Appendix 2

Chapter 8 Dietary vitamin D intakes and plasma 25 hydroxyvitamin D concentration of the UK population tables
## Table 1
Percentage contribution of food groups (food sources) to daily vitamin D intake (μg) for non-breastfed children only, by age at Stage 1

*Diet and Nutrition Survey of Infants and Young Children aged 4-18 months*

<table>
<thead>
<tr>
<th>Food groupa</th>
<th>Age group (months)</th>
<th>4-6</th>
<th>7-9</th>
<th>10-11</th>
<th>12-18</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td><strong>Non-infant specific foods:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cereals and cereal products</td>
<td></td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Milk and milk products</td>
<td></td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>Eggs and egg dishes</td>
<td></td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Fat spreadsb</td>
<td></td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Meat and meat products and dishes, total</td>
<td></td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Fish and fish dishes</td>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Vegetables, potatoes</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Savoury snacks</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fruit</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sugar, preserves and confectionery</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Beverages</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Miscellaneous</td>
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### Infant specific foods:

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<th>85</th>
<th>80</th>
<th>72</th>
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<td>Infant formula</td>
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<td></td>
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<tr>
<td>of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'First milk'</td>
<td>35</td>
<td>19</td>
<td>14</td>
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<td>'Hungrier babies milk'</td>
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<td>4</td>
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<td>Follow-on milk</td>
<td>27</td>
<td>48</td>
<td>49</td>
<td>11</td>
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<td>'Growing up milk'</td>
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<td>14</td>
</tr>
<tr>
<td>Soy milk</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Other milk products</td>
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<td>2</td>
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</table>

### Commercial infant foods:

<table>
<thead>
<tr>
<th></th>
<th>12</th>
<th>12</th>
<th>10</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meat and fish based products and dishes</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Cereal based foods and dishes</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Snacks (sweet and savoury)</td>
<td>2</td>
<td>2</td>
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</tbody>
</table>

### Commercial infant beverages

<p>| | | | | |</p>
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<tr>
<th></th>
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<th></th>
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<th></th>
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<tbody>
<tr>
<td>0</td>
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</tbody>
</table>

### Average daily Vitamin D intake (food sources) μg

<table>
<thead>
<tr>
<th></th>
<th>9.8</th>
<th>8.7</th>
<th>7.5</th>
<th>3.5</th>
</tr>
</thead>
</table>

### Bases (unweighted)

|                     | 240 | 489 | 381 | 1177 |

---

*a Some food groups are not included due to small numbers of consumers; e.g. nuts and seeds and savoury snacks.

*b Some oils which are used as a condiment on bread or salads are included in this food group; however this food group does not include cooking oils.

*c Includes hypoallergenic, goats and 'goodnight' milks.

*d Vitamin D intake does not include values for breastfed children as the vitamin D content of breast milk is not known.
### Table 2
Percentage contribution of food groups to average daily vitamin D intake, by age and sex
**Aged 1.5 years and over**
*National Diet and Nutrition Survey: year 1, 2, 3 and 4 combined (2008/09 - 2011/12)*

<table>
<thead>
<tr>
<th>Food group</th>
<th>Total</th>
<th>Age group (years)</th>
<th>%</th>
<th>%</th>
<th>%</th>
<th>%</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1.5-3</td>
<td>4-10</td>
<td>11-18</td>
<td>19-64</td>
<td>65+</td>
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<tr>
<td>Cereals and cereal products</td>
<td>14</td>
<td>20</td>
<td>17</td>
<td>13</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pasta, rice, pizza and other miscellaneous cereals</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High fibre breakfast cereals</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other breakfast cereals</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biscuits</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buns, cakes, pastries and fruit pies</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>4</td>
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<td></td>
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<tr>
<td>Puddings</td>
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<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
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<td></td>
</tr>
<tr>
<td>Milk and milk products</td>
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<td>13</td>
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<td>5</td>
<td>6</td>
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<td></td>
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<tr>
<td>of which:</td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Other milk and cream</td>
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<tr>
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<td>Yoghurt, fromage frais and other dairy desserts</td>
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<tr>
<td>Ice cream</td>
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<tr>
<td>Eggs and egg dishes</td>
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<tr>
<td>Fat spreads(^b)</td>
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<td>20</td>
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<tr>
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<tr>
<td>Reduced fat spread polyunsaturated (41-75% fat)</td>
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<td>Low fat spread polyunsaturated (18-39% fat)</td>
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<td>of which:</td>
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<td>Bacon and ham</td>
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<td>Pork and dishes</td>
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</tr>
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<td>Chicken, turkey and dishes</td>
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</tr>
<tr>
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<td>Sausages</td>
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</tr>
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<td>Meat pies and pastries</td>
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<td>Other meat, meat products and dishes</td>
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<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish and fish dishes</td>
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</tr>
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<td>of which:</td>
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<td>Other white fish, shellfish, fish dishes and</td>
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<tr>
<td>canned tuna</td>
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<td>Oily fish</td>
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<td>Vegetables and potatoes</td>
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<td>of which:</td>
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<td>dishes</td>
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<td>Other potatoes, potato salads and dishes</td>
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<tr>
<td>Savoury snacks</td>
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<td>0</td>
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<td>Fruit</td>
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<td>0</td>
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</tr>
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<td>Non-alcoholic beverages(^c)</td>
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<td></td>
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<tr>
<td>Miscellaneous(^d)</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Dry weight beverages</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Savoury sauces, pickles, gravies and condiments</td>
<td>0</td>
<td>0</td>
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<td>1</td>
<td>0</td>
<td></td>
<td></td>
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<tr>
<td>Commercial toddler foods</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td></td>
</tr>
<tr>
<td>Bases (unweighted)</td>
<td>604</td>
<td>1277</td>
<td>1497</td>
<td>2697</td>
<td>753</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Food groups that contribute <0.5\% to intake across all age/sex groups are excluded from the table. All other food groups are included.

\(^b\) Some oils which are used as a condiment on bread or salads are included in this food group; however this food group does not include oils or fats used in cooking.

\(^c\) Non-alcoholic beverages are reported as consumed with diluent water.

