Paths To A More Active America

James Sallis

University of California, San Diego

For ROOS Workshop. September 27, 2015
Outline of Talk

• The PA landscape in the US

• Improving PA among Youth in Structured Settings
  – Schools
  – Early Childhood and Education (ECE)

• Improving Walking and Walkability

• Recommendations
Accelerometer-based MVPA for Adolescents. From Hallal, Lancet, 2012

<table>
<thead>
<tr>
<th>Country</th>
<th>MVPA minutes (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>72.48 (71.62, 73.34)</td>
</tr>
<tr>
<td>Belgium</td>
<td>50.58 (48.52, 52.64)</td>
</tr>
<tr>
<td>Brazil</td>
<td>47.41 (44.81, 50.01)</td>
</tr>
<tr>
<td>Denmark</td>
<td>66.00 (64.80, 67.20)</td>
</tr>
<tr>
<td>Estonia</td>
<td>74.86 (71.84, 77.89)</td>
</tr>
<tr>
<td>Norway</td>
<td>83.57 (79.51, 87.63)</td>
</tr>
<tr>
<td>Portugal</td>
<td>63.28 (61.23, 65.32)</td>
</tr>
<tr>
<td>Switzerland</td>
<td>78.96 (77.56, 80.37)</td>
</tr>
<tr>
<td>United kingdom</td>
<td>63.84 (63.40, 64.28)</td>
</tr>
<tr>
<td>United states</td>
<td>45.94 (45.54, 46.34)</td>
</tr>
<tr>
<td>Overall (I-squared = 99.9%, p = 0.000)</td>
<td>64.65 (56.50, 72.81)</td>
</tr>
</tbody>
</table>
Leisure-time physical activity

Figure 7.1. Percentage of adults aged 18 and over who met the 2008 federal physical activity guidelines for aerobic activity through leisure-time aerobic activity: United States, 1997–2014

95% confidence interval
Figure 2. Percentage of U.S. Adults Aged 18 Years or Older Who Met the Aerobic Physical Activity Guideline, 2013

- **Sex**: Men 54%, Women 46%
- **Age**: 18-24 61%, 25-34 57%, 35-44 53%, 45-64 46%, 65+ 36%
- **Race/Ethnicity**: NH White 53%, NH Black 41%, Asian 50%, AI/AN 47%, Hispanic 43%
- **Education**: <HS 31%, HS 40%, Some college 50%, College graduate 61%
There is a plan to get America active: Revised this year

The National Physical Activity Plan is comprised of recommendations that are organized in nine societal sectors:

- Business and Industry
- Community, Recreation, Fitness, and Parks
- Education
- Faith-Based Settings
- Healthcare
- Mass Media
- Public Health
- Sport
- Transportation, Land Use, and Community Design
<table>
<thead>
<tr>
<th>Strategy</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-component school programs</td>
<td>Sufficient</td>
</tr>
<tr>
<td>Physical education</td>
<td>Sufficient</td>
</tr>
<tr>
<td>Active transportation</td>
<td>Suggestive</td>
</tr>
<tr>
<td>Activity breaks in classroom</td>
<td>Suggestive</td>
</tr>
<tr>
<td>School physical environment</td>
<td>Insufficient</td>
</tr>
<tr>
<td>After school</td>
<td>Insufficient</td>
</tr>
<tr>
<td>Preschool &amp; childcare settings</td>
<td>Suggestive</td>
</tr>
<tr>
<td>Built environment</td>
<td>Suggestive</td>
</tr>
<tr>
<td>Home &amp; family</td>
<td>Insufficient</td>
</tr>
<tr>
<td>Primary care</td>
<td>insufficient</td>
</tr>
</tbody>
</table>
Institute of Medicine
2013
Recommends whole-of-school approach

www.iom.edu/studentbody
School practices and children’s physical activity during school: Study of 100 elementary schools

University of California, San Diego

Jordan A. Carlson
And colleagues

Preventive Medicine, 2012

Supported by The California Endowment
**School practices index and MVPA during school**

The 5 index practices were:
- having a PE teacher y/n
- providing ≥ 100 minutes/week of PE y/n
- having recess supervised by non-classroom teacher y/n
- providing ≥ 20 minutes/period of recess y/n
- having ≥ 75 students/supervisor in recess y/n

![Graph showing the relationship between the number of physical activity-supportive practices and minutes/day of MVPA during school.](image)

- **Raw M (SD) MVPA min/day**
- **Linear (regression line)**
- **B = 5.6 min/day/practice**
- **p < .001**

The graph illustrates the linear relationship between the number of physical activity-supportive practices and the minutes/day of MVPA during school, indicating a significant positive correlation with a regression coefficient of 5.6 minutes/day per practice, significant at the p < .001 level.
Socioeconomic Disparities in Elementary School Practices and Children’s Physical Activity During School

Jordan A. Carlson, PhD; Alexandra M. Mignano, BA; Gregory J. Norman, PhD; Thomas L. McKenzie, PhD; Jacqueline Kerr, PhD; Elva M. Arredondo, PhD; Hala Madanat, PhD; Kelli L. Cain, MA; John P. Elder, PhD, MPH; Brian E. Saelens, PhD; James F. Sallis, PhD

Am J Health Promotion 2014

What does this article add?

