

# Objective Measurement of Physical Activity: Best Practices & Future Directions

## Program

**Monday, July 20, 2009**

### **8:30-8:50 a.m. OPENING SESSION**

- 8:30-8:40 a.m. Welcome: Background and goals of the conference  
Patty Freedson, 2009 Conference Chair
- 8:40-8:50 a.m. Setting the stage  
Dianne Ward, 2004 Conference Chair  
"Objective Measurement of Physical Activity: Closing the Gaps in the Science of Accelerometry"

### **8:50-12:15 p.m. MODULE 1: Assessment of Physical Activity Using Wearable Monitors**

Moderator: John Reilly

#### **Part 1: Measures of Physical Activity**

##### Objectives

1. Describe the components of physical activity we are currently able to measure with monitors
2. Identify components of physical activity we would like to measure with monitors, but require more development of sensors and/or analytic techniques
3. Discuss strengths and weaknesses of 1 and 2
4. Identify gaps in knowledge and how to address these gaps
5. Provide best practices for 1 and 2

##### Presentations

- 8:50-9:05 a.m. Speaker: Nancy Butte
- 9:05-9:10 a.m. Responder 1: Klaus Westerterp
- 9:10-9:15 a.m. Responder 2: Ulf Ekelund
- 9:15-9:50 a.m. Module 1, Part 1 Discussion

#### **Part 2: Sensors and Properties of Sensors**

##### Objectives

1. Describe current state of the technology to assess physical activity with monitors
2. Identify specific sensors and sensor properties currently used in monitors
3. Identify additional sensors and sensor properties desirable for activity measurement
4. Discuss strengths and weaknesses of 1 and 2
5. Provide best practices for 1 and 2

##### Presentations

- 9:50-10:05 a.m. Speaker: Kong Chen
- 10:05-10:10 a.m. Responder 1: Kathleen Janz
- 10:10-10:15 a.m. Responder 2: Weimo Zhu
- 10:15-10:50 a.m. Module 1, Part 2 Discussion

10:50-11:05 a.m. **Break**

### **Part 3: New Horizons in Sensor Development**

#### Objectives

1. Describe innovations in sensor development
2. Discuss what these new devices bring to the field
3. Discuss how to manage issues related to data complexity
4. Discuss how to link new technology to the needs of the physical activity measurement community
5. Provide best practices for accomplishing 3 and 4

#### Presentations

11:05-11:20 a.m. Speaker : Stephen Intille  
11:20-11:25 a.m. Responder 1: James Sallis  
11:25-11:30 a.m. Responder 2: Jonathon Lester

11:30-12:05 p.m. Module 1, Part 3 Discussion

12:05-12:15 p.m. **Summary of Module 1**  
Rick Troiano

**12:15-1:30 p.m. LUNCH**

**1:30-4:55 p.m. MODULE 2: Monitor Calibration, Monitor Equivalency & Modeling Outcomes**

Moderator: Ann Swartz

### **Part 1: Validation and Calibration of Wearable Monitors**

#### Objectives

1. Describe how wearable monitors are validated
2. Describe how wearable monitors are calibrated
3. Identify strengths and weaknesses in calibration methods
4. Provide best practices for wearable monitor validation and calibration

#### Presentations

1:30-1:45 p.m. Speaker: David Bassett  
1:45-1:50 p.m. Responder 1: Ann Rowlands  
1:50-1:55 p.m. Responder 2: Glenn Gaesser

1:55-2:30 p.m. Module 2, Part 1 Discussion

### **Part 2: Protocols for Monitor Equivalency**

#### Objectives

1. Discuss protocols to compare different monitors
2. Describe protocols to evaluate inter-unit reliability
3. Identify strengths and weaknesses in 1 and 2
4. Provide best practices for monitor equivalency and inter-unit reliability evaluation

#### Presentations

2:30-2:45 p.m. Speaker: Greg Welk  
2:45-2:50 p.m. Responder 1: James McClain  
2:50-2:55 p.m. Responder 2: Barbara Ainsworth

2:55-3:30 p.m. Module 2, Part 2 Discussion

3:30-3:45 p.m. **Break**

### **Part 3: Modeling Physical Activity Outcomes from Wearable Monitors**

#### Objectives

1. Discuss methods used to obtain outcomes from wearable monitors
2. Discuss days of monitoring needed to represent usual physical activity
3. Discuss strengths and weaknesses of 1 and 2
4. Provide best practices for modeling outcomes and usual physical activity

#### Presentations

3:45-4:00 p.m. Speaker: Soren Brage  
4:00-4:05 p.m. Responder 1: Megan Rothney  
4:05-4:10 p.m. Responder 2: Dan Heil

4:10-4:45 p.m. Module 2, Part 3 Discussion

4:45-4:55 p.m. **Summary of Module 2**  
Bill Haskell

***Tuesday, July 21, 2009***

### **8:30-11:55 a.m. MODULE 3: Application of Objective Physical Activity Measurement in Health & Behavioral Research**

Moderator: Scott Crouter

#### **Part 1: Statistical Considerations**

##### Objectives

1. Describe methods to statistically analyze wearable monitor data
2. Discuss application of error modeling techniques in objective measurement
3. Discuss strengths and weaknesses of 1 and 2
4. Provide best practices for statistical analyses and error modeling

##### Presentations

8:30-8:45 a.m. Speaker: Dianne Catellier  
8:45-8:50 a.m. Responder 1: John Staudenmayer  
8:50-8:55 a.m. Responder 2: Weimo Zhu

8:55-9:30 a.m. Module 3, Part 1 Discussion

#### **Part 2: Considerations in Surveillance, Determinants, and Intervention Research**

##### Objectives

1. Discuss practical issues in surveillance, determinants, and intervention research
2. Identify outcome measures used
3. Discuss strengths and weaknesses of 1 and 2
4. Provide best practices for using objective measurement in surveillance, determinants, and intervention research

##### Presentations

9:30-9:45 a.m. Speaker: Chuck Matthews  
9:45-9:50 a.m. Responder 1: David Pober  
9:50-9:55 a.m. Responder 2: Heather Bowles

9:55-10:30 a.m. Module 3, Part 2 Discussion

10:30-10:45 a.m. **Break**

### **Part 3: Considerations for Special Populations**

#### Objectives

1. Describe how objective measurement has been used in special populations (children, elderly, disabled)
2. Discuss wearable monitor validation and calibration for special populations
3. Identify strengths and weaknesses in 1 and 2
4. Describe best practices for objective measurement in special populations

#### Presentations

10:45-11:00 a.m.

Speaker: Scott Strath

11:00-11:05 a.m.

Responder 1: Karin Pfeiffer

11:05-11:10 a.m.

Responder 2: Melicia Whitt-Glover

11:10-11:45 a.m.

Module 3, Part 3 Discussion

11:45-11:55 a.m.

#### **Summary of Module 3**

Patty Freedson

### **11:55-12:15 p.m. CLOSING SESSION**

Overall summary

Bill Haskell

### **12:15-1:30 p.m. WORKING LUNCH FOR SPEAKERS & RESPONDERS**

*Speakers and responders discuss plan for manuscript preparation.*

*Please arrange flight departure after 3:00 pm.*