\(^d\) In addition to dry weight beverages; soup, manufactured/retail and homemade; savoury sauces, pickles, gravies and condiments; and commercial toddler foods, Miscellaneous also includes nutrition powders and drinks.
## Table 3

Percentage contribution of food groups to average daily vitamin D intake - low income / materially deprived consumers

Low Income Diet and Nutrition Survey 2003/05

<table>
<thead>
<tr>
<th>Food group*</th>
<th>Boys</th>
<th>Girls</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2-10</td>
<td>11-18</td>
<td>19-34</td>
</tr>
<tr>
<td>Cereals and cereal products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of which:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breakfast cereals</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Buns, cakes, pastries and fruit pies</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Puddings</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Milk and milk products</td>
<td>6</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>Eggs and egg dishes</td>
<td>26</td>
<td>29</td>
<td>24</td>
</tr>
<tr>
<td>Fat spreads</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of which:</td>
<td></td>
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<p>| Base (unweighted)                            | 239| 200| 194| 226| 258| 268| 278| 215| 483| 494| 336| 537|</p>
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Table 5.30 (continued)
Percentage contribution of food groups to average daily vitamin D intake (µg) in Scotland, by sex and age
Aged 1.5 years and over

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### Percentage contribution of food groups to average daily vitamin D intake (µg) in Scotland, by sex and age

**Aged 1.5 years and over**

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<th>Total girls</th>
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**Bases (unweighted)**

|                | 163 | 199 | 362 | 273 | 60  | 144  | 197  | 341 | 377 | 137 | 125 | 307 | 398 | 650 | 217 |

---

*a* Food groups that contribute <0.5% to intake across all age/sex groups are excluded from the table. All other food groups are included.

*b* Some oils which are used as a condiment on bread or salads are included in this food group; however this food group does not include oils or fats used in cooking.

*c* Non-alcoholic beverages are reported as consumed with diluent water.

*d* In addition to dry weight beverages; soup, manufactured/retail and homemade; savoury sauces, pickles, gravies and condiments; and commercial toddler foods; Miscellaneous also includes nutrition powders and

National Diet and Nutrition Survey. Results from Years 1,2,3 and 4 (combined) of the Rolling Programme (2008/2009 – 2011/12); Scotland.
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<th>Food group</th>
<th>Sex and age group (years)</th>
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<th>Girls</th>
<th>Total</th>
<th>Women</th>
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### Table 5.30 (continued)

Percentage contribution of food groups to average daily vitamin D (µg) in Northern Ireland, by sex and age

Aged 1.5 years and over

| Food group                              | Sex and age group (years) | Boys | Total | Men | 4-10 | 11-18 | 19-64 | 4-10 | 11-18 | 19-64 | Women | 1.5-3 | 4-10 | 11-18 | 19-64 | 65+ |
|-----------------------------------------|---------------------------|------|-------|-----|------|-------|-------|------|-------|-------|-------|------|-------|-------|-----|
| **Meat and meat products**              |                           |      |       |     |      |       |       |      |       |       |       |      |       |       |     |
| of which:                               |                           |      |       |     |      |       |       |      |       |       |       |      |       |       |     |
| Bacon and ham                           |                           | 5    | 6     | 6   | 4    | 4     | 5     | 5    | 5     | 5     | 3     | 5    | 6     | 5    | 3   |
| Beef, veal and dishes                   |                           | 6    | 7     | 7   | 9    | 4     | 7     | 6    | 7     | 3     | 5    | 7    | 8     | 7    |     |
| Lamb and dishes                         |                           | 0    | 1     | 1   | 1    | 1     | 1     | 1    | 1     | 1     | 0    | 1    | 1     | 1    |     |
| Pork and dishes                         |                           | 2    | 2     | 2   | 3    | 1     | 3     | 2    | 2     | 1     | 1    | 2    | 1     | 3    | 3   |
| Coated chicken and turkey               |                           | 2    | 3     | 3   | 2    | 3     | 2     | 3    | 1     | 2     | 2    | 3    | 2     | 0    |     |
| Chicken, turkey and dishes              |                           | 4    | 5     | 5   | 5    | 4     | 6     | 5    | 5     | 1     | 4    | 6    | 5     | 3    |     |
| Burgers and kebabs                      |                           | 2    | 3     | 3   | 3    | 2     | 3     | 2    | 2     | 2     | 3    | 3    | 0     | 0    |     |
| Sausages                                |                           | 8    | 11    | 10  | 10   | 8     | 7     | 8    | 5     | 12    | 8    | 9    | 7     | 3    |     |
| Meat pies and pastries                  |                           | 2    | 4     | 3   | 3    | 4     | 4     | 3    | 1     | 3     | 2    | 4    | 2     | 1    |     |
| Other meat, meat products and dishes    |                           | 0    | 1     | 0   | 1    | 0     | 0     | 0    | 1     | 0     | 0    | 1    | 1     | 1    |     |
| Fish and fish dishes                    |                           | 2    | 3     | 3   | 9    | 5     | 6     | 5    | 11    | 5     | 3    | 5    | 10    | 19   |     |
| of which:                               |                           |      |       |     |      |       |       |      |       |       |      |       |       |       |     |
| Other white fish, shellfish, fish dishes and canned tuna |   | 2    | 3     | 2   | 4    | 2     | 4     | 3    | 4     | 1     | 2    | 3    | 4     | 4    |     |
| Oily fish                               |                           | 0    | 1     | 1   | 5    | 3     | 2     | 2    | 7     | 4     | 1    | 1    | 6     | 15   |     |
| Vegetables and potatoes                 |                           | 1    | 1     | 1   | 2    | 2     | 1     | 1    | 2     | 1     | 1    | 1    | 1     | 1    |     |
| of which:                               |                           |      |       |     |      |       |       |      |       |       |      |       |       |       |     |
| Vegetables (not raw) including vegetable dishes | | 0    | 0     | 0   | 1    | 0     | 0     | 0    | 0     | 0     | 0    | 0    | 1     | 1    |     |
| Other potatoes, potato salads and dishes | | 1    | 1     | 1   | 1    | 2     | 1     | 1    | 1    | 1     | 1    | 1    | 1     | 0    |     |
| Savoury snacks                          |                           | 0    | 0     | 0   | 0    | 0     | 0     | 0    | 0     | 0     | 0    | 0    | 0     | 0    |     |
| Nuts and seeds                          |                           | 0    | 0     | 0   | 0    | 0     | 0     | 0    | 0     | 0     | 0    | 0    | 0     | 0    |     |
| Fruit                                   |                           | 0    | 0     | 0   | 0    | 0     | 0     | 0    | 0     | 0     | 0    | 0    | 0     | 0    |     |
Table 5.30 (continued)
Percentage contribution of food groups to average daily vitamin D (µg) in Northern Ireland, by sex and age
Aged 1.5 years and over

