

# Dietary reference values for vitamins and minerals for pregnant women

Reference values for the intake of vitamins and minerals for pregnant women  
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## Executive summary

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Health Council of the Netherlands



The Health Council of the Netherlands has derived new dietary reference values for vitamins and minerals for pregnant women. This advisory report is a partial advisory report within the scope of the evaluation of Dutch dietary reference values. The Health Council considers that harmonisation of dietary reference values across the European Union is preferable. Accordingly, the Council's Committee on Nutrition has evaluated the extent to which the European Food Safety Authority's (EFSA) dietary reference values can be adopted. In parallel with this advisory process on dietary reference values for pregnant women, the Health Council of the Netherlands has also formulated dietary recommendations for pregnant women.

### **Evaluation of the EFSA's dietary reference values**

The nutrient requirement corresponds to the intake level that prevents symptoms of deficiency and mitigates the risk of chronic diseases as much as possible. The committee evaluated whether there are any serious scientific objections to EFSA's way of deriving the nutrient requirements (additional requirements) of pregnant women. Other leading international reports on dietary reference values have also been taken into consideration. From the parallel advisory process on dietary recommendations for pregnant women for some nutrients (namely vitamin D and calcium), additional documentation was available about intervention studies into calcium and vitamin D supplements and maternal or child health outcomes.

The evaluation shows that EFSA's derivation method can be adopted in many cases. There were four nutrients for which the committee would prefer a different derivation method to that used by the EFSA (namely folate, copper, calcium and iodine). It is in practice, however, not going to deviate from the EFSA in the case of iodine because the difference from the EFSA's reference value was less than 10%. When the difference is less than 10%, the committee has decided to adopt the EFSA reference value after all in the interests of European harmonisation. For calcium, the committee only deviates from the EFSA regarding the second half of the pregnancy, because of additional evidence from the report *Dietary recommendations for pregnant women*, that is being published at the same time as this advisory report.



Among the vitamins and minerals, there are two nutrients for which no dietary reference values have been set for pregnant women in the Netherlands: chromium and fluoride.

The Netherlands has also not derived reference values for either of these nutrients for adults. EFSA, on the other hand, does have a reference value for fluoride.

### **Strength of the evidence**

The committee assessed the level of evidence for the derivation of the requirement (additional requirement) of pregnant women for each nutrient. For seventeen nutrients, the committee found the level of the evidence to be strong or acceptable because the studies on which the derivation was based were of sufficiently good quality and/or there was a plausible rationale (e.g. increased energy requirement due to pregnancy, weight gain or physiological changes). For eight nutrients, the level of evidence for the derivation was weak.

### **Advisory report**

The committee considers seventeen of the updated dietary reference values for pregnant women to be suitable for application. They have sufficient scientific underpinnings or there are no indications for deficiencies in the general population. Of these seventeen dietary reference values, five are the same as for women who are not pregnant: vitamins D and K1, iron, magnesium and potassium. For calcium, the reference value for women at up to 20 weeks of pregnancy is the same as the reference value for women who are not pregnant, but from 20 weeks of pregnancy onwards it is slightly higher for women aged 25 and over than for women of that age who are not pregnant. The remaining eleven dietary reference values are higher than those for women who are not pregnant.



**Table 1** Dietary reference values to be applied for pregnant women in the Netherlands

Nutrient	Population reference intake or adequate intake level
Vitamin A	750 µg RAE/d
Thiamine	0.1 mg/MJ (1.0 mg/d) Trimester: 1 <sup>st</sup> : 0.9 mg/d; 2 <sup>nd</sup> : 1.0 mg/d; 3 <sup>rd</sup> : 1.1 mg/d
Riboflavin	1.9 mg/day
Niacin	1.6 mg NE/MJ (16 mg NE/d) Trimester: 1 <sup>st</sup> : 15 mg NE/d; 2 <sup>nd</sup> : 16 mg NE/d; 3 <sup>rd</sup> : 17 mg NE/d
Vitamin B6	1.8 mg/d
Folate*	400 µg DFE/d (AI)
Vitamin B12	3.3 µg/d
Vitamin C	85 mg/d
Vitamin D	10 µg/d (AI)
Vitamin K1	70 µg/d (AI)
Calcium through to the 20th week of pregnancy	ages 18-24: 1,000 mg/d; age ≥ 25: 950 mg/d
Calcium after the 20th week of pregnancy**	1,000 mg/d (AI)
Iron	16 mg/d
Iodine	200 µg/d (AI)
Potassium	3.5 g/d
Copper	1.0 mg/d
Magnesium	300 mg/d
Zinc	9.1 mg/d

AI: adequate intake; d: day, DFE: dietary folate equivalent, g: grams, mg: milligrams, MJ: megajoules, NE: niacin equivalents, RAE: retinol activity equivalents, µg: micrograms

\* This is the reference value for folate (expressed in DFE) that applies throughout the pregnancy. In addition, the dietary supplementation recommendation for synthetic or natural folic acid applies from 4 weeks before to 8 weeks after conception.

\*\* It is recommended that all pregnant women should achieve the adequate intake level of 1,000 mg/d from 20 weeks of pregnancy onwards.

### Considerations when using dietary reference values for pregnant women

The dietary reference values are based on healthy women with a healthy pregnancy who do not require medical treatment requiring special nutritional measures. The dietary reference values for vitamins and minerals for pregnant women are relevant for public education on nutrition, for example from the Netherlands Nutrition Centre. Furthermore, healthcare professionals such as dietitians and physicians can use the set of dietary reference values as a resource when advising individuals about healthy eating habits or diets. Dietary reference values are important tools for establishing responsible dietary patterns, but if a pregnant woman's intake is lower than stated therein, it does not necessarily mean that the person's intake is insufficient for them. Additional data (e.g. from blood tests) is needed to establish this. One exception is calcium from 20 weeks' pregnancy onwards: the committee recommends that all pregnant women should achieve that level.



The Health Council of the Netherlands, established in 1902, is an independent scientific advisory body. Its remit is “to advise the government and Parliament on the current level of knowledge with respect to public health issues and health (services) research...” (Section 22, Health Act).

The Health Council receives most requests for advice from the Ministers of Health, Welfare and Sport, Infrastructure and Water Management, Social Affairs and Employment, and Agriculture, Nature and Food Quality. The Council can publish advisory reports on its own initiative. It usually does this in order to ask attention for developments or trends that are thought to be relevant to government policy.

Most Health Council reports are prepared by multidisciplinary committees of Dutch or, sometimes, foreign experts, appointed in a personal capacity. The reports are available to the public.

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