Pathways to Prevention: Can Physical Activity Improve the Health of Wheelchair Users?

Joe Bonner, Ph.D.
National Center for Medical Rehabilitation Research (NCMRR)
Pathways to Prevention (P2P): Can Physical Activity Improve the Health of Wheelchair Users?

**When:**
March 30-31, 2020

**Where:**
Natcher Conference Center  
NIH Main Campus, Bethesda, MD

**How to register:**
https://prevention.nih.gov/

**How to watch remotely:**
https://videocast.nih.gov/
Pathways to Prevention (P2P): Can Physical Activity Improve the Health of Wheelchair Users?

- Introduction to the P2P program
- Topic and Rationale
- Structure of the P2P program
- Partners
- Deliverables
ODP Pathways to Prevention (P2P) Program

“Pathways to Prevention (P2P) workshops identify research gaps in a selected scientific area, identify methodological and scientific weaknesses in that scientific area, suggest research needs, and move the field forward through an unbiased, evidence-based assessment of a complex public health issue”

“P2P workshops are designed for topics that have incomplete or underdeveloped research and that have a need for a synthesis and critical assessment of the published literature”

Pathways to Prevention (P2P): Can Physical Activity Improve the Health of Wheelchair Users?

2018 Physical Activity Guidelines

• Included some populations of wheelchair users

• Benefits of recommendations are largely unknown because the evidence base was not strong
## 2018 Physical Activity Guidelines

<table>
<thead>
<tr>
<th>Disease or Condition</th>
<th>Risk of Mortality</th>
<th>Quality of Life</th>
<th>Physical Function</th>
<th>Progression of Disease</th>
<th>Cognition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Osteoarthritis</td>
<td>IE</td>
<td>Less pain, improved quality of life, and improved physical function among people with hip or knee osteoarthritis</td>
<td>IE</td>
<td>No evidence of progression of osteoarthritis up to 10,000 steps per day</td>
<td>-</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Reduced cardiovascular mortality</td>
<td>IE</td>
<td>IE</td>
<td>Reduced progression of blood pressure</td>
<td>-</td>
</tr>
<tr>
<td>Type 2 diabetes</td>
<td>Reduced cardiovascular mortality</td>
<td>IE</td>
<td>IE</td>
<td>Improved HbA1c, BP, BMI, and lipids</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IE</td>
<td>IE</td>
<td>IE for neuropathy, nephropathy, retinopathy, foot ulcers</td>
<td>-</td>
</tr>
<tr>
<td>Multiple sclerosis</td>
<td>IE</td>
<td>IE</td>
<td>Improved walking, strength, fitness</td>
<td>IE</td>
<td>Improved cognition</td>
</tr>
<tr>
<td>Spinal cord injury</td>
<td>IE</td>
<td>IE</td>
<td>Improved walking, wheelchair skills</td>
<td>IE</td>
<td>-</td>
</tr>
</tbody>
</table>
National Academies Report

• Predicts quadrupling of WC users between 2005-2030
• The “right” wheelchair can improve workforce participation
• Highlights lack of data regarding wheelchair use
  • Not reported in literature, few available datasets
Pathways to Prevention (P2P): Can Physical Activity Improve the Health of Wheelchair Users?

• What are the benefits and harms of physical activity for individuals that use a wheelchair?

• Which factors of the activity drive benefits and harms?
  • Type of activity, amount, etc…

• Which human factors drive benefits and harms?
  • Cause of WC use, age, etc…

• What are the knowledge gaps and methodological weakness?
Goals of this Pathways to Prevention Initiative

1. Inform future Clinical Practice Guidelines specific to individuals who use a wheelchair

2. Identify research gaps

3. Inform future research

4. Create synergistic action plan with our Federal partners
ODP Pathways to Prevention (P2P) Program

PROPOSAL REVIEW AND APPROVAL

ODP Receives P2P Workshop Proposal

ODP Accepts P2P Workshop Proposal

*IC Leads
*ODP

PLANNING AND IMPLEMENTATION

Systematic Evidence Review

Organizational Meeting

Content-Area Experts Meeting

Pathways to Prevention Workshop

*AHRI EPC
*ODP & IC Leads
*ODP & IC Leads
*ODP & IC Leads

DISSEMINATION AND FOLLOW-UP

Post-Workshop Dissemination

Federal Partners Meeting

P2P Evaluation and Outcomes

*ODP & IC Leads
*ODP & IC Leads
*ODP

*Responsible Party: Agency for Healthcare Research and Quality (AHRQ), Evidence-based Practice Centers (EPC), Institutes and Centers (IC), Office of Disease Prevention (ODP)
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ODP Requests applications from at least 2 NIH ICs

National Center for Medical Rehabilitation Research

• Through basic, translational, and clinical research, NCMRR aims to foster development of scientific knowledge needed to enhance the health, productivity, independence, and quality of life of people with physical disabilities.