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<tr>
<th>Food group</th>
<th>Sex and age group (years)</th>
<th>Boys</th>
<th>4-10</th>
<th>11-18</th>
<th>Total</th>
<th>4-10</th>
<th>11-18</th>
<th>Girls</th>
<th>4-10</th>
<th>11-18</th>
<th>Total</th>
<th>Women</th>
<th>1.5-3</th>
<th>4-10</th>
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<th>19-64</th>
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</tr>
<tr>
<td>Sugar, preserves and confectionery</td>
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<td>0</td>
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</tr>
<tr>
<td>Chocolate confectionery</td>
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</tr>
<tr>
<td>Non-alcoholic beverages</td>
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<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Alcoholic beverages</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
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<td>2</td>
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<td>1</td>
<td>3</td>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Savoury sauces, pickles, gravies and condiments</td>
<td></td>
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<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>1</td>
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<td>0</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Commercial toddler foods</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Average daily total vitamin D (µg)</td>
<td></td>
<td>1.9</td>
<td>2.4</td>
<td>2.2</td>
<td>2.9</td>
<td>1.9</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
<td>2.3</td>
<td>1.8</td>
<td>1.9</td>
<td>2.1</td>
<td>2.6</td>
<td>3.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bases (unweighted)</td>
<td></td>
<td>94</td>
<td>120</td>
<td>214</td>
<td>145</td>
<td>88</td>
<td>116</td>
<td>204</td>
<td>246</td>
<td>94</td>
<td>182</td>
<td>236</td>
<td>391</td>
<td>79</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Food groups that contribute <0.5% to intake across all age/sex groups are excluded from the table. All other food groups are included.

b Due to small cell sizes, participants aged 65 years and over have only been reported as males and females combined.

c Some oils which are used as a condiment on bread or salads are included in this food group; however this food group does not include oils or fats used in cooking.

d Non-alcoholic beverages are reported as consumed with diluent water.

e In addition to dry weight beverages; soup, manufactured/retail and homemade; savoury sauces, pickles, gravies and condiments; and commercial toddler foods, Miscellaneous also includes

### Table 1.6
Average daily intake of vitamin D from all sources (including dietary supplements) and food sources, by age at stage 1

<table>
<thead>
<tr>
<th>Vitamins</th>
<th>Age group (months)</th>
<th>4-6</th>
<th>7-9</th>
<th>10-11</th>
<th>12-18</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All sources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin D non-breastfed μg(^a)</td>
<td>Mean</td>
<td>10.0</td>
<td>8.9</td>
<td>7.7</td>
<td>3.9</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>9.7</td>
<td>8.8</td>
<td>7.8</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td>sd</td>
<td>2.9</td>
<td>3.1</td>
<td>3.5</td>
<td>3.9</td>
</tr>
<tr>
<td></td>
<td>Upper 2.5 percentile</td>
<td>17.1</td>
<td>16.0</td>
<td>15.7</td>
<td>14.0</td>
</tr>
<tr>
<td></td>
<td>Lower 2.5 percentile</td>
<td>4.3</td>
<td>3.0</td>
<td>0.7</td>
<td>0.3</td>
</tr>
<tr>
<td>Vitamin D breastfed excluding breast milk μg(^b)</td>
<td>Mean</td>
<td>3.5</td>
<td>3.6</td>
<td>3.8</td>
<td>2.6</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>2.3</td>
<td>3.1</td>
<td>3.2</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>sd</td>
<td>3.8</td>
<td>2.7</td>
<td>3.5</td>
<td>2.8</td>
</tr>
<tr>
<td></td>
<td>Upper 2.5 percentile</td>
<td>9.6</td>
<td>10.0</td>
<td>15.7</td>
<td>10.8</td>
</tr>
<tr>
<td></td>
<td>Lower 2.5 percentile</td>
<td>0.0</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Food sources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin D non-breastfed μg(^a)</td>
<td>Mean</td>
<td>9.8</td>
<td>8.7</td>
<td>7.5</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>9.6</td>
<td>8.7</td>
<td>7.6</td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td>sd</td>
<td>2.7</td>
<td>2.9</td>
<td>3.4</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>Upper 2.5 percentile</td>
<td>14.8</td>
<td>15.2</td>
<td>15.6</td>
<td>12.0</td>
</tr>
<tr>
<td></td>
<td>Lower 2.5 percentile</td>
<td>4.3</td>
<td>3.0</td>
<td>0.7</td>
<td>0.3</td>
</tr>
<tr>
<td>Vitamin D breastfed excluding breast milk μg(^b)</td>
<td>Mean</td>
<td>3.0</td>
<td>3.2</td>
<td>2.7</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>1.5</td>
<td>2.6</td>
<td>2.2</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>sd</td>
<td>3.5</td>
<td>2.6</td>
<td>2.3</td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td>Upper 2.5 percentile</td>
<td>9.6</td>
<td>8.5</td>
<td>8.2</td>
<td>5.7</td>
</tr>
<tr>
<td></td>
<td>Lower 2.5 percentile</td>
<td>0.0</td>
<td>0.2</td>
<td>0.1</td>
<td>0.2</td>
</tr>
</tbody>
</table>

\(^a\) Vitamin D intake does not include values for breastfed children as the vitamin D content of breast milk is not known. Excluding any exclusively breastfed children (n=2) as the vitamin D content of breast milk is not known. The bases...
Table 7
Average daily intake of vitamins as a percentage of Reference Nutrient Intake (RNI), by age at Stage 1

