Professor Mark Hanson

Director, Institute of Developmental Sciences, University of Southampton
Early life origins of obesity
Mark Hanson
In 2013/14

23% of Reception year children (aged 4-5) were overweight or obese

34% of Year 6 children (aged 10-11) were overweight or obese

Source: HSCIC reported NCMP
www.hscic.gov.uk/pubs/ncmpeng1314
There is variation in children’s weight according to ethnicity and age

Overweight and Obesity prevalence among Reception Year and Year 6 children in England, 2013/14

- Reception (4-5 years)
  - Any Other Ethnic Group
  - Chinese
  - Black or Black British
  - Asian or Asian British
  - Mixed
  - White

- Year 6 (10-11 years)
  - Any Other Ethnic Group
  - Chinese
  - Black or Black British
  - Asian or Asian British
  - Mixed
  - White

Source: HSCIC reported NCMP [www.hscic.gov.uk/pubs/ncmpeng1314]
Overweight and obesity prevalence among Reception and Year 6 school children by deprivation status, 2013/14

Source: HSCIC reported NCMP  [www.hscic.gov.uk/pubs/ncmpeng1314](http://www.hscic.gov.uk/pubs/ncmpeng1314)  
Physical activity and diet

Most recent data from the Health Survey for England shows:

5-7 year olds

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>28%</td>
</tr>
<tr>
<td>2012</td>
<td>24%</td>
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</tbody>
</table>

In 2012, 24 per cent of 5-7 year olds met the recommended level of physical activity*, down from 28 per cent in 2008.

8-10 year olds

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>26%</td>
</tr>
<tr>
<td>2012</td>
<td>21%</td>
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</tbody>
</table>

In 2012, 21 per cent of 8-10 year olds met the recommended level of physical activity*, down from 26 per cent in 2008.

Most recent data from the Health Survey for England shows:

5-7 year olds

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>9%</td>
</tr>
<tr>
<td>2013</td>
<td>17%</td>
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</tbody>
</table>

The percentage of 5-7 year olds eating the recommended 5 portions of fruit and vegetables per day has increased from 9 per cent to 17 per cent between 2003-2013.

8-10 year olds

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>10%</td>
</tr>
<tr>
<td>2013</td>
<td>20%</td>
</tr>
</tbody>
</table>

The percentage of 8-10 year olds eating the recommended 5 portions of fruit and vegetables per day has doubled from 10 per cent to 20 per cent between 2003-2013.
• In England in 2013, over 36% of women aged 16-24 and 50% of women aged 25-34 years were overweight or obese

• Having multiple early-life risk factors is associated with a more than 4-fold increased risk of being overweight or obese in later childhood

• Although more than two thirds of pregnancies leading to live births are planned to some degree, the majority of women do little to change their lifestyle to prepare for pregnancy
Predicted Probability of Obesity at 7 to 10 Years of Age for 16 Combinations of Four Modifiable Prenatal and Postnatal Risk Factors.

Five risk factors:
- maternal obesity pre-pregnant body mass index (BMI; in kg/m²) >30
- excess gestational weight gain (Institute of Medicine, 2009)
- smoking during pregnancy
- low maternal vitamin D status (<64 nmol/L)
- short duration of breastfeeding (none or <1 mo).
Life course model of risk

Course of obesity-related conditions

Human lifecycle

Biological capital sets level of health at conception

Mother & infant: Biomarkers of risk
Child/adolescent: Effective point to intervene

Later interventions have less potential efficacy

Compromised function and survival
Better function and survival

Plasticity
Detrimental effects of Lifestyle challenges
Teenagers and adolescents

Activity
The most recent figures show levels of physical activity among 13-15 year olds is falling. In 2008 and 2012 the percentage who met recommended activity levels was lower among girls.

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2008</td>
<td>2012</td>
</tr>
<tr>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>28%</td>
<td>14%</td>
</tr>
<tr>
<td>Girls</td>
<td>14%</td>
<td>8%</td>
</tr>
</tbody>
</table>

In 2008, 28 per cent of boys met the recommended level* of physical activity. In 2012, this had halved to 14 per cent.

In 2008, 14 per cent of girls met the recommended level* of physical activity. In 2012 this had fallen to eight per cent.