fitness measures for children, muscle imaging, brain imaging, brain mapping)
- Develop and refine pain assessment tools for children

Activity

- Develop and refine measurement tools for prediction of developmental outcomes and responsiveness to intervention based on infant motor behavior
- Develop and refine measurement tools to identify activity limitations and monitor changes in postural control, locomotion, upper limb movement and other motor skills in children
- Examine the value of motion analysis for treatment planning, including selection of PT interventions, orthotics, and surgical procedures, and effects on child-centered outcomes.

Participation

- Develop and refine measures of participation in life situations for children and for adults with developmental disabilities (e.g. fulfillment of life roles in the home, school, community, workplace)
- Develop and refine measures of quality of life in children

<p>Other</p> <ul style="list-style-type: none"> - Determine minimal detectable changes and minimal clinically important differences for measures used in pediatric physical therapy practice and research - Develop a minimum set of measures to evaluate and monitor changes in children from birth to 3 years of age. - Develop and refine systems for classifying children with movement disorders and determining PT diagnoses
<p>E. Knowledge Translation</p> <ul style="list-style-type: none"> - Evaluate the feasibility of a knowledge translation program. - Develop a national system for web based knowledge translation. - Examine the efficacy of a mentoring program to improve knowledge translation. - Examine the efficacy of knowledge-broker programs to promote knowledge translation in practice.

APPT Research Agenda Objective #2. “To support the continuing development of a research infrastructure within the Section that is responsive to the needs of its membership.

The SOP Research Committee supports the APPT Strategic Plan. Specific goals and strategies from the 2016 Strategic Plan that are closely aligned with the Research Committee and the Research Agenda are listed below.

APPT Strategic Plan 2016 Goal 1: Promote the highest standards of practice in pediatric physical therapy.

I A - Explore the role and scope of pediatric physical therapy, and disseminate information.

Strategy # IA2: Create clinical practice guidelines/core data elements (complete DCD guideline, do call for additional topics – “5 CPGs in 5 years”) for publication in PPT and posting through Guidelines.gov. (2016-19)

APPT Research Agenda Objective 3. “To enhance knowledge translation and dissemination of research into clinical practice”

APPT Strategic Plan 2016 Goal 3: Advance research and the translation of evidence into pediatric physical therapy practice.

III A. Advance pediatric physical therapy research.

Strategy #A1: Explore venues for dissemination of Research Summit topics (for RSIII: Learning Center course on dosing, case report on PTNow, etc; for RSIV: CSM session, etc).

Submit grant and/or research summit products to Pediatric Physical Therapy, so the information is shared with Section membership.

Strategy #A2: Build and track pediatric physical therapy research capacity; increase the number of pediatric researchers by providing grant funding to emerging researchers and promoting collaboration between senior researchers and aspiring junior or clinical researchers.

Strategy #A3: Continue to develop core/common data elements (outcomes) for CP.

III B. Improve translation of research to practice.

Strategy #1: Foster clinician/researcher connections (HUB/researcher, CSM Research Forum). (2016-19)

In addition to directly addressing the items listed in the APPT Strategic Plan the Research Committee:

- 1) Coordinates the calls for research proposals, reviews grant, and makes funding recommendations based on scientific quality and alignment with the research agenda
- 2) Reviews research abstracts for platform and poster presentations at CSM and the APPT Annual Conference
- 3) Hosts the Research Forum at CSM every other year
- 4) Participates in member surveys to identify prevalent topics of interest for Research Summits and Research Summit planning grants.
- 5) Supports section members' research development by SOP website information on Research Summit outcomes, grant funding and participants involved, supporting 2 cycles of mentored grant applications, and supporting initiatives to increase the number of pediatric physical therapy researchers
- 6) Participates in KT Workgroup activities
- 7) Survey's the Academy membership to determine the number of pediatric physical therapist who contribute to and lead research teams and works to support members in expanding capacity for doing meaningful research.

Recommendations from the Task Force:

1. Research proposals submitted to the Academy of Pediatric Physical Therapy Clinical Grants competition should focus on the Research Priorities identified in this agenda unless instructions in an RFP (request for proposal) or RFA (request for application) specifically state otherwise.
2. Best research designs are those that are best matched to the research question or specific aims and hypotheses, the granting agencies' defined mission and purpose, and available grant funds. The Task Force recommends that grant applicants propose the most appropriate research design to answer their research question or examine their specific aims.
3. The Research Agenda is a dynamic document and annual reviews and triannual updates are recommended to be sure priorities are current and to document progress in research activities. The annual reviews should also include review of funding agency priorities.

Task Force Members:

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Julia Looper, PT, PhD Grant Review Vice Chair, Research Committee

Stacey DeJong, PT, PhD, PCS, Programs and Awards Vice Chair, Research Committee

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