*Diet and Nutrition Survey of Infants and Young Children aged 4-18 months*

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Age group (months)</th>
<th>4-6</th>
<th>7-9</th>
<th>10-11</th>
<th>12-18</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td><strong>All sources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin D non-breastfed&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Mean</td>
<td>117</td>
<td>127</td>
<td>111</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>115</td>
<td>126</td>
<td>111</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>sd</td>
<td>34</td>
<td>44</td>
<td>50</td>
<td>55</td>
</tr>
<tr>
<td>Vitamin D breastfed excluding breast milk&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Mean</td>
<td>41</td>
<td>52</td>
<td>54</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>27</td>
<td>44</td>
<td>45</td>
<td>21</td>
</tr>
<tr>
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<td>sd</td>
<td>44</td>
<td>39</td>
<td>51</td>
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</tr>
<tr>
<td><strong>Food sources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin D non-breastfed&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Mean</td>
<td>115</td>
<td>125</td>
<td>108</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>113</td>
<td>124</td>
<td>108</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>sd</td>
<td>32</td>
<td>41</td>
<td>49</td>
<td>50</td>
</tr>
<tr>
<td>Vitamin D breastfed excluding breast milk&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Mean</td>
<td>35</td>
<td>46</td>
<td>38</td>
<td>26</td>
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<tr>
<td></td>
<td>Median</td>
<td>18</td>
<td>37</td>
<td>31</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>sd</td>
<td>41</td>
<td>37</td>
<td>33</td>
<td>24</td>
</tr>
</tbody>
</table>

**Bases (unweighted)**

|               | 329 | 630 | 449 | 1275 |

<sup>a</sup> Vitamin D intake does not include values for breastfed children as the vitamin D content of breast milk is not known. The bases are: 240 for 4-6M, 489 for 7-9M, 381 for 10-11M and 1177 for 12-18M. Note breastfeeding status is defined by whether it was recorded in the four-day diary.

<sup>b</sup> Vitamin D intake includes values for breastfed children excluding the contribution from breast milk (therefore excluding any exclusively breastfed children (n=2)) as the vitamin D content of breast milk is not known. The bases are 89 for 4-6M, 141 for 7-9M, 68 for 10-11M and 98 for 12-18M. Note breastfeeding status is defined by whether it was recorded in the four-day diary.
<table>
<thead>
<tr>
<th>Vitamin D intake (µg/day) by age and sex</th>
<th>National Diet and Nutrition Survey year 1, 2, 3 &amp; 4 combined (2008/09 - 2011/12)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aged 1.5 years and over</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Table 8</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Sex and age group (years)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boys</td>
</tr>
<tr>
<td>Intake from food sources</td>
<td></td>
</tr>
<tr>
<td>Vitamin D µg</td>
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</tr>
<tr>
<td>Mean</td>
<td>2.0</td>
</tr>
<tr>
<td>Median</td>
<td>1.9</td>
</tr>
<tr>
<td>sd</td>
<td>1.0</td>
</tr>
<tr>
<td>Upper 2.5 percentile</td>
<td>4.5</td>
</tr>
<tr>
<td>Lower 2.5 percentile</td>
<td>0.5</td>
</tr>
<tr>
<td>Intake from all sources&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Vitamin D µg</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>2.7</td>
</tr>
<tr>
<td>Median</td>
<td>2.1</td>
</tr>
<tr>
<td>sd</td>
<td>2.1</td>
</tr>
<tr>
<td>Upper 2.5 percentile</td>
<td>8.0</td>
</tr>
<tr>
<td>Lower 2.5 percentile</td>
<td>0.6</td>
</tr>
<tr>
<td>Bases (unweighted)</td>
<td>665</td>
</tr>
</tbody>
</table>

<sup>a</sup> All sources includes the contribution from dietary supplements containing vitamin D
Table 9
Average daily intake (µg) of vitamin D from food sources only in Scotland, by sex and age
Aged 1.5 years and over 2008/09 - 2011/12

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Sex and age group (years)</th>
<th>Boys</th>
<th>Total</th>
<th>Men</th>
<th>11-18</th>
<th>4-10</th>
<th>19-64</th>
<th>65+</th>
<th>Girls</th>
<th>Total</th>
<th>Women</th>
<th>1.5-3</th>
<th>4-10</th>
<th>11-18</th>
<th>19-64</th>
<th>65+</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>2.0</td>
<td>2.4</td>
<td>2.2</td>
<td>3.1</td>
<td>3.5</td>
<td>2.0</td>
<td>1.8</td>
<td>1.9</td>
<td>2.4</td>
<td>2.9</td>
<td>1.8</td>
<td>2.0</td>
<td>2.1</td>
<td>2.7</td>
<td>3.2</td>
</tr>
<tr>
<td>Median</td>
<td></td>
<td>1.8</td>
<td>1.9</td>
<td>1.8</td>
<td>2.6</td>
<td>3.2</td>
<td>1.8</td>
<td>1.6</td>
<td>1.7</td>
<td>1.8</td>
<td>2.4</td>
<td>1.5</td>
<td>1.8</td>
<td>1.7</td>
<td>2.3</td>
<td>2.5</td>
</tr>
<tr>
<td>sd</td>
<td></td>
<td>1.2</td>
<td>1.5</td>
<td>1.4</td>
<td>2.2</td>
<td>2.4</td>
<td>1.0</td>
<td>1.2</td>
<td>1.1</td>
<td>1.7</td>
<td>1.9</td>
<td>1.4</td>
<td>1.1</td>
<td>1.4</td>
<td>2.0</td>
<td>2.1</td>
</tr>
<tr>
<td>Upper 2.5 percentile</td>
<td></td>
<td>5.3</td>
<td>6.8</td>
<td>5.9</td>
<td>9.5</td>
<td>9.8</td>
<td>4.4</td>
<td>5.3</td>
<td>4.6</td>
<td>7.1</td>
<td>7.4</td>
<td>7.0</td>
<td>4.5</td>
<td>5.8</td>
<td>7.9</td>
<td>9.0</td>
</tr>
<tr>
<td>Lower 2.5 percentile</td>
<td></td>
<td>0.5</td>
<td>0.7</td>
<td>0.5</td>
<td>0.8</td>
<td>0.6</td>
<td>0.6</td>
<td>0.3</td>
<td>0.4</td>
<td>0.4</td>
<td>0.7</td>
<td>0.5</td>
<td>0.5</td>
<td>0.4</td>
<td>0.5</td>
<td>0.6</td>
</tr>
<tr>
<td>Bases (unweighted)</td>
<td></td>
<td>163</td>
<td>199</td>
<td>362</td>
<td>273</td>
<td>80</td>
<td>144</td>
<td>197</td>
<td>341</td>
<td>377</td>
<td>137</td>
<td>125</td>
<td>307</td>
<td>396</td>
<td>650</td>
<td>217</td>
</tr>
</tbody>
</table>

