

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

TOX/2026/37

Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment

First draft statement paper on the effects of excess Vitamin E on maternal health

Introduction and Background

1. The Scientific Advisory Committee on Nutrition (SACN) last considered maternal diet and nutrition in relation to offspring health in its reports on 'The influence of maternal, fetal and child nutrition on the development of chronic disease in later life' (SACN, 2011) and on 'Feeding in the first year of life' (SACN, 2018). In the latter report, the impact of breastfeeding on maternal health was also considered.
2. In 2019, SACN agreed to conduct a risk assessment on nutrition and maternal health focusing on maternal outcomes during pregnancy, childbirth and up to 24 months after delivery; this would include the effects of chemical contaminants and excess nutrients in the diet.
3. SACN agreed that, where appropriate, other expert Committees would be consulted and asked to complete relevant risk assessments e.g. in the area of food safety advice. This subject was initially discussed during the horizon scanning item at the January 2020 meeting with a scoping paper being presented to the Committee in July 2020. This included background information on a provisional list of chemicals proposed by SACN. It was noted that the provisional list of chemicals was subject to change following discussion by COT who would be guiding the toxicological risk assessment process: candidate chemicals or chemical classes can be added or removed as the COT considered appropriate. The list was brought back to the COT with additional information in September 2020 ([COT Contribution to SACN review of nutrition and maternal health: proposed scope of work and timetable](#)). Following a discussion at the COT meeting in September 2020, it was agreed that papers on a number of components should be prioritised and to this end, papers on iodine,

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

vitamin D and dietary supplements have been or will be presented to the Committee. The remaining list of compounds were to be triaged on the basis of toxicity and exposure. The current paper presents information intended to aid this process.

4. A discussion paper on the effects of excess vitamin E on the maternal diet was prepared and presented to the COT in July 2026.
5. The current paper summarises the conclusions of the Committee and addressed the areas where further information had been requested during the discussion of the item in July.

Questions for the Committee

The Committee are asked to consider the following questions.

- a. Does the Committee have any comments on the structure or content of the draft Statement?
- b. Does the Committee agree with the conclusions of the statement paper?
- c. Does the Committee have any other comments?

COT Secretariat

October 2026

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Annex A to TOX/2026/37

Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment

First draft statement paper on the effects of excess Vitamin E on maternal health

Introduction

1. The Scientific Advisory Committee on Nutrition (SACN) last considered maternal diet and nutrition in relation to offspring health in its reports on 'The influence of maternal, fetal and child nutrition on the development of chronic disease in later life' (SACN, 2011) and on 'Feeding in the first year of life' (SACN, 2018). In the latter report, the impact of breastfeeding on maternal health was also considered.
2. In 2019, SACN agreed to conduct a risk assessment on nutrition and maternal health focusing on maternal outcomes during pregnancy, childbirth and up to 24 months after delivery; this would include the effects of chemical contaminants and excess nutrients in the diet. The assessment would also consider infant outcomes, but only where they relate to the neonatal period. The neonatal period was normally considered to be up to 28 days after birth, but the relevant time window for neonatal effects would be determined on a case-by-case basis.
3. SACN agreed that, where appropriate, other expert Committees would be consulted and asked to complete relevant risk assessments e.g. in the area of food safety advice. This subject was initially discussed during the horizon scanning item at the January 2020 meeting with a scoping paper being presented to the Committee in July 2020. This included background information on the provisional list of chemicals proposed by SACN. It was noted that the provisional list of chemicals was subject to change following discussion by COT who would be guiding the toxicological risk assessment process: candidate chemicals or chemical classes can be added or removed as the COT considered appropriate. The list was brought back

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

to the COT with additional information in September 2020 ([\[ARCHIVED CONTENT\]](#)).

Following a discussion at the COT meeting in September 2020, it was agreed that papers on a number of components should be prioritised and to this end, papers on iodine, vitamin D and dietary supplements have been or will be presented to the Committee. The remaining list of compounds were to be triaged on the basis of toxicity and exposure. The current paper presents information intended to aid this process.

4. Following discussion of the first prioritisation paper ([COT Contribution to SACN review of nutrition and maternal health: proposed scope of](#)) on substances to be considered for risk assessment by the COT, the Committee decided that Vitamin E should be considered in a specific paper.

Current UK Government and International advice

5. UK Government advice as given on the national health service (NHS) [NHS.uk website](#) lists good sources of vitamin E as plant oils (such as rapeseed (vegetable oil), sunflower, soya, corn and olive oil), wheatgerm (found in cereals and cereal product), nuts and seeds (NHS, 2020).

6. UK Government dietary advice, as given on the NHS website, does not have specific recommendations concerning pregnant women consuming Vitamin E and states that 'a healthy, varied diet' should provide sufficient vitamin intake during pregnancy, unless stated otherwise.

7. The World Health Organisation (WHO) reports that the current evidence does not support the routine use of vitamin E supplementation during pregnancy. The WHO's recommendations are considered in more detail in paragraph 18.

Background

Structure and sources

8. Vitamin E is the collective name for a group of eight structurally similar compounds consisting of four tocopherols and four tocotrienols (α (alpha), β (beta), γ

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

(gamma), and δ (delta) forms) (Szewczyk, *et al.* 2025). α -tocopherol is recognised as the only essential form of Vitamin E (EFSA, 2024).

9. Vitamin E activity is expressed as *d*- α -tocopherol equivalents. Where activity is given as International Units (IU), 1 IU of *d*- α -tocopherol (RRR- α -tocopherol) is equivalent to 0.67 mg. If the vitamin E is present in the form of *dl*- α -tocopherol (*all-rac*- α -tocopherol), then 0.91 mg is equivalent to 1 IU.

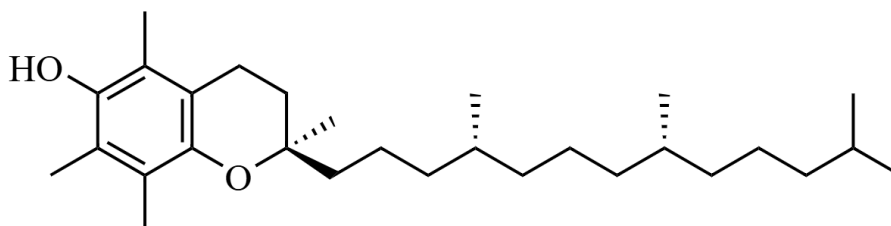


Figure 1: Chemical structure of natural α -tocopherol (i.e. RRR- α -tocopherol). RRR refers to R- conformation at the 2,4 and 8 positions.

