Fibre isn’t just for adults and the elderly – it’s also an essential nutrient for children. However, how much is the appropriate amount of fibre for a child can be a difficult question for parents to answer.

A lack of confidence in introducing higher fibre foods into a child’s diet stems from advice that babies and children under the age of two have small appetites and can quickly become over-full on fibre rich foods before they get enough calories and other nutrients to meet their needs.

This advice is often interpreted that children should not be fed any higher fibre foods, which can make it difficult to introduce them into a child’s diet later on.

**Why Children Should Eat More Fibre**

We know that current intakes of fibre among UK children are lower than they need for good health. Estimates are that between 5-30% of children are affected by constipation, causing physical discomfort and parental anxiety.

Adequate fibre intakes and good bowel health are linked to both physical and mental wellbeing in adults (e.g. abdominal discomfort and bloating, lethargy, low mood and higher stress levels) and a range of chronic disorders including reduced risk of overweight, type 2 diabetes and cardiovascular disease.

Research into the effects of fibre among children is limited; however, a recent literature review concludes that lower risk for obesity, diabetes and constipation could be expected among children with higher fibre consumption. In addition, the authors stated that all efforts to increase children’s dietary fibre intake should be encouraged.

**How Much Fibre Should Children Eat?**

At present we do not have any specific fibre intake recommendations for children and young people in the UK, aside from the guidance that these should be proportionally lower than those of adults.

In addition to the UK values, we are also guided by Dietary Recommendations set by the European Union for its Member States. European Dietary Recommendations for fibre were published in 2010, and are shown in Table 1. These figures are similar to the US, where recommended fibre intake is equivalent to a child’s age + 5–10g fibre/day. Thus, for a 2 year-old an appropriate intake would be in the range of 7–12g/day and for an 8 year old this would increase to 13–18g/day.

Table 1 also shows current average intakes of fibre in the UK and the increase required in order to achieve the EU recommended fibre intakes.
How Does Fibre Work

Dietary fibre is one of the key elements in helping to maintain a healthy digestive system. A healthy digestive system should feel comfortable, not bloated or sluggish, and without symptoms of constipation (passing of irregular, hard stools, straining). Insoluble dietary fibres, such as wheat bran found in wholemeal breads and Kellogg’s All-Bran, provide bulk to stools and help to move food through the digestive system.

As fibre passes through the digestive tract it absorbs water and adds to the volume of waste. A large, soft mass is much easier to move along the digestive tract and pass out of the body. Fibre also acts as food for intestinal bacteria, allowing them to thrive and increase bacterial mass, which ultimately ends up in stools.

Fibre needs fluid in order to swell, add bulk to stools and be effective. The UK has not established recommended fluid intakes; however, these have been recently published by the European Food Safety Authority (EFSA) and range from 1300mls/day for 2-3 year old children, to 1900-2100mls/day for 9-13 year olds, and 2-2.5l/day for adolescents over 14 years in age.

Children’s fibre intakes in the UK are woefully low – average intakes fall 20% short among 3 year olds, 30% short among 8 year olds and over 50% short in 15 year olds.

### TABLE 1: RECOMMENDED AND CURRENT INTAKES OF DIETARY FIBRE

<table>
<thead>
<tr>
<th>AGE OF CHILD (years)</th>
<th>EU RECOMMENDED FIBRE INTAKE (g/day)</th>
<th>CURRENT UK INTAKE (g/day)</th>
<th>AVERAGE INCREASE REQUIRED (g/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–3</td>
<td>10.0</td>
<td>8.2</td>
<td>2.0</td>
</tr>
<tr>
<td>4–6</td>
<td>14.0</td>
<td>11.1</td>
<td>3.0</td>
</tr>
<tr>
<td>7–10</td>
<td>16.0</td>
<td>11.1</td>
<td>5.0</td>
</tr>
<tr>
<td>11–14</td>
<td>19.0</td>
<td>11.8</td>
<td>7.0</td>
</tr>
<tr>
<td>15–17</td>
<td>21.0</td>
<td>11.8</td>
<td>9.0</td>
</tr>
</tbody>
</table>
Eating Occasions with the Biggest Potential Fibre Impact

Work in the US shows breakfast and snacking to be the two key eating occasions where the greatest impact could be made to fibre intake\textsuperscript{11}. In the UK, we know that cereal foods are the biggest source of fibre in children’s diets, accounting for 41-42% of intake, compared to 24-29% from vegetables and 7-16% from fruit\textsuperscript{2}.

Children who regularly eat breakfast cereals have been shown by several studies to have higher fibre intakes compared to non-cereal eaters or breakfast skippers, and are more likely to achieve recommended intakes for both fibre and other vitamins and minerals\textsuperscript{12,13,14}. Fibre and other nutrients missed at breakfast are often not caught up during the rest of the day\textsuperscript{15}. In addition eating a cereal at breakfast has been associated with lower body weights, higher-quality diets, and improved cognitive performance \textsuperscript{15,16,17,18}.