Intake from all sources

| Vitamin D |                           |      |       |     |       |      |       |     |       |       |      |       |      |       |       |     |
| Mean    |                           | 2.5  | 2.5   | 2.5 | 3.7   | 4.7  | 2.5   | 2.0 | 2.2   | 3.1   | 4.6  | 2.1   | 2.5  | 2.2   | 3.4  | 4.7 |
| Median  |                           | 1.9  | 2.0   | 2.0 | 2.9   | 3.9  | 1.9   | 1.7 | 1.7   | 2.2   | 3.1  | 1.5   | 1.9  | 1.8   | 2.5  | 3.3 |
| sd      |                           | 1.9  | 1.6   | 1.7 | 2.9   | 3.4  | 2.2   | 1.5 | 1.9   | 3.2   | 4.5  | 1.8   | 2.0  | 1.6   | 3.1  | 4.0 |
| Upper 2.5 percentile |   | 8.0  | 6.8   | 7.2 | 11.5  | 13.1 | 10.8  | 6.0 | 8.0   | 10.2  | 22.4 | 7.6   | 8.2  | 6.8   | 10.9 | 15.1 |
| Lower 2.5 percentile | | 0.5  | 0.7   | 0.6 | 0.8   | 0.6  | 0.6   | 0.3 | 0.4   | 0.4   | 0.7  | 0.5   | 0.6  | 0.4   | 0.6  | 0.6 |
| Bases (unweighted) |   | 163  | 199   | 362 | 273   | 80   | 144   | 197 | 341   | 377   | 137  | 125   | 307  | 396   | 650  | 217 |
Table 10

Average daily intake of vitamin D in Northern Ireland, by sex and age
Aged 1.5 years and over

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Sex and age group (years)*</th>
<th>Boys</th>
<th>Total boys</th>
<th>Men</th>
<th>19-64</th>
<th>Girls</th>
<th>4-10</th>
<th>11-18</th>
<th>Total girls</th>
<th>19-64</th>
<th>Total</th>
<th>Women</th>
<th>19-64</th>
<th>Total</th>
<th>4-10</th>
<th>11-18</th>
<th>19 - 64</th>
<th>65+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin D</td>
<td>μg</td>
<td>Mean</td>
<td>1.9</td>
<td>2.4</td>
<td>2.2</td>
<td>2.9</td>
<td>1.9</td>
<td>1.8</td>
<td>1.8</td>
<td>2.3</td>
<td>1.8</td>
<td>1.9</td>
<td>2.1</td>
<td>2.6</td>
<td>3.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>1.7</td>
<td>2.3</td>
<td>1.9</td>
<td>2.4</td>
<td>1.6</td>
<td>1.6</td>
<td>1.6</td>
<td>2.0</td>
<td>1.5</td>
<td>1.6</td>
<td>1.6</td>
<td>1.8</td>
<td>1.8</td>
<td>2.2</td>
<td>2.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sd</td>
<td>0.9</td>
<td>1.3</td>
<td>1.2</td>
<td>1.8</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.2</td>
<td>1.1</td>
<td>0.9</td>
<td>1.2</td>
<td>1.6</td>
<td>1.6</td>
<td>2.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper 2.5 percentile</td>
<td>4.0</td>
<td>5.7</td>
<td>4.6</td>
<td>6.9</td>
<td>4.3</td>
<td>4.3</td>
<td>4.3</td>
<td>5.7</td>
<td>4.8</td>
<td>4.0</td>
<td>5.1</td>
<td>6.7</td>
<td>10.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower 2.5 percentile</td>
<td>0.5</td>
<td>0.6</td>
<td>0.5</td>
<td>0.8</td>
<td>0.7</td>
<td>0.5</td>
<td>0.5</td>
<td>0.6</td>
<td>0.3</td>
<td>0.5</td>
<td>0.5</td>
<td>0.6</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Intake from all sources

| Vitamin D | μg | Mean | 2.4 | 2.6 | 2.5 | 3.4 | 2.5 | 2.0 | 2.2 | 3.0 | 1.9 | 2.4 | 2.3 | 3.2 | 5.7 |
| Median | 1.8 | 2.5 | 2.1 | 2.6 | 1.9 | 1.6 | 1.7 | 2.3 | 1.6 | 1.8 | 1.9 | 1.9 | 4.0 |
| sd | 1.8 | 1.7 | 1.7 | 2.8 | 1.8 | 1.4 | 1.6 | 2.4 | 1.5 | 1.8 | 1.5 | 1.5 | 2.6 | 4.8 |
| Upper 2.5 percentile | 7.4 | 7.2 | 7.3 | 11.1 | 6.8 | 6.0 | 6.4 | 8.7 | 6.4 | 7.1 | 6.8 | 10.6 | 19.3 |
| Lower 2.5 percentile | 0.5 | 0.6 | 0.5 | 0.9 | 0.7 | 0.5 | 0.5 | 0.6 | 0.3 | 0.5 | 0.5 | 0.7 | 0.8 |
### Table 11
Average daily intake of vitamin D as a percentage of Reference Nutrient Intake (RNI), by age and sex

**Aged 1.5 years and over**

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Sex and age group (years)&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.5-3</td>
<td>65+</td>
<td>65+</td>
<td>65+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td><strong>Food sources only</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin D</td>
<td>Mean</td>
<td>27</td>
<td>39</td>
<td>29</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>20</td>
<td>32</td>
<td>25</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>sd</td>
<td>29</td>
<td>27</td>
<td>19</td>
<td>23</td>
</tr>
<tr>
<td><strong>All sources&lt;sup&gt;a&lt;/sup&gt;</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin D</td>
<td>Mean</td>
<td>32</td>
<td>51</td>
<td>52</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>21</td>
<td>37</td>
<td>35</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>sd</td>
<td>34</td>
<td>40</td>
<td>48</td>
<td>45</td>
</tr>
</tbody>
</table>

**Bases (unweighted)** | 604 | 317 | 436 | 753 |

<sup>a</sup> All sources includes the contribution from dietary supplements containing vitamin D

<sup>b</sup> There are no RNIs set between ages four and 64 years; therefore % RNI is only expressed for those aged 1.5 to three years and 65 years and over.
Table 12
Average daily intake of vitamin D from food sources (µg/day) in low income / materially deprived consumers by age and sex
Aged 2 years and over
Low Income Diet and Nutrition Survey: 2003/05