10. Vitamin E in the diet is essential for health in general and vitamin E deficiency in pregnant women is known to compromise fetal development and increase the risk of miscarriage, pre-eclampsia, and premature delivery (Gagné, *et al.*, 2009).

11. The NHS recommends that for a healthy diet, 4 mg for men and 3 mg for women of vitamin E should be consumed daily and would be easily obtained by eating a balanced diet.

12. Vitamin E is synthesized by plants and is primarily found in dietary sources such as vegetable oils, seeds, kernels, and nuts (Szewczyk, *et al.* 2025). Animal tissues generally have a low concentration of vitamin E, with accumulation occurring in fatty tissues depending on intake.

13. Plant oils are the main dietary sources of vitamin E (560-1600 mg/kg in soybean oil, 530-1620 mg/kg in corn oil and 50-150 mg/kg in olive oil), with meat (0.5-1.6 mg/kg), poultry (1.6-4.0 mg/kg) and dairy products (0.4-10.0 mg/kg) providing only moderate amounts. The Expert Committee on Vitamins and Minerals (EVM) (2003) states that vitamin E is present in a variety of dietary supplements at doses of up to 268 mg/day in multi-constituent products and 670 mg/day in single

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

constituent products (EVM, 2003). Recent data from market analysis of vitamin E supplements (vitamin E only or multi-ingredient dietary supplements (MIDS)) showed a daily dose of 4-536 mg of vitamin E.

At risk populations

14. In low- and middle-income countries around the world there are issues with vitamin E deficiency in vulnerable populations through limited intake of food sources containing vitamin E and a higher prevalence of oxidative stressors such as malaria and HIV infection, which accelerate its depletion (Dror and Allen, 2011). Only very variable data on population level estimates of vitamin E deficiency is available, causing difficulty in accurately estimating population level vitamin E deficiency, particularly in areas prevalent in nutrient deprivation. Vitamin E deficiency in pregnant women can cause miscarriage, preterm birth, preeclampsia, and intrauterine growth restriction (Gagné, *et al.*, 2009).

Previous evaluations

15. Previous evaluations of vitamin E have been carried out by the European Food Safety Authority (EFSAa, 2015; EFSAb, 2015; EFSA, 2024), EVM (2003), the Scientific Committee on Food (SCF) (2003), and the WHO (Rumbold, *et al.* 2015).

16. The SCF (2003) set a Tolerable Upper Intake Level (TUIL) for vitamin E of 280 mg/day for adults, rounded to 300 mg/day using an uncertainty factor of 2, based on the effect on blood clotting and the increased risk of bleeding from a study by Meydani *et al.* (1998). The same TUIL was applied to pregnant and lactating women.

17. The EVM established a Safe Upper Level (SUL) of 540 mg (800 IU) for supplemental Vitamin E, equivalent to 9 mg/kg bw/day in a 60 kg adult (EVM, 2003). This was based on 3 key studies (Gillilan *et al.* (1977); Meydani *et al.* (1996); Stephens *et al.* (1996)) which are discussed in more detail in paragraph 113. In the studies by Gillilan *et al.* (1977) and Meydani *et al.* (1996), the biochemical and physiological effects of vitamin E were investigated and the findings indicated that supplemental doses of 800 to 1600 IU/day were without apparent adverse effect.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

The results were derived from small groups that may not be representative, therefore the EVM considered that an additional uncertainty factor could be applied to account for inter-individual variation. However, the results of the larger Cambridge Heart Antioxidant Study (CHAOS) trial (Stephens *et al.*, 1996) supported the view that 800 IU/day supplemental vitamin E would not result in any adverse effects and, taking the three studies together, the EVM concluded that no further uncertainty factors were necessary (EVM, 2003).

18. In EFSA 2015, the Panel on Food Additives and Nutrient Sources added to Food (ANS) re-evaluated the safety of tocopherol-rich extract (E 306), α -tocopherol (E 307), γ -tocopherol (E 308) and δ -tocopherol (E 309) as food additives (EFSA, 2015). EFSA adopted the TUILs for vitamin E from all dietary sources retained for all population groups in line with the SCF of 300 mg/day for adults, including pregnant and lactating women. In 2024, EFSA reviewed the TUIL of α -tocopherol previously established by the SCF, and found no basis to change the TUIL, therefore retaining the TUIL of 300 mg α -tocopherol/day for adults. This TUIL also applies to pregnant and lactating women as no new evidence was found regarding specific adverse effects or different susceptibility in these groups (EFSA, 2024).

19. The WHO's systematic review of vitamin E supplementation in pregnancy found that the evidence 'does not support the routine use of vitamin E supplementation in pregnancy for the prevention of fetal or neonatal death, preterm birth, preeclampsia, or intrauterine growth restriction for women with or without a high risk of adverse pregnancy outcomes. While vitamin E supplementation reduced the risk of placental abruption, an increased risk of term [premature rupture of membranes] PROM and the side effect of abdominal pain was also found among women receiving vitamin E' (WHO, date not given; Rumbold, *et al.* 2015).

Functions

20. Vitamin E is often considered the main lipophilic antioxidant of the body due to its important role in counteracting oxidative stress. Free (non-esterified) vitamin E functions as an antioxidant and deactivates reactive oxygen species (ROS). Vitamin E's antioxidant activity is mostly directed at cellular membrane lipids, where it

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

protects against ROS-mediated lipid peroxidation by preventing and terminating reactions that produce peroxide, which act as secondary ROS (Rutkowski and Grzegorzczak, 2012).

21. Secondary functions such as gene transcription and expression have also been suggested for alpha-tocopherol (EVM, 2003).

Mechanisms of action

Antioxidant effects

22. The mechanism of action for most of vitamin E's effects are currently still unknown (Brigelius-Flohe, 2009). α -tocopherol is an antioxidant that binds free radicals, protecting cellular components from oxidative damage (EVM, 2003, Okebukola, Kansra and Barrett, 2017).

23. A mechanism of vitamin E's antioxidant effect is in the termination of lipid peroxidation. The vitamin reacts with unstable lipid radicals, which produces stable lipids and a relatively stable vitamin E radical. This radical is then reduced back to stable vitamin E by reacting with ascorbate or glutathione (EVM, 2003, Herrera and Barbas, 2001).

Mechanisms of toxicity

24. The most established mechanism of toxicity of vitamin E is its interference with vitamin K metabolism and function, leading to impaired blood coagulation particularly in susceptible individuals (EVM, 2003; Meydani, *et al.* 1998; Megavitamin E Supplementation and Vitamin K-Dependent Carboxylation. 1983; Corrigan and Marcus, 1974; and Yue, and Jansson. 2001).

