A longitudinal study of fat mass accrual from adolescence through emerging adulthood

Erin Barbour-Tuck
A longitudinal study of fat mass accrual from adolescence through emerging adulthood
Research Questions

1. Do people gain weight and fat during emerging adulthood (EA) and when is the age of onset of overweight by sex and different metrics? body mass index (BMI), fat mass (%FM) and waist circumference (WC), waist-to-height ratio (WHtR).

2. What factors contribute to/predict fat mass gains in EA including factors during childhood and adolescence?
Pediatric Bone Mineral Accrual Study (PBMAS)

Participants:
• 228 (113 male)
• Measured serially 1991-2016

Measures:
• Height, weight, BMI
• Body fat, bone mass, muscle mass
• Physical Activity (PAQ self-report),
• Diet (kcal/day)
## Participants

<table>
<thead>
<tr>
<th>Variable</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n=56)</td>
<td></td>
<td>(n=57)</td>
</tr>
<tr>
<td>APHV (years)</td>
<td>13.6 (0.9)</td>
<td>12.0 (0.9)*</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>163.7 (7.4)</td>
<td>153.4 (7.91)*</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>52.2 (8.5)</td>
<td>43.8 (9.3)*</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>19.5 (2.4)</td>
<td>18.4 (2.8)</td>
</tr>
<tr>
<td>%Total Body Fat</td>
<td>19.1 (7.5)</td>
<td>26.8 (8.2)*</td>
</tr>
<tr>
<td>Prevalence of NW BMI Category (%)</td>
<td>91.1%</td>
<td>86.0%</td>
</tr>
</tbody>
</table>
Question 1

• Do people gain weight and fat during emerging adulthood (EA) and when is the age of onset of overweight by sex and different metrics?

  • Body mass index (BMI), fat mass (%FM) and waist circumference (WC), waist-to-height (WHtR).
Question 1

- All measures of fat mass increase across the time span
- The average age of transition to overweight varied by metric and sex but MOST occur in emerging adulthood
Question 2

• What factors contribute to/predict fat mass gains in EA including factors during childhood and adolescence?
• Children and adolescents with more fat mass will gain more fat mass in emerging adulthood.

• Higher physical activity during emerging adulthood will lower the fat mass gained during emerging adulthood.
So What?

Question 1

• The freshman 5 is real but just the tip of the iceberg (Article published in Conversation Canada; National Post; Gormley 650 CKOM September 2018)

• Normal weight youth became predominantly overweight during emerging adulthood with onset between adolescents and mid 20’s
  • Programming, interventions, education with a focus on emerging adulthood
So What?

Question 2

- Childhood and adolescent fat mass has significant and long standing implications on fat mass in later life
  - Continue research focusing on child health and weight

- Physical activity can mitigate fat mass accrual
  - Continue research focusing on physical activity education and intervention for all age groups.
THANK YOU