<table>
<thead>
<tr>
<th>Vitamin D</th>
<th>Sex and age group (years)</th>
<th>Intake from food sources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Total men</td>
</tr>
<tr>
<td></td>
<td></td>
<td>19-34 35-49 50-64 65+</td>
</tr>
<tr>
<td>Mean</td>
<td>2.00</td>
<td>2.30 2.31 2.32 2.33</td>
</tr>
<tr>
<td>Median</td>
<td>1.78</td>
<td>2.00 2.01 2.02 2.03</td>
</tr>
<tr>
<td>sd</td>
<td>1.30</td>
<td>1.30 1.31 1.32 1.33</td>
</tr>
<tr>
<td>Upper 2.5 percentile</td>
<td>4.76</td>
<td>7.00 10.03 9.71 4.09</td>
</tr>
<tr>
<td>Lower 2.5 percentile</td>
<td>0.08</td>
<td>0.22 0.64 0.65 0.60</td>
</tr>
</tbody>
</table>

Bases (unweighted) 239 200 439 194 226 268 493 278 493 537 1850
Table 13
Average daily intake of vitamin D for low income / materially deprived consumers as a percentage of Reference Nutrient Intake (RNI), by age and sex

Low Income Diet and Nutrition Survey 2003/05

<table>
<thead>
<tr>
<th>Vitamin D</th>
<th>Sex and age group (years)</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2-10</td>
<td>65+</td>
<td>2-10</td>
<td>65+</td>
</tr>
<tr>
<td>Mean % RNI</td>
<td></td>
<td>22</td>
<td>34</td>
<td>22</td>
<td>26</td>
</tr>
<tr>
<td>Median</td>
<td></td>
<td>21</td>
<td>29</td>
<td>20</td>
<td>22</td>
</tr>
</tbody>
</table>

| Bases (unweighted) | 239 | 268 | 278 | 537 |

For Vitamin D, there are no RNIs set between ages four and 64 years; therefore % RNI is only expressed for those aged 1.5 to three years and 65 years and over.
### Table 14
Vitamin D status in the UK - Infants and young children 4-18 months

#### Aged 4-18 months

**Diet and Nutrition Survey of Infants and Young Children 2011**

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Sex and age group (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5-11 months</td>
</tr>
<tr>
<td>Plasma 25-hydroxyvitamin D (nmol/L)</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>68.6</td>
</tr>
<tr>
<td>Median</td>
<td>67.6</td>
</tr>
<tr>
<td>sd</td>
<td>25.2</td>
</tr>
<tr>
<td>Upper 2.5th percentile</td>
<td>110.0</td>
</tr>
<tr>
<td>Lower 2.5th percentile</td>
<td>12.1</td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>6%</td>
</tr>
</tbody>
</table>

*Bases (unweighted)* 166 300
### Table 15

**Vitamin D status in the UK - adults and older children**

**Aged 11-64 years**

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Sex and age group (years)</th>
<th>Boys</th>
<th>Men</th>
<th>Girls</th>
<th>Women</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4-10</td>
<td>11-18</td>
<td>19-64</td>
<td>65+</td>
<td>4-10</td>
</tr>
<tr>
<td>Plasma 25-hydroxyvitamin D (nmol/L)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>52.3</td>
<td>44.9</td>
<td>43.5</td>
<td>47.0</td>
<td>48.0</td>
</tr>
<tr>
<td>Median</td>
<td></td>
<td>51.7</td>
<td>42.8</td>
<td>39.0</td>
<td>45.5</td>
<td>49.1</td>
</tr>
<tr>
<td>sd</td>
<td></td>
<td>23.96</td>
<td>23.75</td>
<td>23.87</td>
<td>22.47</td>
<td>22.21</td>
</tr>
<tr>
<td>Upper 2.5th percentile</td>
<td></td>
<td>16.1</td>
<td>10.4</td>
<td>7.1</td>
<td>12.3</td>
<td>14.3</td>
</tr>
<tr>
<td>Lower 2.5th percentile</td>
<td></td>
<td>106.0</td>
<td>100.0</td>
<td>92.4</td>
<td>94.8</td>
<td>108.0</td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td></td>
<td>12.3</td>
<td>19.7</td>
<td>24.0</td>
<td>16.9</td>
<td>15.6</td>
</tr>
<tr>
<td>Bases (unweighted)</td>
<td></td>
<td>129</td>
<td>273</td>
<td>551</td>
<td>140</td>
<td>108</td>
</tr>
</tbody>
</table>
## Table 16

### Vitamin D status in England - people aged 65 years and over

**Aged 65 years and over**

<table>
<thead>
<tr>
<th>Sex and age group (years)</th>
<th>Men</th>
<th>Women</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>65-69</td>
<td>70-74</td>
<td>75-79</td>
</tr>
<tr>
<td>Mean</td>
<td>53.3</td>
<td>55.6</td>
<td>51.6</td>
</tr>
<tr>
<td>Median</td>
<td>52.5</td>
<td>54.0</td>
<td>47.7</td>
</tr>
<tr>
<td>sd</td>
<td>21.4</td>
<td>23.8</td>
<td>23.8</td>
</tr>
<tr>
<td>Upper 2.5th percentile</td>
<td>101.5</td>
<td>109.0</td>
<td>111.4</td>
</tr>
<tr>
<td>Lower 2.5th percentile</td>
<td>17.0</td>
<td>14.7</td>
<td>14.6</td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>8</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>% below 15 nmol/L</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Bases (unweighted)</td>
<td>295</td>
<td>240</td>
<td>185</td>
</tr>
</tbody>
</table>
Table 17

Vitamin D status in the UK - low income / materially deprived consumers

Aged 8 years and over

<table>
<thead>
<tr>
<th>Plasma 25-hydroxyvitamin D (nmol/L)</th>
<th>Boys</th>
<th>Men</th>
<th>Girls</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8-10</td>
<td>11-18</td>
<td>19-34</td>
<td>35-49</td>
</tr>
<tr>
<td>Mean</td>
<td>[65.9]</td>
<td>43.5</td>
<td>44.9</td>
<td>43.2</td>
</tr>
<tr>
<td>Median</td>
<td>[61.0]</td>
<td>41.0</td>
<td>37.5</td>
<td>39.0</td>
</tr>
<tr>
<td>Upper 2.5th percentile</td>
<td>[109.0]</td>
<td>80.2</td>
<td>106.0</td>
<td>84.5</td>
</tr>
<tr>
<td>Lower 2.5th percentile</td>
<td>[40.0]</td>
<td>12.0</td>
<td>15.0</td>
<td>12.4</td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>[0]</td>
<td>8</td>
<td>18</td>
<td>24</td>
</tr>
</tbody>
</table>