25. The mechanism of this interference is uncertain, but it has been suggested that competitive inhibition between tocopheryl quinone and vitamin K, which are both structurally similar, for the enzyme vitamin K-dependent carboxylase. This enzyme is essential for converting specific residues in certain proteins into functional clotting factors (Booth, 2004). Another proposed mechanism is competitive redox reaction between tocopherol quinone and the reduced form of vitamin K, vitamin K

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

hydroquinone, which would result in a depletion of the cofactor for the vitamin K-dependent carboxylase (Tovar, 2006).

ADME

26. α -tocopherol is absorbed from the small intestine by non-saturable passive diffusion. Tocotrienol esters are hydrolysed first by pancreatic esterase, and then absorption occurs mostly in the upper and middle of the small intestine. The absorption efficiency of tocopherol and its esters are generally considered variable (EFSA, 2024). EVM (2003) stated that human studies reported that absorption of alpha-tocopherol and its acetate ester is in the region of 21-86% over 24 hours. EFSA (2024) considered that the average α -tocopherol absorption from a usual diet would be about 75% (EFSAa, 2015).

27. Vitamin E has not been found to have a specific carrier protein in plasma (EVM, 2003). There are currently no data to suggest that any tissue serves as a storage site for α -tocopherol for its release on demand. Thus, tissues acquire α -tocopherol by non-specific lipid- or lipoprotein-dependent mechanisms that also deliver peroxidisable fats, but it is not known how the tissues release or secrete α -tocopherol (EFSA, 2024). α -tocopherol is absorbed by the liver and released in low density lipoprotein. Most absorbed tocopherols are transported unchanged to the tissues. Kinetic studies have indicated that the human body has two collections of Vitamin E. One is 'labile' that turns over rapidly and one is 'fixed' that turns over slowly. The labile collection predominates in tissues such as plasma and liver because tocopherol is depleted rapidly in those tissues under conditions of vitamin E deprivation (EVM, 2003). In contrast, the fixed collection appears to predominately reside in the bulk lipid phase as adipose vitamin E (EFSA, 2024; EVM, 2003).

28. The presence of α -tocopherol transfer protein (α -TTP) in the placenta has been shown (Kaempf-Rotzoll *et al.*, 2003; Muller-Schmehl *et al.*, 2004). Based on immunohistochemical localisation of α -TTP and estimated staining intensity, it was found that α -TTP expression in the placenta doubled from the first trimester (six to eight weeks) to term (Rotzoll *et al.*, 2008).

29. EFSA (2024) noted that, in humans, although some α -tocopherol catabolism takes place in the intestine or the kidney, more than 90% of α -tocopherol catabolism

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

takes place in the liver, where α -tocopherol is catabolised to long-chain carboxy-catabolites and, ultimately, α -carboxyethyl hydroxychroman (α -CEHC) (EFSA, 2024; Traber *et al.*, 2019). α -CEHC is then excreted in the urine, bile and faeces (EFSA, 2024; EVM, 2003). EVM (2003) stated that 30–70% of vitamin E is excreted in the faeces via the bile, whereas less than 1% is excreted in the urine (EVM, 2003).

Acute toxicity

30. Vitamin E is largely considered safe compared to other fat-soluble vitamins (Tappel, 1972) and vitamin E toxicity is almost exclusively associated with high-dose supplementation. Overall, EFSA (2015), EVM (2003) and SCF (2003) all consistently consider the acute oral toxicity of α -tocopherol to be very low, commonly citing an acute toxicity study conducted by Krasavage and Terhaar (1977). In this study, mature CD rats (10 animals/sex/group) were fasted for 16 hours before being given either d- α -tocopheryl poly(ethylene glycol) 1000 succinate, polyethylene glycol 1000 or d- α -tocopheryl acid succinate at 7000 mg/kg bw. All animals were observed for clinical signs of toxicity for 14 days, after which, gross necropsies were conducted. Six of the 60 animals died within 48 hours of treatment; all deaths were attributed to dosing errors. After an initial transient 24-hour period of listlessness and diarrhoea, no further adverse effects were observed. The LD50 values for all three test substances were greater than 7000 mg/kg bw.

31. Acute clinical effects of vitamin E toxicity in humans are gastrointestinal upset, including nausea and diarrhoea, fatigue, muscle weakness, and anticoagulant effects caused by detrimental effects on vitamin K activity (Kappus and Diplock, 1992).

Short term and subchronic toxicity

32. The effects of tocopherols (primarily α -tocopherol) following repeated exposures in short-term and subchronic studies have been previously reviewed (EFSA 2015; EVM, 2003; SCF, 2003). The key studies (Krasavage and Terhaar, 1977; Abdo *et al.*, 1986) cited in these reviews are summarised in the following paragraphs. Full details on these studies can be found in ([TOX/2026/25](#)).

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

33. Krasavage and Terhaar (1977) conducted a 90-day dietary study, where CD weanling rats fed diets containing 0, 0.002, 0.2 or 2 % d- α -tocopheryl poly(ethylene glycol) 1000 succinate (calculated by the study authors to be 0, 0.5, 50 or 500 mg/kg bw/day vitamin E, respectively). There were no adverse findings in this study. (Krasavage and Terhaar, 1977). The EFSA ANS (2015) panel concluded that the NOAEL for this study is ≥ 500 mg/kg bw/day d- α -tocopheryl poly(ethylene glycol) 1000 succinate.

