Energy balance and obesity: Translating science to public health

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Outline

• My background
• My research
• Future directions
B.A. Health Promotion, University of Northern Iowa
M.S. Exercise & Sports Science, Iowa State University
Also spent some time in Columbia, MO & Kirksville, MO
Prevention Research Center-
Arnold School of Public Health

• USC PRC vision: ‘Physically Active People in Active Community Environments’
• Pre-doctoral fellow, with Steven Hooker, PhD, MPH
• Community-based participatory research project ‘Sumter County on the Move!’ with Sumter County Active Lifestyles
• Infrastructure improvements, walking interventions, health promotion campaigns, mini-grant funding mechanism, etc.
Energy balance is governed by the First Law of Thermodynamics.

- Weight maintenance
- Weight gain
- Weight loss

Calories Consumed

Calories Burned
Research interests

• Energy balance
• Intersection between biology and behavior
• Public health-focused outcomes

• Tools that I use…
Translational Science

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Defining mechanisms, targets, lead molecules
New methods of diagnosis, treatment, prevention
Controlled studies leading to effective care
Delivery of recommended and timely care to the right patient
True benefit to society
Energy balance → public health
Key point:
→ Individuals with low levels of physical activity cannot maintain ‘energy balance’
→ This is likely due to dysregulation of appetite

Change in fat mass from baseline to 12 months by physical activity level, adjusted for change in physical activity and baseline fat mass.

Lifestyle interventions via the local health care clinics

- Dual purpose pilot study beginning spring 2016
- Integration physical activity as a vital sign and objective assessment of physical activity
- Motivational interviewing using Iowa State University EIM health educators

Metria IH1-Sensewear hardware, adhesive patch, designed for clinical use
We have become less physically active in all parts of our lives over the past 60 years.

Trends over 5 Decades in U.S. Occupation-Related Physical Activity and Their Associations with Obesity

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45-Year Trends in Women’s Use of Time and Household Management Energy Expenditure

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Trends in school transport

- National Household Travel Survey (Department of Transportation)

Shook 2016, in progress
My contribution to Weighing In & the Healthy Lifestyles Initiative

• Support policy and environmental change efforts
• Provide expertise in outcomes assessment and process evaluation
• Share the WI and HLI story
• Expand funding opportunities

Ensure Shelly, The Emily’s, and Weighing In partners have the resources to collectively address childhood obesity
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