The main SES disparity found was for having a PE teacher. Low-SES schools were less likely to have a PE teacher than were high-SES schools, and having a PE teacher was related to children’s physical activity.


- Strength of obesity prevention quantified
  - Each intervention strategy was coded for
    - Intensity (low=educational; high=policy, environment)
    - Frequency of use (low=once; high=daily)
  - Duration of entire intervention (low=<3 months; high=>9 months)
  - Scores computed for diet, PA, parent components. Plus overall intervention score

- Supported by Healthy Eating Research

**Results**

- **Intervention strength scores for diet, PA, and combined interventions** were correlated $r > .30$ with at least 1 anthropometric outcome.
- **Strength of parent engagement** added to effectiveness of each intervention category.
- Mixed results about whether combined vs separate diet and PA interventions were more effective.
- Intervention strength was negatively (unexpectedly) correlated with diet and PA outcomes, though not often significantly.
Translate research into practice

Many PA interventions are effective, but few are being widely implemented. “Translation” is the key
• For both schools and ECE settings, evidence supports multi-component policy and environment interventions, but these are challenging and can be costly to deliver.
• How can we be more effective in attracting commitment & support for whole-of-school and multi-component ECE approaches to PA intervention from education decision-makers?
• New federal education bill makes funding available for school PA
STEP IT UP!
THE SURGEON GENERAL’S CALL TO ACTION TO PROMOTE WALKING AND WALKABLE COMMUNITIES

U.S. PUBLIC HEALTH SERVICE
1798

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Released 2015
Walking for Transportation and Leisure in NHIS 2010: Differences by Race/Ethnicity

Percent Walking in Past 7 Days

<table>
<thead>
<tr>
<th>Category</th>
<th>Transport</th>
<th>Leisure</th>
</tr>
</thead>
<tbody>
<tr>
<td>White, non-Hispanic</td>
<td>28.1</td>
<td>51.7</td>
</tr>
<tr>
<td>Black, non-Hispanic</td>
<td>30.6</td>
<td>41.2</td>
</tr>
<tr>
<td>Hispanic</td>
<td>32.8</td>
<td>47.5</td>
</tr>
<tr>
<td>Other</td>
<td>33.8</td>
<td>53.5</td>
</tr>
</tbody>
</table>

Paul, et al., 2015. JPAH
Belgium,
Denmark,
Czech Republic,
UK, Spain

12 IPEN Adult Countries
IPEN Adult: GIS Walkability Index

9 SDs
Getting the Details Right:
Streetscape Design
Putting the Pieces Together: Designing an Activity-Friendly Street

Clever, MO:
Clarke Street
Clever, MO:
Clarke Street
Clever, MO:
Clarke Street
Clever, MO:
Clarke Street
Clever, MO:
Clarke Street
MAPS Mini: Assessing Quality of Streetscapes

• Observational measure of streets and intersections for activity-friendliness
• **15-item** MAPS-Mini was designed for practitioners and advocates
  – Reduced from 120 items
• Evaluated for validity in 3677 children, teens, adults, older adults
  – 3 regions
How do MAPS-Mini scores relate to active transportation? ADJUSTED

<table>
<thead>
<tr>
<th>MAPS Mini Score</th>
<th>Children</th>
<th>Adolescents</th>
<th>Adults</th>
<th>Seniors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Segments</td>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Public Parks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transit Stops</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Street Lights</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benches</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building Maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absence of Graffiti</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sidewalk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buffer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tree, Awning Coverage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absence of Trip Hazards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marked Crosswalk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curb Cuts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crossing Signal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRAND SCORE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRAND SCORE (for Active Transport)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Income Disparities in Environments
Environmental Disparities: 2 new papers

• Park Quality Disparities

• Streetscape Quality Disparities
  Thornton et al. SSM-Population Health, 2016, 2, 206-216.

• Variety of patterns: some disparities, some “equitable differences”

• Different patterns across 3 regions, suggest local policies can be effective

• Given each city’s unique patterns of environmental disparities, local measures (observations) are necessary to assess local conditions as a basis for remediating disparities in physical activity environments.
Research is Not Easy to Put into Practice
Leveraging the power of ULI’s global networks to shape projects and places in ways that improve the health of people and communities.
The AARP Network of Age-Friendly Communities: An Introduction

As the U.S. population ages and people stay healthy and active longer, communities must adapt.

The AARP Network of Age-Friendly Communities helps participating communities become great places for all ages by adopting such features as safe, walkable streets; better housing and transportation options; access to key services; and opportunities for residents to participate in community activities.

Well-designed, livable communities promote health and sustain economic growth, and they make for happier, healthier residents — of all ages.

The AARP Network of Age-Friendly Communities is an affiliate of the AARP Livable Communities.
Recommendations

• For PA interventions with good evidence of effectiveness, **shift research emphasis to translation, dissemination, implementation**

• Whole-of-school and multi-component ECE interventions have promising evidence, but with significant **challenges to implementation**

• Promising evidence that **improving quality of parks and streetscapes** can be effective, but with significant challenges to equity of implementation
Recommendations

• To implement the National PA plan we need to:
  – Make PA a higher priority in public health
  – Create an Office of PA and Health at CDC, with funding
  – Strengthen partnerships with multiple sectors
  – Prioritize strategies that will reduce disparities and implement in disadvantaged communities first