34. Abdo *et al.* (1986) carried out a 13-week oral gavage study, conducted in accordance with a protocol that is comparable with OECD TG 408 (OECD, 1998a). Weanling Fischer 344 rats (10 animals/sex/group) were dosed with 0, 125, 500 or 2,000 mg/kg bw/day d- α -tocopherol acetate in corn oil. The untreated controls were dosed with corn oil only. Deaths occurred in male rats that had received the highest dose only (7 out of 10 male rats in this group died); these deaths were attributed to internal haemorrhage. Signs of toxicity observed in the male rats that had received the highest dose were diarrhoea, tachypnoea, nose bleeds, dark faeces and red crusts around the eyes. There were no adverse effects on body weight or food consumption. Statistically significant increase of the liver-to body-weight ratios of females in the 500 and 2000 mg/kg bw/day groups ($p < 0.05$) was observed. There was a significant dose-related trend ($p < 0.02$) for increased thromboplastin time, activated partial thromboplastin time, fibrinogen, and reticulocyte, white blood cell, lymphocyte and segmented neutrophil counts (statistically significant at 90 days, $p < 0.05$) in males. There was also a decrease in haematocrit, red blood cell count and haemoglobin concentrations after 90 days (statistically significant at 90 days, $p < 0.05$) in males. Activated partial thromboplastin time was also increased in the 500 mg/kg bw/day group at 90 days ($p < 0.05$). In females, statistically significantly increased reticulocyte counts, decreased red blood cell counts and haemoglobin concentrations (p -values not given) were observed but there was no dose-dependent trend. There was, however, a dose-dependent increase in activated partial thromboplastin time in females at 90 days. There were statistically significant increases in serum chloride and γ -glutamyl transpeptidase concentrations in males of the highest dose group, but the change was not dose-dependent (p -value not stated). Thyroid stimulating hormone was statistically significantly increased in all treated male and female rats at 90 days ($p < 0.05$). Haemorrhagic diathesis

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

(haemorrhage or haemorrhagic inflammation in the nose, oesophagus, salivary gland, trachea, mediastinum, epididymis or meninges of the brain) occurred in 7 out of 10 males and in 2 out of 10 females in the 2000 mg/kg bw/day group. Increased extramedullary erythropoiesis of the spleen was observed in highest dose males (4/10 rats). Adenomatous hyperplasia and chronic interstitial inflammation of the lung were observed in all vitamin E-treated rats; the incidence and severity increased in a dose-dependent manner (Abdo *et al.*, 1986). In the SCF opinion (SCF, 2003), the NOAEL derived for this study was 125 mg/kg bw/day, based on the serum chemistry and the effects on the liver that indicated hepatotoxicity.

35. A 90-day dietary study conducted in accordance with OECD TG 408, Gianello *et al.*, 2007 on mixed tocopheryl phosphates was not considered by the EFSA ANS Panel to be relevant, as the fact that studies on the mixed tocopheryl phosphates give toxicological findings that were not relevant to the re-evaluation, and the availability of other good quality studies on the tocopherols, additional studies on mixed tocopheryl phosphates were not included (EFSA, 2015).

36. Additionally, in the 1994 Alpha-Tocopherol, Beta-Carotene (ATBC) study, vitamin E supplementation was associated with an increased risk of mortality from haemorrhagic stroke. The 1996 CHAOS observed a small excess of cardiovascular deaths in the vitamin E supplemented group (EVM, 2003).

Interactions – Vitamin K

37. Studies in animals have shown that high dietary α -tocopherol can lead to impaired coagulation (Frank *et al.*, 1997). Specifically, fatal haemorrhaging was associated with excess dietary vitamin E (Takahashi *et al.*, 1990) and was prevented with vitamin K supplementation (Frank *et al.*, 1997).

38. EFSA (2024) discussed how it is well established that high doses of α -tocopherol increase the risk of bleeding, as observed in animal studies (Abdo *et al.*, 1986; EFSA, 2015; Frank *et al.*, 1997; Helson, 1984; March *et al.*, 1973; Takahashi *et al.*, 1990; Wheldon *et al.*, 1983; Woolley, 1945). An increased risk of haemorrhage and prolonged prothrombin times and activated partial thromboplastin times have been observed upon oral administration of high doses of α -tocopherol to

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

chicks, rodents and mini-pigs (EFSA, 2015; IOM, 2001). *In vitro*, *ex vivo* and *in vivo* data suggest that the mechanisms by which α -tocopherol could impair blood clotting could be similar in animals and humans.

39. Different mechanisms were proposed by which high α -tocopherol intakes could increase the risk of bleeding in humans. First, α -tocopherol appeared to impair vitamin K absorption, hepatic metabolism and status. In animals, fatal haemorrhages associated with excess dietary α -tocopherol were prevented with vitamin K supplementation (Frank *et al.*, 1997; Helson, 1984; Wheldon *et al.*, 1983). In healthy humans, high-dose α -tocopherol supplements (1000 mg/day RRR- α -tocopherol) for 12 weeks increased concentrations of the inactive under- γ -carboxylated forms of prothrombin to levels indicative of poor vitamin K status (Booth *et al.*, 2004). Second, α -tocopherol was found to inhibit platelet aggregation *in vitro* (Kakishita *et al.*, 1990; Srivastava, 1986) and reduced platelet adhesion was observed in individuals taking α -tocopherol supplements (Jandak *et al.*, 1989; Steiner, 1983). The exact mechanism for the effect was unknown but was thought to be mediated by the inhibition of protein kinase C, a major regulator of platelet granule secretion, integrin activation and platelet aggregation (Freedman *et al.*, 1996; Steiner, 1999). Finally, α -tocopherol at high doses could potentiate the effect of antiplatelet and anticoagulant medications through different mechanisms (Podszun & Frank, 2014). In this context, the SCF considered the effect of α -tocopherol on blood clotting as the critical endpoint to derive a TUIL for vitamin E (SCF, 2003).

40. EVM (2003) stated that 'Vitamin E may exacerbate the effects of vitamin K deficiency, thus affecting blood coagulation. This has been reported in animal studies and in case reports of humans taking large doses the basis for the interaction is unclear. Vitamin E may also interfere with vitamin A absorption.'

Vitamin E and the placental barrier

41. The placenta is an organ that develops in the womb during pregnancy that acts as a protective barrier between the mother and developing foetus. The placenta acts as both a significant physical and a carefully controlled metabolic barrier to limit foetal exposure to potentially harmful substances and infections (Yong, *et al.*, 2021).

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Bidirectional transport, by diffusion and carrier-mediated transport, across the placenta provides nutrients and oxygen to the foetus while also facilitating the removal of metabolic waste products (Schneider, 1991). It has been suggested that α -TTP plays a major role in supplying the placenta and foetus with α -tocopherol in pregnant mice (Kaempf-Rotzoll, *et al.* 2002) and that the presence of α -TTP in the placenta suggests a role for α -TTP in the regulation of transfer of tocopherols through the placental barrier (Gagné, *et al.*, 2009). The role of vitamin E during different stages of pregnancy, especially during implantation and placental development, is not well understood, nor the control of the transfer of necessary amounts of vitamin E to the foetus.