Bases (unweighted) 8 37 65 95 133 145 15 45 200 237 181 258
<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>Total</th>
<th>1.5-3</th>
<th>4-10</th>
<th>11-18</th>
<th>19-64</th>
<th>65+</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plasma 25-hydroxyvitamin D (nmol/L) January-March</strong>&lt;sup&gt;1,2&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>37.2</td>
<td>31.5</td>
<td>34.8</td>
<td>40.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>32.9</td>
<td>28.1</td>
<td>29.4</td>
<td>36.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sd</td>
<td>17.56</td>
<td>18.77</td>
<td>22.91</td>
<td>22.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>31.4</td>
<td>40.0</td>
<td>39.3</td>
<td>29.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Plasma 25-hydroxyvitamin D (nmol/L) April-June</strong>&lt;sup&gt;2,2&lt;/sup&gt;</td>
<td>[47.2]</td>
<td>43.5</td>
<td>44.2</td>
<td>44.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>[48.9]</td>
<td>41.2</td>
<td>40.4</td>
<td>38.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>[18.60]</td>
<td>19.27</td>
<td>24.39</td>
<td>21.89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>[8.2]</td>
<td>12.7</td>
<td>24.4</td>
<td>21.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Plasma 25-hydroxyvitamin D (nmol/L) July-September</strong>&lt;sup&gt;2,2&lt;/sup&gt;</td>
<td></td>
<td>66.0</td>
<td>52.3</td>
<td>57.5</td>
<td>50.5</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>60.8</td>
<td>50.3</td>
<td>56.3</td>
<td>48.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>60.8</td>
<td>50.3</td>
<td>56.3</td>
<td>48.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sd</td>
<td>22.66</td>
<td>21.39</td>
<td>23.42</td>
<td>18.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>1.7</td>
<td>13.4</td>
<td>8.4</td>
<td>3.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Plasma 25-hydroxyvitamin D (nmol/L) October-December</strong>&lt;sup&gt;2,2&lt;/sup&gt;</td>
<td></td>
<td>50.2</td>
<td>44.3</td>
<td>45.6</td>
<td>43.7</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>52.9</td>
<td>37.3</td>
<td>41.0</td>
<td>42.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>52.9</td>
<td>37.3</td>
<td>41.0</td>
<td>42.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sd</td>
<td>23.14</td>
<td>26.62</td>
<td>22.73</td>
<td>19.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>11.7</td>
<td>24.3</td>
<td>16.9</td>
<td>25.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Bases (unweighted)**

1 Plasma 25-hydroxyvitamin D (nmol/L) January-March
2 Plasma 25-hydroxyvitamin D (nmol/L) April-June
3 Plasma 25-hydroxyvitamin D (nmol/L) July-September
4 Plasma 25-hydroxyvitamin D (nmol/L) October-December

<sup>1</sup> 0.0% represents no cases in this dataset.
<sup>a</sup> Due to cell sizes for those aged 1.5 to 3 years being below 30, data has not been presented for children aged 1.5 to 3 years.
<sup>b</sup> Due to limited cell sizes, the 2.5th and 97.5th percentiles have not been presented.
Table 19

Vitamin D status in England - adults by season of interview

Aged 16 years and over

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Sex and season of interview**</th>
<th>Health Survey for England 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Summer</td>
<td>Autumn</td>
</tr>
<tr>
<td></td>
<td>July - September</td>
<td>October - December</td>
</tr>
<tr>
<td></td>
<td>M&amp;F</td>
<td>M&amp;F</td>
</tr>
<tr>
<td>Plasma 25-hydroxyvitamin D (nmol/L)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>60.1</td>
<td>39.4</td>
</tr>
<tr>
<td>Median</td>
<td>58.5</td>
<td>36.5</td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>6.9</td>
<td>27.4</td>
</tr>
<tr>
<td>Bases (unweighted)</td>
<td>998</td>
<td>971</td>
</tr>
</tbody>
</table>

** Blood sample was taken shortly after the interview
## Table 20

### Vitamin D status in Scotland - adults by season of interview

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Sex and season of interview**</th>
<th>Scottish Health Survey 2010-2011 combined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Summer</td>
<td>Autumn</td>
</tr>
<tr>
<td>Plasma 25-hydroxyvitamin D (nmol/L)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>51.3</td>
<td>34.9</td>
</tr>
<tr>
<td>SE</td>
<td>1.9</td>
<td>1.4</td>
</tr>
<tr>
<td>sd</td>
<td>26.2</td>
<td>19.7</td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>17</td>
<td>32</td>
</tr>
<tr>
<td>95% CI %</td>
<td>12-23</td>
<td>26-39</td>
</tr>
<tr>
<td>Bases (unweighted)</td>
<td>364</td>
<td>320</td>
</tr>
<tr>
<td>Bases (weighted)</td>
<td>363</td>
<td>363</td>
</tr>
</tbody>
</table>

** Blood sample was taken shortly after the interview
Table 21

Vitamin D status in English regions by season - adults 16 years and over

Aged 16 years and over

<table>
<thead>
<tr>
<th>Region</th>
<th>Summer July - September</th>
<th>Autumn October - December</th>
<th>Winter January - March</th>
<th>Spring April - June</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Midlands and North</td>
<td>South incl. London</td>
<td>South excl. London</td>
<td>Midlands and North</td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>6</td>
<td>7</td>
<td>5</td>
<td>29</td>
</tr>
<tr>
<td>Bases</td>
<td>504</td>
<td>494</td>
<td>391</td>
<td>517</td>
</tr>
<tr>
<td>% below 25nmol/L in London:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summer</td>
<td>16%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autumn</td>
<td>47%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Winter</td>
<td>55%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring</td>
<td>16%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Midlands and North</td>
<td>South incl. London</td>
<td>South excl. London</td>
<td>Midlands and North</td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>26</td>
<td>21</td>
<td>46</td>
<td>38</td>
</tr>
<tr>
<td>Bases</td>
<td>454</td>
<td>344</td>
<td>837</td>
<td>720</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Midlands and North</td>
<td>South incl. London</td>
<td>South excl. London</td>
<td>Midlands and North</td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>22</td>
<td>35</td>
<td>22</td>
<td>14</td>
</tr>
<tr>
<td>Bases</td>
<td>645</td>
<td>570</td>
<td>645</td>
<td>575</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Midlands and North</td>
<td>South incl. London</td>
<td>South excl. London</td>
<td>Midlands and North</td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>14</td>
<td>12</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Bases</td>
<td>469</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 22

