The stability of food intake between adolescence and adulthood: a 21-year follow-up. By A. M. Craikie, A. A. Lake, C. Wood, M. Gibbons, S. Webster, A. J. Adamson, A. J. Rugg-Gunn and J. C. Mathiers, University of Newcastle, Human Nutrition Research Centre, Wellcome Research Laboratory, RVE Queen Victoria Road, Newcastle upon Tyne NE1 4LP.

Studies of the diet of adolescents in the UK demonstrate that dietary habits known to be detrimental to health in adulthood are evident at an early age. For example, Gregory et al. (2000) found 4-18-year-olds in the UK to have a frequent consumption of fatty and sugary foods and a low consumption of fruit and vegetables. Concerns have therefore been expressed regarding the diet of children and adolescents and the continuation of these dietary habits into adulthood (HEA, 1995; Graruno, 1998). This study aimed to investigate the extent to which these concerns may be justified by determining the stability of food intake in a group of adolescents followed up 21 years later in adulthood.

The investigation involved 202 individuals from whom dietary data were collected in 1979–80 (mean age 11.6 years) (Hackett et al. 1984) and again in 2000–1 (mean age 32.5 years). Dietary data were collected at both time-points using two 3 d estimated food diaries followed by an interview to determine portion sizes, using the method considered most appropriate at the time, i.e. calibrated food models in 1979–80 and a photographic food atlas (Nelson et al. 1997) in 2000. Foods consumed were allocated to one, or a combination of, the five food groups of the 'Balance of Good Health' food selection guide (HEA, 1994) according to Gatenby et al. (1995). The weight of food eaten from each of the five food groups was calculated (percentage of total weight of food consumed) and Pearson correlation coefficients generated to provide an estimate of the stability of food intake.

<table>
<thead>
<tr>
<th></th>
<th>11-16 years</th>
<th>21-32 years</th>
<th>11.6 yrs - 32.5 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Bread, other cereals and potatoes</td>
<td>30.4</td>
<td>7.0</td>
<td>29.9</td>
</tr>
<tr>
<td>Foods containing fat and/or sugar</td>
<td>21.1</td>
<td>6.1</td>
<td>12.3</td>
</tr>
<tr>
<td>Fruit and vegetables</td>
<td>14.6</td>
<td>6.5</td>
<td>25.1</td>
</tr>
<tr>
<td>Meat, fish and alternatives</td>
<td>16.7</td>
<td>5.5</td>
<td>17.1</td>
</tr>
<tr>
<td>Milk and dairy products</td>
<td>17.2</td>
<td>7.6</td>
<td>15.6</td>
</tr>
</tbody>
</table>

The HEA guide advises that a balanced diet should consist of around 33% fruit and vegetables, 33% bread, other cereals and potatoes, 8% foods containing fat and/or sugar, 12% meat, fish and alternatives and 15% milk, dairy and dairy products (Gatenby et al. 1995). A shift in the group's food intake towards the recommendations had occurred with age, most notably with a decrease in foods containing fat and/or sugar and an increase in fruit and vegetables. Nevertheless, at both ages, intakes of foods containing fat and/or sugar, meat, fish and alternatives were higher, and fruit, vegetables, bread, cereals and potatoes lower than previously recommended. In addition, although there was significant evidence of tracking of relative intake of bread, other cereals and potatoes (P<0.01), fruit and vegetables (P<0.01), and meat and alternatives (P<0.001) between 11.6 and 32.5 years, the correlations were not strong.

In conclusion, food intake patterns had changed considerably from early adolescence through to adulthood in a direction more in line with the current recommendations. The predictive value of an adolescent's food intake of their intake in adulthood was found to be significant, but not strong. Further investigations will consider the extent to which this is influenced by factors such as social class, gender and educational level as well as assessing tracking in terms of relative nutrient intake.


Distribution of partners amongst tertiles for fat and/or sugar contributions to food weight

<table>
<thead>
<tr>
<th></th>
<th>Lower tertile</th>
<th>Middle tertile</th>
<th>Upper tertile</th>
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<tbody>
<tr>
<td>Male partner</td>
<td>Lower tertile</td>
<td>Middle tertile</td>
<td>Upper tertile</td>
</tr>
<tr>
<td>Fruit and vegetables</td>
<td>12</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Protein and vegetables</td>
<td>5</td>
<td>0.7</td>
<td>13</td>
</tr>
<tr>
<td>Upper tertile</td>
<td>7</td>
<td>5</td>
<td>15</td>
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</table>

Food and fruit vegetables provided a higher proportion of intake for females than for males, 26.9% (95% CI 23.5–30.3) vs 23.5% (95% CI 20.5–26.5), respectively.

Distribution of partners amongst tertiles for fruit and vegetables contributions to food weight

<table>
<thead>
<tr>
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<td>Male partner</td>
<td>Lower tertile</td>
<td>Middle tertile</td>
<td>Upper tertile</td>
</tr>
<tr>
<td>Fruit and vegetables</td>
<td>7</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Protein and vegetables</td>
<td>7</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>Upper tertile</td>
<td>10</td>
<td>15</td>
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Poisson's correlations were used to measure the strength of association between food group intakes between men and women. Significant correlations were seen for intakes of fatty and sugary foods (P<0.01, r=0.51) and for fruit and vegetables (P<0.01, r=0.56).

Further work has indicated strong links between the diets of spouses or cohabiting adults (Kemmer et al. 1998). This work indicates that there are strong correlations between intake of the groups of foods containing fat and/or sugar and, in particular, fruits and vegetables consumed by couples. Further work examining the dynamics of the food relationship within families, social influences and correlations between dietary habits of couples and of parents and children is in progress. This project was funded by the Wellcome Trust (075995/3).


