Dietary supplement use in The Netherlands

Elly Buurma-Rethans
Background
## Europe

- **EPIC 1995-2000 (Skeie, 2009)**

<table>
<thead>
<tr>
<th>Country</th>
<th>% men</th>
<th>% women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greece</td>
<td>0.5</td>
<td>6.7</td>
</tr>
<tr>
<td>Spain</td>
<td>6.6</td>
<td>13.4</td>
</tr>
<tr>
<td>Italy</td>
<td>7.8</td>
<td>12.4</td>
</tr>
<tr>
<td>France</td>
<td></td>
<td>31.1</td>
</tr>
<tr>
<td>Germany</td>
<td>22.0</td>
<td>26.9</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>19.7</td>
<td>32.5</td>
</tr>
<tr>
<td>UK general population</td>
<td>34.6</td>
<td>46.9</td>
</tr>
<tr>
<td>Denmark</td>
<td>48.8</td>
<td>64.3</td>
</tr>
<tr>
<td>Sweden</td>
<td>28.3</td>
<td>40.8</td>
</tr>
<tr>
<td>Norway</td>
<td></td>
<td>61.7</td>
</tr>
</tbody>
</table>

- **DNFCS 2003 (19-30 years)**

<table>
<thead>
<tr>
<th>% men</th>
<th>% women</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.5</td>
<td>33.2</td>
</tr>
</tbody>
</table>
Overseas

- **US:**
  - 2003-2006: ♂ 44%; ♀ 53% (Bailey, 2011)

- **Canada:** 2004: 40% of adults (Guo, 2009)

- **Taiwan:** 2005-2008: ♂ 46%; ♀ 52% 65+ (Chen, 2011)

- **Japan:** ca. 2005: ♂ 42%; ♀ 53% 55+ (Hirayama, 2008)
Objective

- To get more insight in the importance of dietary supplements for the habitual micronutrient intake in the Dutch population

- National Food Consumption Survey in The Netherlands 2007-2010
Method

- DNFCS 2007-2010 data collection: 3819 children and adults, aged 7-69 years
  - Two 24-hour dietary recalls on non-consecutive days (EPIC-Soft®)
  - Food frequency questionnaire

- Data of dietary supplements:
  - Actual use in EPIC-Soft® 24-hour recall data
  - Frequency information during winter and during the rest of the year
Method (2)

● Data handling
  – Dutch Supplement Label Database (NES), version 2008
  – For foods: Dutch Food Consumption Database (NEVO)

● Data analysis
  – Observed intake:  SAS® 9.2
  – Habitual intake:  SPADE 3-part model*

*Oral presentation and poster Janneke Verkaik et al
Use of dietary supplements*

- Overall use of dietary supplements (7-69 year) = 33.7%
  - 40% in wintertime
  - 27% during the rest of the year

*based on ffq data
Dietary supplement categories (%)
Vitamin D supplementation

- Health Council of the Netherlands recommends vitamin D supplementation (2009) for women over 50 and men over 70 years of age

<table>
<thead>
<tr>
<th>Supplementation</th>
<th>Wintertime</th>
<th>Rest of the year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin D</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Women (51-69 years)</td>
<td>37</td>
<td>28</td>
</tr>
</tbody>
</table>
Contribution of dietary supplements and fortified foods*
### Median intake of vitamin D and folate

<table>
<thead>
<tr>
<th></th>
<th>Habitual intake from foods</th>
<th>Habitual intake from foods &amp; supplements</th>
<th>Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Women &gt;50 y</strong></td>
<td>3.2 μg vit D</td>
<td>3.8 μg vit D</td>
<td>AI 5 μg vit D</td>
</tr>
<tr>
<td><strong>Men &gt;50 y</strong></td>
<td>4.1 μg vit D</td>
<td>4.4 μg vit D</td>
<td>AI 5 μg vit D</td>
</tr>
<tr>
<td><strong>Women 19-30 y</strong></td>
<td>216 μg folate</td>
<td>249 μg folate</td>
<td>EAR 200 μg folate</td>
</tr>
<tr>
<td><strong>Women 31-50 y</strong></td>
<td>242 μg folate</td>
<td>282 μg folate</td>
<td>EAR 200 μg folate</td>
</tr>
</tbody>
</table>
Other results on dietary supplementation

- From foods only the median intake of vitamin B2, B6 and B12 was sufficient

- Current intake of dietary supplements did not lead to excess intakes

- Besides for folate and vitamin E, percentages of low intakes hardly differed
Conclusions

- Combination of 24-h recalls and FFQ gives insight in habitual intake of dietary supplements

- Dutch data on consumption of dietary supplements correspond to international data:
  - More women than men
  - Increasing by age
  - Increasing over time

- Relevant to monitor dietary supplement use

- Interesting to get more insight in characteristics of supplement users and the differences between users and non-users
Thank you

Respondents of DNFCS 2007-2010

Janneke Verkaik, Heidi Fransen, Zohreh Etemad, Marja Beukers, Agnes Roos, Arnold Dekkers, Marga Ocké, Caroline van Rossum
More information

- [http://www.rivm.nl/dnfcs](http://www.rivm.nl/dnfcs)