Vitamin D status in pregnant women in North West London, by season

<table>
<thead>
<tr>
<th>Analyte</th>
<th>July - September</th>
<th>October - December</th>
<th>January - March</th>
<th>April - June</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plasma 25-hydroxyvitamin D (nmol/L)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>38.0</td>
<td>38.0</td>
<td>26.0</td>
<td>32.0</td>
<td>35.0</td>
</tr>
<tr>
<td>Inter quartile range</td>
<td>22, 76</td>
<td>18, 66</td>
<td>12, 48</td>
<td>20, 60</td>
<td>19, 64</td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>29</td>
<td>36</td>
<td>49</td>
<td>34</td>
<td>36</td>
</tr>
<tr>
<td>Bases (unweighted)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>346</td>
</tr>
</tbody>
</table>

**Table 23**

Vitamin D status in pregnant women in Southampton

<table>
<thead>
<tr>
<th>Plasma 25-hydroxyvitamin D (nmol/L)**</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>62.0</td>
</tr>
<tr>
<td>Inter quartile range</td>
<td>43-89</td>
</tr>
<tr>
<td>% below 75nmol/L</td>
<td>63.4</td>
</tr>
<tr>
<td>% below 50nmol/L</td>
<td>35.1</td>
</tr>
</tbody>
</table>

Bases (unweighted) 977

* Mean age 30.4 years

** Measured at 34 weeks gestation

Blood samples were taken throughout the year. Season of sampling was the most important predictor of higher vitamin D status

Crozier SR et al. (2012) Maternal vitamin D status in pregnancy is associated with adiposity in the offspring: findings from the Southampton Women’s Survey. AJCN 96 57-63
Table 24
Vitamin D status in pregnant women** in South West England, by trimester

<table>
<thead>
<tr>
<th></th>
<th>First trimester</th>
<th>Second trimester</th>
<th>Third trimester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plasma 25-hydroxyvitamin D (nmol/L)**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>55.1</td>
<td>60.1</td>
<td>67.4</td>
</tr>
<tr>
<td>Inter quartile range</td>
<td>40.7 - 74.1</td>
<td>41.4 - 83.4</td>
<td>46.8 - 93.0</td>
</tr>
<tr>
<td>% below 50 nmol/L</td>
<td></td>
<td></td>
<td>34%</td>
</tr>
<tr>
<td>% below 27.5 nmol/L</td>
<td></td>
<td></td>
<td>6%</td>
</tr>
<tr>
<td>Bases (unweighted)</td>
<td>1035</td>
<td>879</td>
<td>2,046</td>
</tr>
</tbody>
</table>

** Mainly white European. Mean age 29 years. Blood samples collected throughout the year.

Lawlor DA et al. (2013) Association of maternal vitamin D status during pregnancy with bone-mineral content in
Table 25

Vitamin D status in England by ethnicity

Aged 16 years and over

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Ethnic Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>White</td>
</tr>
<tr>
<td>Plasma 25-hydroxyvitamin D (nmol/L)</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>45.8</td>
</tr>
<tr>
<td>Median</td>
<td>43.0</td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>21</td>
</tr>
<tr>
<td>Bases (unweighted)</td>
<td>3,548</td>
</tr>
</tbody>
</table>
Table 26
Vitamin D status in Asian children aged 2 years in England

<table>
<thead>
<tr>
<th>Ethnic group</th>
<th>Bangladeshi</th>
<th>Pakistani</th>
<th>Indian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>42.1</td>
<td>36.2</td>
<td>42.2</td>
</tr>
<tr>
<td>Median</td>
<td>37.5</td>
<td>30.0</td>
<td>37.5</td>
</tr>
<tr>
<td>sd</td>
<td>21.30</td>
<td>19.60</td>
<td>22.50</td>
</tr>
<tr>
<td>Upper 2.5th percentile</td>
<td>91.2</td>
<td>92.5</td>
<td>102.5</td>
</tr>
<tr>
<td>Lower 2.5th percentile</td>
<td>16.5</td>
<td>14.5</td>
<td>14.7</td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>20</td>
<td>34</td>
<td>25</td>
</tr>
<tr>
<td>% below 20nmol/L</td>
<td>13</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td>% below 12.5nmol/L</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bases (unweighted)</td>
<td>139</td>
<td>200</td>
<td>279</td>
</tr>
</tbody>
</table>

** Blood sample taken October - November
### Vitamin D status by ethnicity and season

**Aged 19-70 years**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Asian</td>
<td>Caucasian</td>
<td>Asian</td>
<td>Caucasian</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>26.8</td>
<td>21.4</td>
<td>20.2</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>24.4</td>
<td>18.7</td>
<td>16.1</td>
</tr>
<tr>
<td></td>
<td>sd</td>
<td>10.20</td>
<td>10.10</td>
<td>10.40</td>
</tr>
<tr>
<td>% below 25nmol/L</td>
<td>52.5</td>
<td>80</td>
<td>1.8</td>
<td>75.4</td>
</tr>
</tbody>
</table>

**Bases (unweighted)**

|                                | 86          | 279         | 77             | 247         | 71          | 224         |

**The same women gave blood samples in each season.**
<table>
<thead>
<tr>
<th>Plasma 25-hydroxyvitamin D</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less than 25</td>
</tr>
<tr>
<td>Mean Vitamin D (nmol/L)</td>
<td>41</td>
</tr>
<tr>
<td>SE of mean (nmol/L)</td>
<td>1.8</td>
</tr>
<tr>
<td>Standard deviation (nmol/L)</td>
<td>25.7</td>
</tr>
<tr>
<td>% below 25 nmol/l %</td>
<td>33</td>
</tr>
<tr>
<td>95% C.I. (25-hydroxy)</td>
<td>(27-40)</td>
</tr>
</tbody>
</table>

**Scottish Health Survey 2010-2011 combined**

Aged 16 and over

**Table 28**

Vitamin D status in Scotland by Body Mass Index

_Bases (weighted):_

<table>
<thead>
<tr>
<th></th>
<th>470</th>
<th>498</th>
<th>364</th>
</tr>
</thead>
</table>

_Bases (unweighted):_

|        | 412 | 515 | 400 |