Switching to a high fibre breakfast cereal (>6g fibre/100g) every day could correct the fibre shortfall for children aged 1-6 years, and significantly reduce the shortfall for older children.

Snacks offer an ideal opportunity for increasing fibre consumption. Many snacks commonly consumed by children (for example biscuits or cereal bars) can be easily switched to higher fibre versions.

FOR THE AVERAGE HEALTHY CHILD THE FOLLOWING IS SENSIBLE ADVICE:

- Higher fibre cereals and wholemeal breads should form part of their healthy diet
- If liked, brown pasta or rice could sometimes be given
- Five small portions of fruits and vegetables daily – leave skins on fruit
- Encourage an adequate fluid intake (preferably sugar-free) to enable fibre to swell and be effective
### EASY SWAPS TO BOOST FIBRE AND WHEAT BRAN INTAKE

<table>
<thead>
<tr>
<th>INSTEAD OF</th>
<th>TRY</th>
<th>POTENTIAL INCREASE IN FIBRE PER TYPICAL SERVING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AT BREAKFAST</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corn Flakes</td>
<td>Bran Flakes</td>
<td>3.6g</td>
</tr>
<tr>
<td>White toast</td>
<td>Wholemeal toast</td>
<td>2.8g/2 slices</td>
</tr>
<tr>
<td>White toast 50.50 style bread</td>
<td>Rice Krispies Multi-Grain</td>
<td>1.8g/2 slices</td>
</tr>
<tr>
<td>Rice Krispies</td>
<td></td>
<td>2.2g</td>
</tr>
<tr>
<td>Cheese on white toast</td>
<td>Baked beans on wholemeal toast</td>
<td>12.5g</td>
</tr>
<tr>
<td>White pitta with tuna &amp; cucumber</td>
<td>Wholemeal pitta with tuna &amp; cucumber</td>
<td>2.6g</td>
</tr>
<tr>
<td>Fruit flavour yoghurt</td>
<td>Fresh fruit (1 med banana) with yoghurt</td>
<td>1.5g</td>
</tr>
<tr>
<td><strong>MAIN MEALS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White pasta</td>
<td>Wholemeal pasta</td>
<td>6.6g</td>
</tr>
<tr>
<td>Jacket potato - flesh only</td>
<td>Jacket potato with skin</td>
<td>3.4g</td>
</tr>
<tr>
<td>White rice</td>
<td>Brown rice</td>
<td>1.7g</td>
</tr>
<tr>
<td>Fruit crumble (using white flour)</td>
<td>Wholemeal fruit crumble (using wholemeal flour)</td>
<td>2.2g</td>
</tr>
<tr>
<td><strong>SNACKS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rich tea biscuits</td>
<td>Nutri-Grain Fruit &amp; Fibre biscuits</td>
<td>2.6g/2 biscuits</td>
</tr>
<tr>
<td>Chocolate chip muffin</td>
<td>Bran muffin</td>
<td>8.6g</td>
</tr>
</tbody>
</table>

Source: DietPlan v6.70 Forest Field Software (McCance and Widdowson’s The Composition of Foods (Sixth Edition)) and brand websites (e.g. Kellogg’s, grocery retailers etc).

Note: All fibre values used in this document refer to AOAC figures.

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### REFERENCES


### EASY SWAPS TO BOOST FIBRE AND WHEAT BRAN INTAKE

**AT BREAKFAST**
- Corn Flakes: Bran Flakes (3.6g)
- White toast: Wholemeal toast (2.8g/2 slices)
- White toast 50.50 style bread: Rice Krispies Multi-Grain (1.8g/2 slices)
- Rice Krispies: Wholemeal toast (2.2g)

**AT LUNCH**
- Cheese on white toast: Baked beans on wholemeal toast (12.5g)
- White pitta with tuna & cucumber: Wholemeal pitta with tuna & cucumber (2.6g)
- Fruit flavour yoghurt: Fresh fruit (1 med banana) with yoghurt (1.5g)

**MAIN MEALS**
- White pasta: Wholemeal pasta (6.6g)
- Jacket potato - flesh only: Jacket potato with skin (3.4g)
- White rice: Brown rice (1.7g)
- Fruit crumble (using white flour): Wholemeal fruit crumble (using wholemeal flour) (2.2g)

**SNACKS**
- Rich tea biscuits: Nutri-Grain Fruit & Fibre biscuits (2.6g/2 biscuits)
- Chocolate chip muffin: Bran muffin (8.6g)

**SOURCES**
- DietPlan v6.70 Forest Field Software (McCance and Widdowson’s The Composition of Foods (Sixth Edition)) and brand websites (e.g. Kellogg’s, grocery retailers etc).
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