EFSA ANS 2015 discussion of vitamin E and pregnant or lactating women

42. In EFSA 2015, the Panel on Food Additives and Nutrient Sources added to Food (ANS) re-evaluated the safety of tocopherol-rich extract (E 306), α -tocopherol (E 307), γ -tocopherol (E 308) and δ -tocopherol (E 309) as food additives (EFSA, 2015). The Panel considered three key animal studies by Hook, *et al.* 1974, Krasavage and Terhaar, 1997, and Martin and Hurley, 1977, which are described in sections 3.2.5 of EFSA, 2015, to be insufficient to address reproduction and developmental endpoints. The Panel also concluded that no multigeneration studies were conducted according to appropriate test guidelines for tocopherol-rich extract and α -, γ - and δ -tocopherols. In addition to the three key animal studies, the Panel did consider the human studies described below as indicative of no adverse effects (Boskovic *et al.* 2004) or of showing that tocopherols have a positive effect on fetal growth and male fertility (Scholl *et al.* 2006; Masters *et al.* 2007; Greco *et al.* 2005). There was no concern that tocopherols were genotoxic or carcinogenic. Data were considered insufficient to address the reproductive and developmental toxicity. The Panel considered prolonged coagulation time as the critical adverse effect.

Reproductive toxicity

43. Boskovic *et al.* (2004) investigated prospectively the safety of high doses of vitamin E supplementation during the first trimester of pregnancy in 82 pregnant

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

women exposed to 400-1200 IU/day vitamin E. A major malformation was reported in the vitamin E group (details not stated), the mean birth weight of the vitamin E group was statistically significantly lower than the control group. There were no statistically significant differences in live birth rates, premature births, miscarriages or stillbirths (Boskovic *et al.*, 2004; no further details).

44. Scholl *et al.* (2006) found that α -tocopherol showed a positive linear relationship with birth weight, but there was no such relationship with γ -tocopherol. The relationship with fetal growth was also observed in a study conducted by Masters *et al.*, (2007), which showed that maternal vitamin E is essential for normal growth and development of the human fetus.

45. Greco *et al.* (2005) conducted a study to investigate the potential benefit of antioxidant treatment (1 g each of vitamin C and E) prior to collection of spermatozoa, and found that treatment led to a decrease in DNA-fragmented spermatozoa in 76 % of men and although fertilisation was not affected by treatment, the pregnancy rates increased from 6.9 % to 48.2 %, and implantation increased from 2.2 % to 19.6 % in the treated group, compared with the pre-treated rates. It is not clear from these results which of the vitamins, or if both, had the beneficial effect. The Panel noted that this study may point to a protective role for vitamin E in male fertility.

46. EFSA ANS (2015) stated that although the study conducted by Boskovic *et al.* (2004) indicated that vitamin E supplements lead to reduced birth weights in humans, this result was not representative of the data as a whole. Overall, EFSA ANS (2015) considered that the data from human studies do not suggest that the tocopherols have an adverse effect on reproduction and development, and instead are essential for normal fetal growth and male fertility.

EFSA NDA 2015 discussion of vitamin E and pregnant or lactating women

47. In EFSA 2015, the Panel on Dietetic Products, Nutrition, and Allergies (NDA) were requested to derive Dietary Reference Values for vitamin E (EFSAa, 2015). The

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Panel's discussion on the effects of vitamin E on pregnant and lactating women is included below.

Pregnancy

48. Four prospective cohort studies investigated the association between maternal 'vitamin E' intake from foods and supplements during pregnancy and the risk of wheeze, asthma, eczema and/or hay fever (Martindale *et al.*, 2005; Devereux *et al.*, 2006; Litonjua *et al.*, 2006; Allan *et al.*, 2015) in children at various ages within their first 10 years with, overall, inconsistent results.

49. A randomised control trial found that pregnant women receiving daily vitamin C and E supplements in late pregnancy had higher mean maternal plasma α -tocopherol concentrations at delivery but no significant difference in cord plasma α -tocopherol at delivery. In addition, maternal plasma and chorioamnion α -tocopherol concentrations were correlated (Pressman *et al.*, 2003).

50. An observational study found that in pregnant women consuming vitamin E supplements there was no significant correlation between maternal and cord blood α -tocopherol concentrations or α -CEHC concentrations, but a significant correlation was observed between maternal and cord blood α -CEHC concentrations (Didenco *et al.*, 2011). The author stated that this suggests that insufficient placenta transfer is a factor that limits α -tocopherol transfer to the fetus and speculated that, based on these results, a higher intake of vitamin E during pregnancy results in elevated concentrations of vitamin E metabolites in the fetal blood, without increasing the fetal blood vitamin E. However, the source of the metabolite was not determined, and could have been maternal liver, fetal liver or placenta. Therefore, if vitamin E supplements are taken during pregnancy to increase fetal stores, in reality there might be an increase in metabolites, rather than increasing circulating tocopherol (Didenco *et al.*, 2011).

51. Studies also found that mean maternal plasma α -tocopherol concentration was significantly higher than mean cord plasma α -tocopherol concentration (Jain *et al.*, 1996; Kiely *et al.*, 1999; Acuff *et al.*, 1998), with significantly higher concentrations of D3-RRR- α -tocopherol than D6-all-rac- α -tocopherol (Acuff *et al.*,

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

1998). No correlation was seen between maternal and cord blood α -tocopherol concentrations as well as lipid-adjusted α -tocopherol concentrations (Kiely *et al.*, 1999). However maternal plasma α -tocopherol concentrations correlated significantly with those in the fetus, with no significant differences in plasma α -tocopherol concentrations throughout pregnancy in either mother or fetus, which suggested that placental transfer of α -tocopherol is relatively constant throughout gestation (Abbasi *et al.*, 1990).

52. Overall, the Panel noted that, despite the presence of α -TTP in the placenta and the existence of a correlation between maternal plasma and chorioamnion α -tocopherol concentrations, the α -tocopherol concentration of cord blood is much lower than that of maternal blood. In addition, maternal 'vitamin E' supplementation increases maternal but not cord plasma α -tocopherol concentrations. The Panel also noted that placental transfer of α -tocopherol is relatively constant throughout gestation.

EFSA 2024 core studies discussing Vitamin E and pregnancy and lactation

53. In EFSA 2024, the NDA were asked to deliver a scientific opinion on the revision of the tolerable upper intake level for vitamin E (EFSA, 2024).

