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Why the Urgency?
Evidence from a Longitudinal Study of America’s Children

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Prevalence of Overweight and Obesity* in Children and Adolescents: 2011-2012 (NHANES)

• Overweight and obese groups combined: ≥ the 85th %-tile BMI for age (Ogden, Carroll, Kit, & Flegal, 2014)

*Overweight kindergarteners 4 times more likely to be obese at age 14 than non-overweight peers (Cunningham et al., 2014)
Excess weight during childhood touches every area of human development.

Implications for human capital formation troubling ("The competencies, knowledge, and personality attributes embodied in the ability to perform labor so as to produce economic value."); Becker)

http://www.econlib.org/library/Enc/HumanCapital.html
Development during Middle Childhood

*Industry vs. inferiority (competence; Erikson)

*People’s evaluations matter for child’s developing sense of self (Harter)

*Stereotype awareness emerging (McKown & Strambler)

*For children, school the most common setting for weight-based stigmatization
Opportunities for social skill and friendship formation undermined

Figure Legend:
Kamada-Kawai free energy drawing of a social network mapping for 1 of the 132 schools included in the analysis. Each dot in the figure represents a National Longitudinal Study of Adolescent Health respondent. The size of the dots and the number next to each dot represent the number of friendship nominations by others. The black dots represent overweight adolescents. As shown in the figure, overweight adolescents received less friendship nominations and were less centrally located in the social network than normal-weight adolescents.
Child Interpersonal Skills
Weight Status * Gender (F = 4.87**)

Girls in both weight status groups viewed as less socially-skilled than never-overweight girls; no effects for boys.

Gable, Krull, & Chang (2009)
Persistently obese children show more sadness, loneliness, and anxiety than never-overweight children; negative effects get larger over time.

Gable, Krull, & Chang (2009)
Weight Status and Math Performance

*Gable, Krull, & Chang (2012)*

**Diagram:**
- **Boys’ and Girls’ Weight Status** (a-path)
- **Interpersonal Skills Internalizing Behaviors** (b-path)
- **Math Performance** (c-path)

**Timeline:**
- **K–5th Grade**

SEC Symposium Oct 2014
Table 1
*Description of Body Mass Index Percentiles\textsuperscript{a}, Heights (inches), and Weights (pounds) by Time for Boys and Girls by Weight Status Group*

<table>
<thead>
<tr>
<th>Time</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Persistent (Mean(sd))</td>
<td>Late (Mean(sd))</td>
</tr>
<tr>
<td><strong>K-Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI %-tile</td>
<td>95.04 (10.36)</td>
<td>71.49 (23.62)</td>
</tr>
<tr>
<td><strong>K-Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI %-tile</td>
<td>95.93 (8.16)</td>
<td>74.70 (19.10)</td>
</tr>
<tr>
<td><strong>1st Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI %-tile</td>
<td>97.65 (5.47)</td>
<td>78.81 (18.50)</td>
</tr>
<tr>
<td><strong>3rd Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI %-tile</td>
<td>98.38 (1.03)</td>
<td>92.41 (8.43)</td>
</tr>
<tr>
<td><strong>5th Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI %-tile</td>
<td>98.30 (1.12)</td>
<td>96.86 (1.14)</td>
</tr>
</tbody>
</table>

\textsuperscript{a}\textsuperscript{a} Percentiles are based on the National Center for Health Statistics' Growth Charts for the United States, 2000.
Weight Status and Math Performance

• Boys’ and girls’ weight status **negatively** associated with math performance, especially for persistent group.
• Compared with never obese, persistent group performed more poorly, beginning in 1st grade until 5th grade.
For girls in persistent group, poorer interpersonal skills and more internalizing behaviors explained part of the relationship.
Boys’ Weight Status and Math Performance

Gable, Krull, & Chang (2012)

For boys in persistent group, more internalizing behaviors explained part of relationship.

TIME (K–5TH GRADE)
Implications

1. Early onset obesity (persistent group) : multiple implications for child development (later onset group effects transient)

2. Mediation effects partial; raises questions about other explanations (e.g., school absence)

3. How does stress of membership in a stigmatized group accumulate? (internalizing behaviors steadily increased with time)

4. Long-term implications for math achievement ...