Promoting Active Living Among Persons with Physical Disabilities

Evidence for Distinct Neighborhood-level Determinants

Michael Spivock PhD(c), Lise Gauvin PhD, Mylène Riva PhD(c)
University of Montreal, Dept of Social and Preventive Medicine
Lea-Roback Research Centre on Social Inequalities of Health
Interdisciplinary Research Group on Health (GRIS)

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Underlying Principles

- Live in communities, not hospitals
- Less active than general population
- WHO - ICF: environments
- Interesting case for active living:
  - Hyper-sensitivity to environments
  - Higher caloric cost of basic ambulation
Determinants of Active Living Among Persons with Physical Disabilities

Individual Factors
- Type / Severity of disability
- Socio-demographic variables
- Social-cognitive variables
- Perceived barriers / environment

Environmental Factors
- Observed environment

Active Living Among Persons with Disabilities
- Physical activity
- Activities of daily living

Adapted from Fougeyrollas et al. (RIPPH 1998)
Potential Determinants

- Existing data from able-bodied population\(^1\)
  - Activity-friendliness
  - Density of destinations
  - Safety
- 3 specific items (buoys\(^2\))
  - Quality of walking surface
  - Adaptation of signage
  - Accessibility of surroundings

WALKING SURFACE
SIGNAGE
SURROUNDINGS
Purpose

The main goal of this presentation is to describe the relationship between neighborhood-level determinants of active living and the active living practices of persons with physical disabilities living in a large urban area.
Methods
Recruitment of Persons with Physical Disabilities

• Active persons with physical disabilities:
  - VIOMAX adapted fitness centre in Montreal

• Matched 1-1 for age and disability:
  - archives and current patients of Lucie-Bruneau Rehabilitation Centre
Individual Interviews

- Telephone interviews with persons living with physical disabilities

- Interview contained two indicators of involvement in physical activity:
  - Dichotomous indicator of performing at least 30 min/day of LTPA
  - Dichotomous indicators of use of active transportation
Identification of Residential Neighborhoods of Sample Participants

- Neighborhood operationalized as census tract
  - Approx 0.8 km$^2$- 3500 people.
- Linking of participants’ postal codes to census tracts
Systematic social observation

- Teams of 2 observers - 3 day training
- 114 of 521 census tracts in Montreal
- Map and pre-constructed walking route

20) Is the path/sidewalk/walking surface accessible for people with physical disabilities?

<table>
<thead>
<tr>
<th>Not at all accessible</th>
<th>Completely accessible</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
</tbody>
</table>

21) Are the crossing signals and other signs adapted for people with physical disabilities?

<table>
<thead>
<tr>
<th>Not at all adapted</th>
<th>Completely adapted</th>
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<tbody>
<tr>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
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</table>

22) Are the surroundings adapted for people with physical disabilities?

<table>
<thead>
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</table>
Results
(Sample of Persons)
Descriptive Data on Sample

95 males; 111 females

Gender

- Males
- Females

Mean: 48.1; SD 11.1
Highest Level of Education

- Primary school (6 yrs)
- High School (11 yrs)
- Junior College (13-14 yrs)
- University (14+ yrs)
Primary Impairment / Disability

- Sensory
- Mobility
- Balance/agility
- Neuro-muscular disease
- Other
Activity Level (overall)

- Physical activity
- Active transport

<table>
<thead>
<tr>
<th>Activity Level</th>
<th>Physical activity</th>
<th>Active transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>less than 30 min/day</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>more than 30 min/day</td>
<td>20</td>
<td>5</td>
</tr>
</tbody>
</table>
Results

(Sample of Neighborhoods)
Systematic Social Observation in 114 Neighborhoods

<table>
<thead>
<tr>
<th>Activity f-li ness</th>
<th>Dens of Destin</th>
<th>Safety</th>
<th>Buoys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>6.0</td>
<td>5.3</td>
<td>6.1</td>
</tr>
<tr>
<td>SD</td>
<td>0.7</td>
<td>0.8</td>
<td>0.5</td>
</tr>
</tbody>
</table>
Results
(Association of Environmental Characteristics to Physical Activity)
Relationship Between Observational Data and Self-Reports of LTPA

After adjustment, OR: 3.80; 95% CI of 1.1-13.0
Relationship Between Observational Data and Self-Reports of Active Transport

Proportion of persons engaging in active transport:
- lowest tertile of buoy
- middle tertile of buoy
- highest tertile of buoy
Interpretations

• Greater likelihood of LTPA related to presence of buoys
• Greater likelihood of active transportation associated with presence of buoys though probably probably confounded with other dimensions of the environment and the person
• Location of buoys not always where persons with disabilities reside
Conclusion

• Active living among persons with physical disabilities: influenced by distinct neighborhood-level buoys

• Future directions
  - Interventions to retrofit environment with buoys
  - Alternative activity measures beyond self-report