



National Institute for Public Health  
and the Environment  
*Ministry of Health, Welfare and Sport*

# Dietary supplement use in The Netherlands

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# Background







# Europe

- EPIC 1995-2000 (Skeie, 2009)



<b>35-74 year</b>	<b>% men</b>	<b>% women</b>
Greece	0.5	6.7
Spain	6.6	13.4
Italy	7.8	12.4
France		31.1
Germany	22.0	26.9
The Netherlands	19.7	32.5
UK general population	34.6	46.9
Denmark	48.8	64.3
Sweden	28.3	40.8
Norway		61.7

- DNFCs 2003 (19-30 years)

20.5      33.2



## Overseas



- US:
  - 1971-1974: ♂ 28%; ♀ 38% (Briefel, 2004)
  - 1986-1980: ♂ 32%; ♀ 43% (Briefel, 2004)
  - 1988-1994: ♂ 35%; ♀ 43% (Gahche, 2011)
  - 1999-2000: 52% of adults (Radimer, 2004)
  - 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)



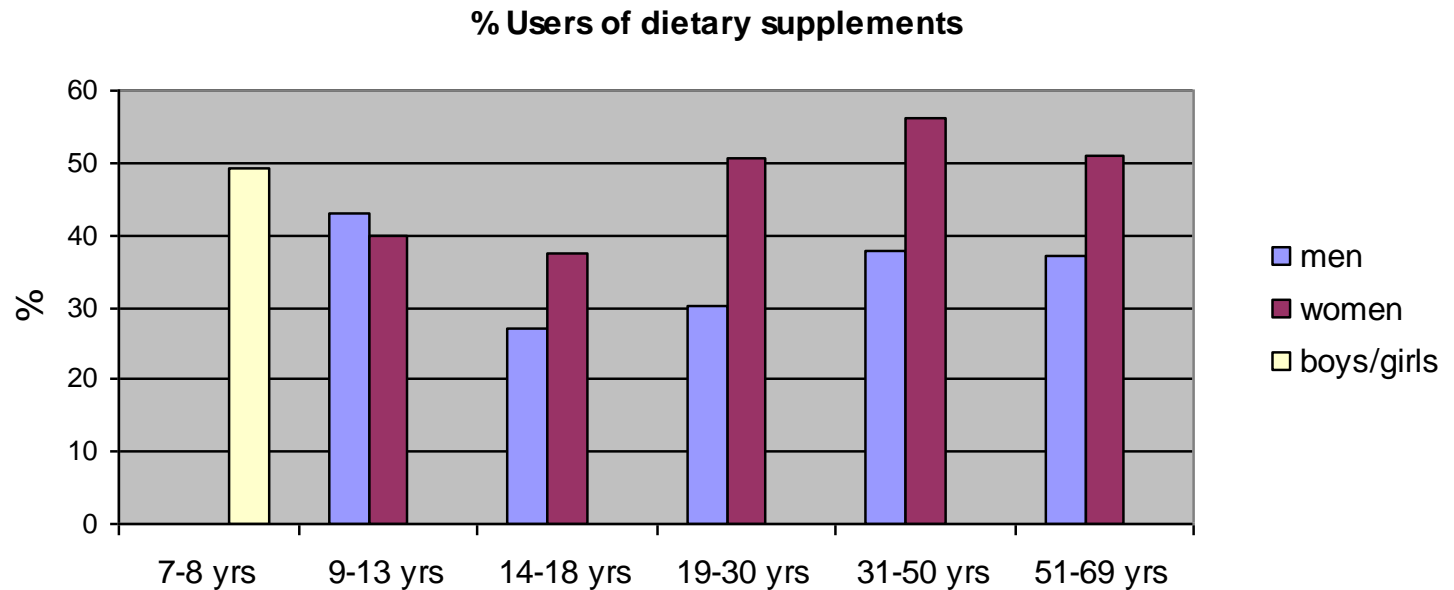
- Data handling
  - Dutch Supplement Label Database (NES), version 2008
  - For foods: Dutch Food Consumption Database (NEVO)
- Data analysis
  - Observed intake: SAS<sup>®</sup> 9.2
  - Habitual intake: SPADE 3-part model\*

