The Interactive Contribution to Adolescent Physical Activity of Psychosocial and Environmental Factors

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Physical Activity (PA) 
Benefits Health

- Dose-response relation between PA and health 
  – (Haskell et al., 2007)
PA Decreases in Adolescence

(E.g. Nader, Bradley, Houts, McRitchie, & O’Brien, 2008)
Objective

• Examine factors related to adolescent PA
Psychosocial factors

Perceived Physical Competence associated with higher PA

(e.g. Barnett, Morgan, van Beurden, & Beard, 2008)
Psychosocial factors

Perceived Physical Competence associated with higher PA
(e.g. Barnett, Morgan, van Beurden, & Beard, 2008)

Perceived Social Support associated with higher PA
(e.g. Motl, Dishman, Saunders, Dowda, & Pate, 2007)
Environmental factors

Access to environmental PA opportunities associated with higher levels of PA among adolescents.

(e.g. Gordon-Larsen, Nelson, Page, & Popkin, 2006)
Social-Ecological Theory

“...emphasizes the dynamic interaction of intrapersonal and environmental factors in health and illness.”

(Stokols, 1996, p.289)
Research Question

How do psychosocial and environmental resources *interactively* relate to PA among adolescents?
Participants

- N = 192
- 45% Female / 55% Male
- Mean age = 14.79 ± 0.46 years
- 68% Caucasian, 19% Hispanic, 13% Other
Constructs:

- Psychosocial Resources
- Physical Activity
- Environmental Resources
Constructs:

- Physical Activity
Measures:

- Actigraph® Accelerometer
Measures:

- **Actigraph® Accelerometer**
- **3 Day Physical Activity Recall (3DPAR)**

### Day of Week:

#### **DATE:**

![Write activity numbers in this column](image)

Put a '✓' to rate the intensity of each activity

<table>
<thead>
<tr>
<th>Activity Number</th>
<th>Light</th>
<th>Moderate</th>
<th>Hard</th>
<th>Very Hard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before school 7:00-7:30</td>
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<td></td>
<td></td>
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<tr>
<td>7:30-8:00</td>
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<tr>
<td>During school 8:00-8:30</td>
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<td></td>
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<tr>
<td>8:30-9:00</td>
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<td>9:00-9:30</td>
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<tr>
<td>9:30-10:00</td>
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<tr>
<td>10:00-10:30</td>
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<tr>
<td>10:30-11:00</td>
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<tr>
<td>11:00-11:30</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Lunch time 11:30-12:00</td>
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<tr>
<td>12:00-12:30</td>
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<tr>
<td>12:30-1:00</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1:00-1:30</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Measures:

• Actigraph® Accelerometer
• 3 Day Physical Activity Recall (3DPAR)
• School Sports Participation
Measures:

- Actigraph® Accelerometer
- 3 Day Physical Activity Recall (3DPAR)
- School Sports Participation
- Out-of-School Sports Participation
Constructs:

- Psychosocial Resources
- Physical Activity
- Environmental Resources
Constructs:

Psychosocial Resources
Measures:

- Social Support
  - Family
Measures:

Psychosocial Resources

- Social Support
  - Friend
Measures:

- Social Support
- Perceived Competence
Constructs:

- Psychosocial Resources
- Physical Activity
- Environmental Resources
Constructs:

Environmental Resources
Measures:

• Access to:
  – Schools
Measures:

- Access to:
  - Schools
  - Gyms
Measures:

- Access to:
  - Schools
  - Gyms
  - Trails
Measures:

• Access to:
  – Schools
  – Gyms
  – Trails
  – Parks
Measures:

• Access to:
  – Schools
  – Gyms
  – Trails
  – Parks
  – Athletic Fields
Environmental Resources

• Geographic Information System (GIS)

• Composite variable:
  – 1 point for each resource (school, gym, trail, park, field) within .5 mile of home
  – Range: 0 – 6
  – Mean: 2.2 (1.4 s.d.)
Covariates:

- Age, Ethnicity, SES, Gender, Parent PA, Parent Perceived Benefit of PA
Model Tested:

- Psychosocial Resources
- Physical Activity
- Environmental Resources
Results:

Social Support for PA → School Sports Participation

Access to Environmental PA Resources

Moderates

![Graph showing the relationship between Social Support, Environmental Resources, and School Sports Participation]
Predicted Levels of School Sports Participation for Adolescents with High vs. Low Social Support by Environmental Resources for PA
## Interaction

<table>
<thead>
<tr>
<th>Low Social Support</th>
<th>Low Environmental Resources</th>
<th>High Environmental Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Low Low</td>
<td>Low High</td>
</tr>
<tr>
<td>High Social Support</td>
<td>High Low</td>
<td>High High</td>
</tr>
</tbody>
</table>
## Interaction

<table>
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<tr>
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<tbody>
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<td>Low</td>
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<td>Low</td>
</tr>
<tr>
<td>High Social Support</td>
<td>High Low</td>
<td>Low High</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Significantly more involved in school sports</strong></td>
</tr>
</tbody>
</table>
Discussion

• Interaction Implication:
  – PA interventions should target both psychosocial and environmental variables.
Discussion

• Interaction Implication:
  – PA interventions should target **both** psychosocial and environmental variables.
    • e.g. encourage family/friends to participate
Discussion

• Interaction Implication:
  – PA interventions should target **both** psychosocial and environmental variables.
    • e.g. encourage family/friends to participate AND promote access to facilities
Discussion

• Support for taking a social ecological approach, examining interactions between variables at multiple levels of influence
Future Directions

• Examine additional environment x psychosocial interactions related to PA.
Future Directions

- Examine additional environment x psychosocial interactions related to PA.
  - (e.g. safety, perceived access, intentions, sensation seeking, family factors)
Thank you!

- All of you, for your thoughts.
- Margaret Schneider
- Sally Dickerson
- JoAnn Prause
- Dan Stokols
- Marlon Boarnet

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