Reproductive toxicity

54. Rumbold *et al.* (2015) published a systematic review of randomised control trials to evaluate the safety of 'vitamin E' supplementation during pregnancy. A total of 21 trials were eligible for that review, of which only three trials administered supplemented 'vitamin E' alone versus placebo (Anthony *et al.*, 1996; Sawhney *et al.*, 2003; Shahraki, 2006). Two of those were available as conference abstracts and did not report the dose and form of 'vitamin E' used (Anthony *et al.*, 1996; Sawhney *et al.*, 2003). Shahraki (2006) aimed to assess the effect of 100 mg/day 'vitamin E' supplementation (form not specified) for 45 days on leg cramps. The study found that Vitamin E supplementation reduced mean cramp duration and overall did not report adverse effects of α -tocopherol under the conditions of the intervention.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

55. EFSA (2024) identified two additional RCTs on α -tocopherol supplementation that were not included in the review by Rumbold *et al.* (2015). Bastani *et al.* (2011) randomised pregnant women to receive 296 mg/day α -tocopherol (400 IU/day RRR- α -tocopheryl acetate) or a placebo from week 14 of gestation to the end of pregnancy and assessed the risk of preeclampsia, birth weight and Apgar score. Wangkheimayum *et al.* (2011) reported the effects of 2-weeks of supplementation of 400 IU/day as α -tocopheryl acetate versus a placebo in women with pre-eclampsia on plasma concentrations of soluble P-selectin. These studies did not indicate adverse effects of α -tocopherol under the conditions of the interventions.

56. The Panel notes that available RCTs do not indicate adverse effects of α -tocopherol under the conditions of the interventions. However, data are scarce and provide limited relevant information for the safety assessment.

57. The Panel considered that the available evidence on the relationship between α -tocopherol intake and pregnancy-related outcomes could not be used for establishing a TUIL for vitamin E (α -tocopherol).

Recently published literature on reproductive effects of vitamin E

58. The previous discussion paper ([TOX/2026/25](#)) on excess vitamin E in the maternal diet included a comprehensive literature review on the toxicological effects of excess vitamin E, including summaries of recent reviews and toxicological studies. The literature review covered 1st January 2024 to 14th May 2026 to identify any studies published since the EFSA Opinion (EFSA, 2024). Upon review of the recent literature, which included three animal studies and six human studies, the COT concluded that the data confirmed the current knowledge on the toxicity of vitamin E and did not constitute a basis for revising the current HBGVs for vitamin E in the maternal diet.

Health-based guidance values (tolerable upper intake levels (TUILs)/safe upper limits (SULs))

59. EVM (2003) considered key studies (Gillilan *et al.* (1977); Meydani *et al.* (1998); and Stephens *et al.* (1996)) and determined a NOAEL of 800-1600 IU/day

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

(540 – 970 mg d- α -tocopherol equivalents/day) and applied an uncertainty factor of 1. The Gillilan *et al.* (1977) and Meydani *et al.* (1998) studies were derived from small groups that may not be representative, thus an additional uncertainty factor could be applied to account for inter individual variation. However, the results of the larger CHAOS trial (Stephens *et al.*, 1996) support the view that 800 IU/day supplemental vitamin E would not result in any adverse effects and, taking the three studies together, no further uncertainty factors were necessary. EVM (2003) discussed a study in male smokers which had suggested that 55 IU/day vitamin E (equivalent to 37 mg d- α -tocopherol equivalents/day) may increase the risk of mortality from haemorrhagic stroke in hypertensive subjects who smoked. Although biologically plausible, the significance of this finding is uncertain. It has not been repeated in other studies in subjects at high risk of cardiovascular events treated with higher doses of vitamin E (up to 600 mg/day); however, if it is an effect related to smoking there may have been too few smokers in these studies for any effect to be apparent. In addition, a large observational study of male health professionals did not report this association. The EVM concluded that “a Safe Upper Level of 800 IU/day (540 mg d- α -tocopherol equivalents/day) supplemental vitamin E is recommended. This is equivalent to 9.0 mg/kg bw/day for a 60 kg adult. Assuming an intake of 18 mg/day from food, a total intake of 560 mg d- α -tocopherol equivalents/day would not be expected to result in any adverse effect. This is equivalent to 12.4 mg/kg bw/day.”

60. In order to set a Tolerable Upper Intake Level (TUIL), SCF (2003) considered the impact on blood clotting as the critical adverse effect. This was based on a study by Meydani *et al.* (1998) in which 88 healthy subjects over 65 received either a placebo or doses of 40, 134 or 537 mg α -TE/day for four months. It was stated that no side effects were reported. Supplementation had no adverse effects on plasma concentration of other anti-oxidant vitamins and minerals, glutathione peroxidase, superoxide dismutase or total cysteine. There was no significant effect of vitamin E on serum non-specific immunoglobulin concentrations or anti-DNA and anti-thyroglobulin antibodies. The cytotoxic ability of neutrophils against *Candida albicans* was not compromised. Vitamin E had no effect on body weight, plasma total proteins, albumin, glucose, plasma lipids or the lipoprotein profile, total bilirubin, serum liver enzymes, blood count, platelet number, bleeding time, haemoglobin,

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

haematocrit, urinary or serum creatine levels. The study concluded that supplementation had no detrimental effect on health (Meydani *et al.* 1998; EVM, 2003).

61. Based on the Meydani *et al.* (1998) study, SCF (2003) identified a No Observed Adverse Effect Level (NOAEL) of 540 mg α -TE/day (800 IU/day). SCF (2003) concluded that 'an uncertainty factor (UF) of 2 would adequately cover interindividual differences in sensitivity. A larger UF was not considered necessary because data from a number of other older but less well controlled studies showed no adverse effects at considerably higher intakes.' SCF (2003) established a TUIL of 280 mg/day for adults, rounded to 300 mg/day using an uncertainty factor of 2. The same TUIL was applied to pregnant and lactating women. TUILs for children and adolescents were extrapolated from the TUIL for adults based on body surface area 0.75 (allometric scaling). No TUIL was established for infants (< 1- year old).

62. In 2015, EFSA adopted the TUIL for vitamin E in line with the SCF of 300 mg/day for adults, including pregnant and lactating women. In 2024, EFSA reviewed the TUIL of α -tocopherol previously established by the SCF, and found no basis to change the TUIL, therefore retaining the TUIL of 300 mg α -tocopherol/day for adults. This TUIL also applies to pregnant and lactating women as no new evidence was found regarding specific adverse effects or different susceptibility in these groups (EFSA, 2024). EFSA further noted that two additional human intervention studies, which were not previously considered by the SCF, confirmed this conclusion. Also, in line with the SCF conclusions, EFSA considered the effect on blood clotting, and the increased risk of bleeding is the critical effect to establish a TUIL for vitamin E (α -tocopherol) for the general population (EFSA, 2024).