\*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

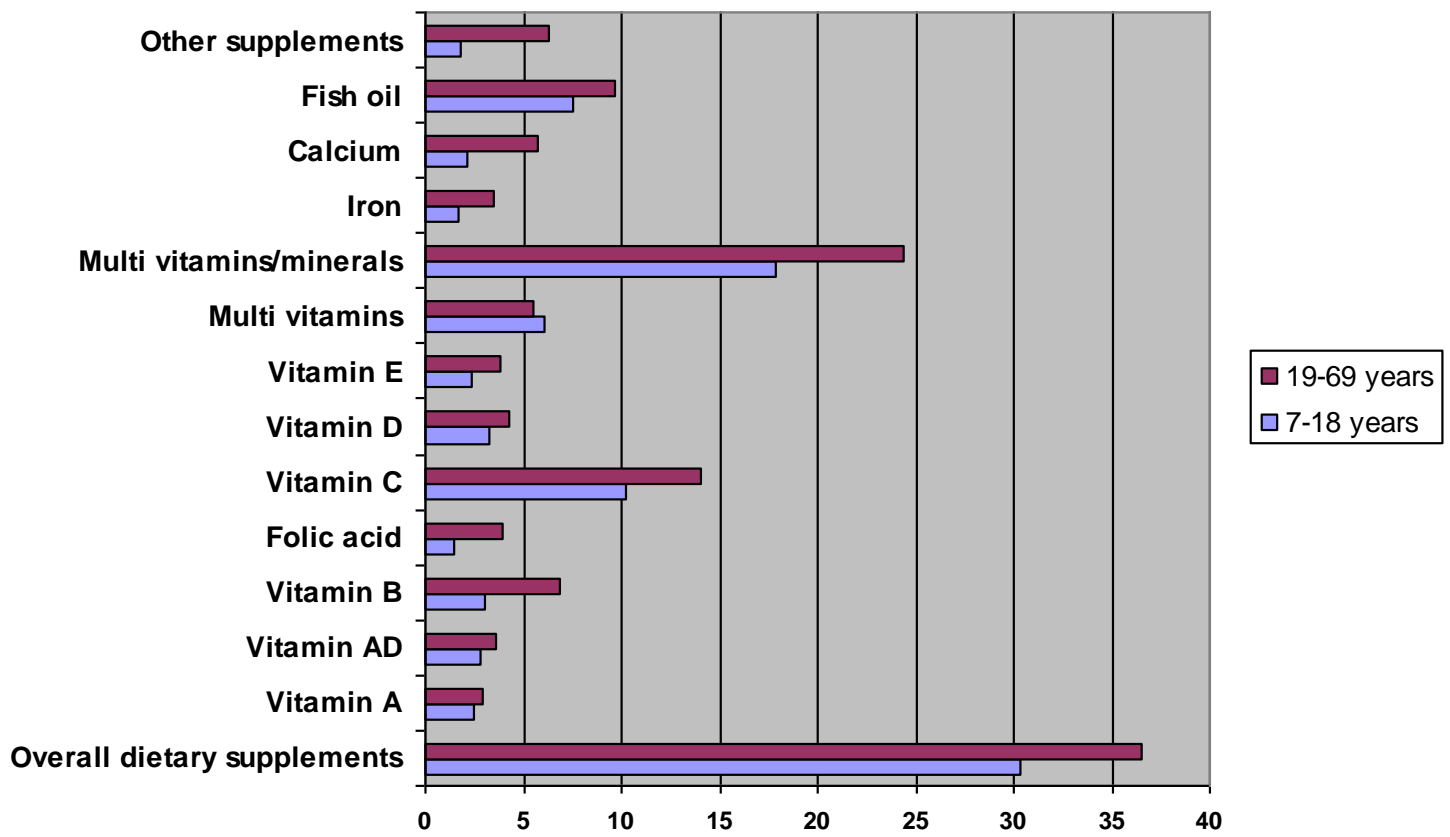


\*based on ffq data





# Dietary supplement categories (%)





## Vitamin D supplementation

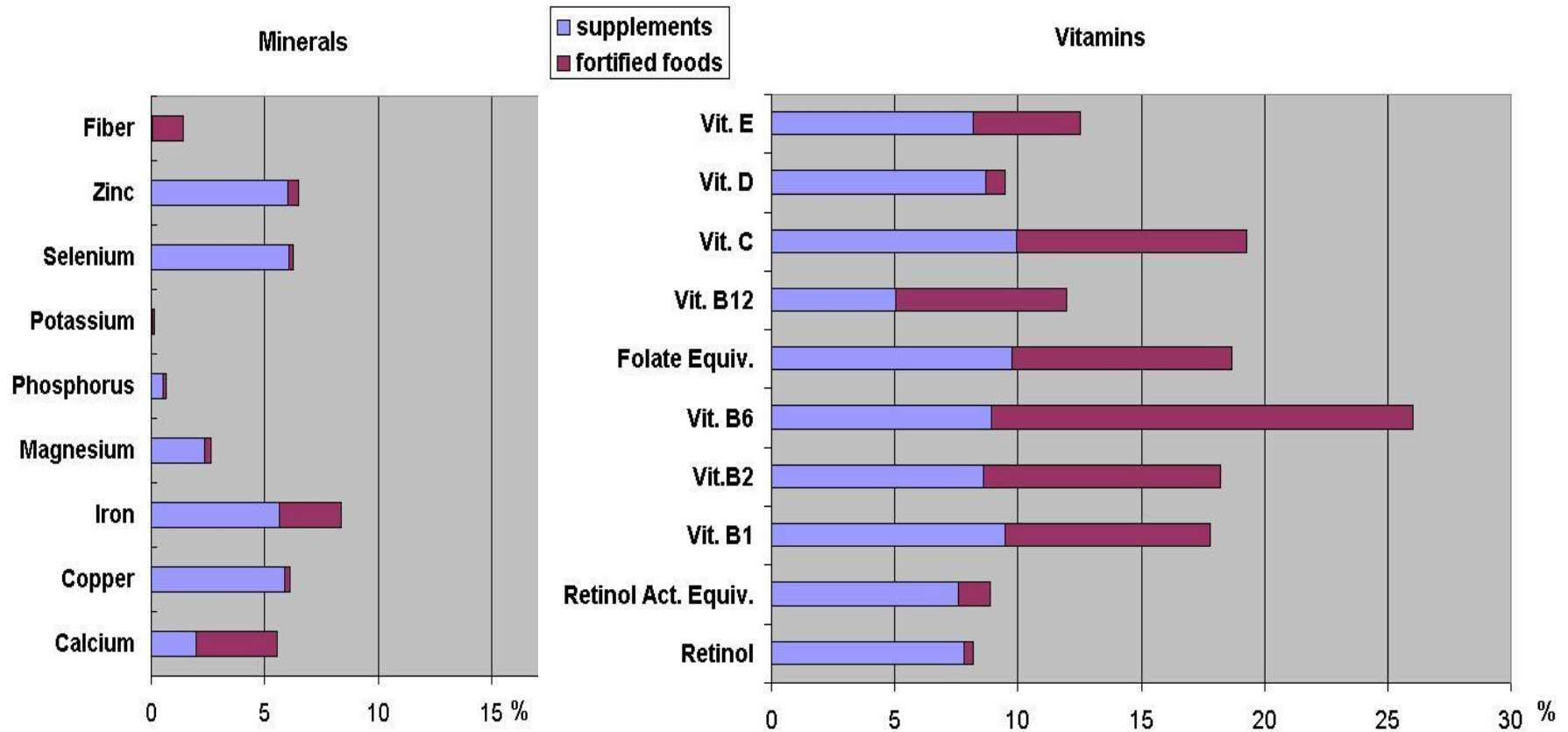
- Health Council of the Netherlands recommends vitamin D supplementation (2009) for women over 50 and men over 70 years of age

Supplementation Vitamin D	Wintertime %	Rest of the year %
Women (51-69 years)	37	28





# Contribution of dietary supplements and fortified foods\*



\*based on 24h recalls



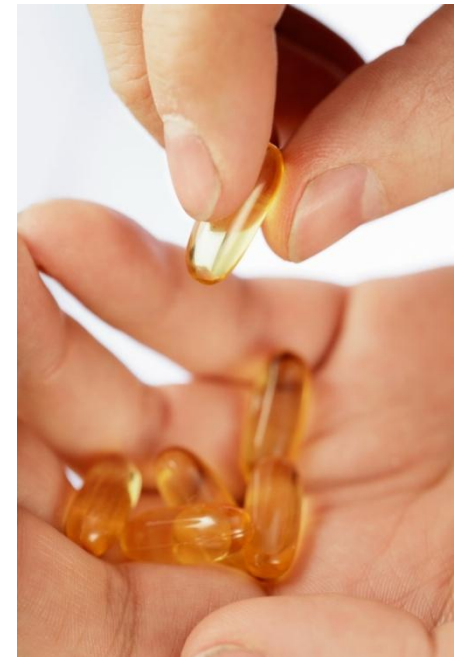
## Median intake of vitamin D and folate

	Habitual intake from foods	Habitual intake from foods & supplements	Recommended	
Women >50 y	3.2 µg vit D	3.8 µg vit D	AI 5 µg vit D	
Men >50 y	4.1 µg vit D	4.4 µg vit D	AI 5 µg vit D	
Women 19-30 y	216 µg folate	249 µg folate	EAR 200 µg folate	28% below EAR
Women 31-50 y	242 µg folate	282 µg folate	EAR 200 µg folate	18% below EAR



## 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>
- Report of Dutch National Consumption Survey 2007-2010, Diet of adults and children 7 to 69 years:  
<http://www.rivm.nl/bibliotheek/rapporten/350050006.pdf> ( **4194 kb** )