National Institute of Neurological Disorders and Stroke

• The mission of NINDS is to seek fundamental knowledge about the brain and nervous system and to use that knowledge to reduce the burden of neurological disease.
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**PLANNING AND IMPLEMENTATION**
- Systematic Evidence Review
- Organizational Meeting
- Content-Area Experts Meeting
- Pathways to Prevention Workshop

**DISSEMINATION AND FOLLOW-UP**
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*Responsible Party* [Agency for Healthcare Research and Quality (AHRQ), Evidence-based Practice Centers (EPC), Institutes and Centers (IC), Office of Disease Prevention (ODP)]
ODP Pathways to Prevention (P2P) Program

**Systematic Evidence Review (SER)**
- Conducted by one of AHRQ’s Evidence-Based Practice Centers
- Uses a PICOTS framework developed with ODP, NCMRR and NINDS
- EPC and SER are confidential until public comment period in early 2020
- Systematic Evidence Review is currently undergoing peer review
Systematic Evidence Review

• 4 Key Questions

• Limited to 3 conditions: Spinal Cord Injury, Multiple Sclerosis, Cerebral Palsy

• Physical Activity defined as any gross motor activity that increases energy expenditure (additional limiters include dose, frequency, etc.)
ODP Pathways to Prevention (P2P) Program

Pathways to Prevention Workshop

• Planning began with a meeting of Federal Government stakeholders from NIH, DoD, VA

• Non-federal content area experts nominated speakers and shaped the agenda

• Office of Disease Prevention nominated an unbiased panel to lead the workshop, and prepare a meeting report.
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Key Questions and Workshop Agenda
Pathways to Prevention (P2P): Can Physical Activity Improve the Health of Wheelchair Users?

Workshop Introductory Session

Opening Remarks:
Diana Bianchi, MD
Director, NICHD

Charge to the Panel:
David M. Murray, PhD
Associate Director for Prevention
Director, ODP

Overview of Workshop:
Alison Cernich, PhD
Deputy Director, NICHD

Overview of Panel Activities:
Thomas LaVeist, PhD
Workshop and Panel Chair
Dean and Professor, Weatherhead
Presidential Chair in Health Equity
Tulane University

Keynote Speaker:
Kerri Morgan, PhD, OTR/L, ATP
Washington University, St. Louis
Pathways to Prevention (P2P): Can Physical Activity Improve the Health of Wheelchair Users?

**Key Question 1:** What is the evidence base on physical activity interventions to prevent obesity, diabetes, and cardiovascular conditions, including evidence on harms of the interventions in people with MS, CP, or SCI who are at risk for or currently using a wheeled mobility device?

**Key Question/ Workshop Session 1 Agenda:**

Evidence Based Practice Center

James H. Rimmer, Ph.D.
University of Alabama, Birmingham

Deborah Backus, PT, Ph.D.
Sheppard Center

Robert Motl, Ph.D.
University of Alabama, Birmingham
Pathways to Prevention (P2P): Can Physical Activity Improve the Health of Wheelchair Users?

**Key Question 2:** What are the benefits and harms of physical activity interventions for people who are at risk for or currently using a wheeled mobility device?

**Key Question/ Workshop Session 2 Agenda:**

- **Evidence Based Practice Center**
  - Diane Damiano, PT, Ph.D.
    - NIH Clinical Center
  - Cheri A. Blauwet, M.D.
    - Harvard Medical School

- **Charles Bombardier, Ph.D., M.S.**
  - University of Washington

- **Karin Korb, M.S., CCF**
  - Lakeshore Foundation
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**Key Question 3:** What are the patient factors that may affect the benefits and harms of physical activity in patients who are at risk for or currently using a wheeled mobility device?

**Key Question/ Workshop Session 3 Agenda:**

- **Evidence Based Practice Center**
  - **Ed Hurvitz, M.D.**
    - University of Michigan
  - **Marcia Finlayson, Ph.D., OT Reg(Ont), OTR**
    - Queen’s University

- **Brett Smith, Ph.D.**
  - Durham University

- **Angela White**
  - The Mighty Spirit
Pathways to Prevention (P2P): Can Physical Activity Improve the Health of Wheelchair Users?

**Key Question 4:** What are methodological weaknesses or gaps that exist in the evidence to determine benefits and harms of physical activity in patients who are at risk for or currently using a wheeled mobility device?

**Key Question/ Workshop Session 4 Agenda:**

- **Evidence Based Practice Center**
  - Audrey Hicks Ph.D.
    McMaster University
  - Katherine Froelich-Grobe Ph.D.
    Baylor Scott and White Institute for Rehabilitation

- **Dan Ding Ph.D.**
  University of Pittsburgh

- **Marcas Bamman, Ph.D.**
  University of Alabama, Birmingham
  Topic: Trial Design
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Workshop Session 5: Closing Panel and Future Directions

Stephen Wampler
Steven J Wampler Foundation
Camp Wamp

Michele Shusterman
CP NOW

Rachel E. Cowan, Ph.D.
University of Alabama, Birmingham

Discussion moderated by:
Kathleen Zackowski, Ph.D., OTR
National MS Society

Closing Remarks

Lyn Jakeman, PhD
Director, Division of Neuroscience
NINDS
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ODP Pathways to Prevention (P2P) Program

**Deliverables:**
- Systematic Evidence Review: Posted for public comment early 2020
- Workshop: March 30-31, 2020
- Panel Report: Spring 2020
- Federal Partners Meeting: Summer/Fall 2020
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