Exposure

Vitamin E in the diet and in supplements

63. Vitamin E occurs naturally in a large variety of foods; main sources of vitamin E in the diet include plant oils (such as rapeseed oil (vegetable oil), sunflower oil, soya bean oil, corn oil and olive oil), nuts and seeds, wheatgerm (found in cereals

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

and cereal products), fortified cereals, avocados, spinach, eggs, tuna, herring, swiss chard, tomatoes and broccoli (NHS, 2023; Huizen, 2023).

64. For further information, a summary of the vitamin E content of some common foods is presented in Annex B in Table 4. This information is based on data UK where possible. This information is presented for information only as the exposure assessment for vitamin E has been performed using a nutrient assessment.

65. A nutrient assessment utilises the UK Nutrient Databank (NDB) and the National Diet and Nutrition Survey (NDNS) years 1-11 data. The NDB contains extensive information on the nutrient content of foods, including vitamin E, and can be used with the NDNS food consumption data to estimate dietary exposure to specific nutrients.

66. Information on supplements that contain vitamin E and are available on the UK market was gathered from online research. Details of the supplements identified from the online research and that were subsequently used in this exposure assessment are presented in Annex B (Annex B, Table 1). Where the vitamin E content of the supplement was provided on the packaging and/ or website, calculations have been performed to estimate the maximum daily exposure to vitamin E from that supplement.

67. A number of vitamin E containing drinks were identified in the online research; these were marketed as being beneficial to health as multivitamin drinks, metabolism boosting, or similar. Some meal replacements drinks which also contain vitamin E were identified. These drinks were not included in the exposure assessment as they are not considered to be either vitamin E supplements or MIDS. Further information can be found in Annex B.

UK Vitamin E exposure – Supplements

68. The exposure assessment for supplements assumes that a woman of childbearing age (16-49 years) would consume only one type of supplement and would follow the instructions on either the packaging or the website for the dosage (whichever reports the highest dosage).

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

69. For further information, the daily vitamin E dose resulting from the consumption of the supplements identified for the exposure assessment is summarised in Annex B in Table 5. Estimated daily doses are between 4 and 536 mg of vitamin E per day. Generally, MIDS resulted in lower doses than specific vitamin E supplements, particularly for those aimed at pregnant or breastfeeding women, or those looking to conceive.

70. Based on the range of recommended daily doses (4 -536 mg of vitamin E), an exposure assessment has been performed using the average bodyweight of women of childbearing age from the NDNS years 1-11 (70.3 kg); this is presented in Annex B in Table 2.

71. The resulting range of estimated exposure is 0.057 – 7.6 mg/kg bw/day. These values have been rounded to 2 significant figures.

UK Vitamin E exposure – Dietary

72. A nutrient assessment was performed using the National Diet and Nutrition Survey (NDNS) and the UK Nutrient Databank (NDB). This assessment used food groups based on those established for the 2014 Total Diet Study (TDS) for metals and other elements (FSA, 2014) with NDNS years 1-11 consumption data. Mean and 97.5th percentile exposure estimates have been provided on a chronic basis, using a population-based approach for women of childbearing age (16-49 years).

73. The exposure estimates for women of childbearing age to vitamin E from the diet are presented in Table 1 for each food group and all food groups (referred to as “All” in Table 1). It should be noted, that “All” food groups do not refer to the sum of exposures from individual food groups, but is an exposure estimate from the distribution of exposures to vitamin E from all foods when considered together.

74. Based on the consumption of all food groups the mean dietary exposure to vitamin E for women of childbearing age is 9.0 mg/person/day or 0.13 mg/kg bw/day. The high level (97.5th percentile) dietary exposure to vitamin E for women of childbearing age is 18 mg/person/day or 0.28 mg/kg bw/day.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Table 1. Chronic exposure to vitamin E from the diet for women of childbearing age (16-49 years) (NDNS years 1-11)

Food groups	Consumers exposed to vitamin E from the food group	Mean (mg/ person/ day*)	P97.5 (mg/ person/ day*)	Mean (mg/ kg bw/day*)	P97.5 (mg/ kg bw/day*)
Bread	2402	0.25	1.2	0.0038	0.017
Misc cereals	2500	1.2	3.9	0.018	0.062
Milk	2154	0.11	0.41	0.0016	0.0059
Carcase meat	1102	0.014	0.090	0.00020	0.0013
Meat products	1721	0.23	1.2	0.0033	0.018
Fish and seafood	1322	0.45	2.3	0.0068	0.037
Canned vegetables	1552	0.25	1.4	0.0037	0.022
Other vegetables	2378	0.59	2.4	0.0088	0.039
Green vegetables	2020	0.21	1.1	0.0032	0.017
Potatoes	2005	0.58	2.7	0.0086	0.043
Fresh fruit	1858	0.27	1.5	0.0041	0.023
Sugars and confectionary	1334	0.17	1.1	0.0026	0.017
Non-alcoholic beverages	564	0.029	0.24	0.00043	0.0036
Fruit products	1204	0.14	0.85	0.0022	0.014
Alcoholic beverages ₁	25	0.0022	0	0.000033	0
Condiments	2351	1.1	5.2	0.016	0.081
Poultry	1994	0.38	2.1	0.0055	0.035
Nuts and seeds	734	0.32	2.7	0.0049	0.044
Snacks	1452	0.50	2.3	0.0074	0.038
Fats and oils	2378	1.5	6.1	0.022	0.094
Eggs	1367	0.33	1.6	0.0049	0.024
Dairy products	2203	0.28	1.5	0.0042	0.022
Desserts	840	0.092	0.79	0.0014	0.012
Meat alternatives	137	0.025	0.31	0.00037	0.0045
Offal	86	0.0029	0.038	0.000042	0.00054
**All	2556	9.0	18	0.13	0.28

*Rounded to 2 significant figures

** This is not a sum of all the individual groups

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

1There are very few consumers exposed to vitamin E from the alcoholic beverage food group as the large majority of the products within the group do not contain vitamin E. For this reason, there are very few consumption events where consumers of alcoholic beverages are exposed to vitamin E from these foods, compared with the total number of consumption events. Therefore, it is possible for the 97.5th percentile to be 0 in this case.

Combined exposure assessment scenarios

75. It is possible that women of childbearing age may take a supplement containing vitamin E at varying dosages and that this exposure occurs in addition to their dietary intake of vitamin E. The scenarios included in this section aim to estimate the combined exposure to vitamin E from supplements and the diet. These scenarios are listed below.

76. Scenario 1: Average estimate – combines the range of exposure estimates for vitamin E intake from supplements with the mean dietary exposure estimate for vitamin E ('All' in Table 1) for women of childbearing age.

77. Scenario 2: High-level estimate– combines the high-level exposure estimate for vitamin E intake from supplements (highest recommended dose) and the high-level dietary exposure estimate (97.5th percentile) for vitamin E ('All' in Table 1), for women of childbearing age.

78. The exposure estimates for these scenarios are presented in Table 2.

Table 2. Exposure estimates for scenarios 1 and 2 (combining dietary exposure estimates to vitamin E with exposure estimates from supplements)

Scenario	Exposure estimates (mg/person/day*)	Exposure estimates (mg/kg bw/day*)
Scenario 1: Average estimate (range of supplementation and mean dietary exposure)	13-550	0.19-7.7
Scenario 2: High-level estimate (highest supplementation and high level (97.5 th percentile) dietary exposure)	550	7.9

* Rounded to 2 significant figures.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Uncertainties and assumptions

79. Some assumptions have been made where dosage recommendations are varied. In cases where the dosage is given as a range (e.g. 1-3 capsules per day), the highest recommended amount has been assumed to be consumed (e.g. 3 capsules per day). Also, where there is a discrepancy between the packaging image and website instructions, the highest dosage has been assumed e.g. if the website suggests a serving of 2 capsules a day, but the packaging suggests 3, then the highest suggestion has been used.

80. For many of the supplements listed, the warnings provided on the website/ packaging recommend that pregnant or breastfeeding women consult a doctor/ healthcare professional before taking them. It is possible that a health care professional may advise against taking certain supplements or advise a different dosage. Actual vitamin E intakes from supplements may therefore vary depending on individual circumstances.

81. The NDNS does not include pregnant or breastfeeding women and so the nutrient assessment has been performed for women aged 16-49 (women of childbearing age). The diet of this population group may not be fully representative of the maternal diet.

82. The “Alcoholic beverages” food group has been included in the assessment as the exposure assessment uses women of childbearing ages as a proxy and this consumption may differ to those who are pregnant or trying to conceive.

83. In NDNS there is a reported 30% energy intake underestimation. There are many possible reasons for this, resulting from both misreporting and the survey design. However, exposure assessments at the 97.5th percentile are undertaken to ensure that high consumers are accounted for in the assessment, including those who may have mis-reported their energy intake.

Risk Characterisation

84. EFSA (2024) reviewed the TUIL of α -tocopherol from all dietary source and found no basis to change the TUIL previously established by the SCF, therefore

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

retaining the TUIL of 300 mg α -tocopherol/day for adults, including pregnant and lactating women from all dietary sources. The EVM (2003) recommended a SUL of 800 IU/day (540 mg d--tocopherol equivalents/day) supplemental vitamin E.

85. The COT reviewed all evidence and agreed that the more recent EFSA 2024 TUIL of 300 mg/day was the most appropriate value as it considers more recent studies and more sources of vitamin E for pregnant women. The Committee also noted that this TUIL allowed for a suitable margin of safety that takes into account several uncertainties that have been identified more recently since the 2024 EFSA TUIL was set, including recent evidence on possible effects of xenobiotics on transplacental transfer.

86. Using a more conservative approach and considering that the TUIL set by EFSA accounts for all dietary sources, the TUIL of 300 mg/day is used to characterise the risk to health from intake of Vitamin E during pregnancy.

87. Based on the TUIL of 300 mg/day and taking women of childbearing age as a whole, the dietary intake of vitamin E from food sources is below the TUIL and therefore would not be a concern for maternal health or for fetal development. Vitamin E is widely distributed in common foods such as vegetable oils, nuts, seeds and cereals, and typical dietary patterns do not result in excessive intakes.

88. However, use of high-dose vitamin E supplements may result in intakes exceeding the EFSA TUIL. Individuals consuming the highest-level supplements of α -tocopherol in combination with a high-level dietary exposure estimate (97.5th percentile) have calculated intakes of 550 mg/day (shown in Table 4), exceeding the EFSA TUIL.

89. Therefore, there may be an increased risk of impaired blood clotting or haemorrhagic effects, particularly in susceptible individuals or those taking anticoagulant medication. However, it should be noted that evidence for adverse effects at these intake levels remain limited and inconsistent.

90. Considering the use of high-dose vitamin E supplements, particularly in pregnancy or individuals with conditions affecting blood coagulation, individuals would be advised to seek advice from their medical practitioner prior to taking high-

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

dose supplements to reduce potential risk associated with excessive vitamin E intake.

Conclusions

91. Vitamin E in the diet is essential for health in general and vitamin E deficiency in pregnant women is known to compromise fetal development and increase the risk of miscarriage, pre-eclampsia, and premature delivery (Gagné, *et al.*, 2009).

92. Vitamin E functions as an antioxidant and deactivates ROS, mostly directed at cellular membrane lipids where it protects against ROS-mediated lipid peroxidation by preventing and terminating reactions that produce peroxide, which act as secondary ROS.

93. After oral intake, vitamin E is absorbed from the small intestine and then absorbed by the liver where it is catabolised into α -CEHC, and is ultimately excreted in the urine, bile and faeces. It has been suggested that α -TTP plays a major role in supplying the placenta and foetus with α -tocopherol in pregnant mice (Kaempf-Rotzoll, *et al.* 2002) and that the presence of α -TTP in the placenta suggests a role for α -TTP in the regulation of transfer of tocopherols through the placental barrier (Gagné, *et al.*, 2009). The role of vitamin E during different stages of pregnancy, especially during implantation and placental development, is not well understood, as well as how necessary amounts of vitamin E transferral to the foetus is controlled.

94. Excessive vitamin E intake has been associated with a range of potential adverse effects, including increased risk of gestational hypertension, pre-eclampsia, and macrosomia. The COT noted that possible effects of vitamin E in pregnancy seemed to be contradictory, with human studies indicating mixed responses in plasma levels, smaller cranial circumference, and effects seen in birth weight, however there were no adverse effects on birth rates or successful pregnancy outcomes. The Committee noted that the effects on the offspring are likely secondary to effects on the mother rather than any direct toxic effects on the foetus, however with the information available and low study participant numbers, it was not possible to determine if the effects on the foetus were direct or indirect.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

95. Vitamin E has also been found to interfere with vitamin K absorption and metabolism, reducing the production of vitamin K-dependant clotting factors, resulting in increased risk of prolonged bleeding. This interaction was identified as a critical endpoint for establishing the TUIL, and although direct evidence in pregnant women is very limited, it remains a concern that such effects could have adverse effects during pregnancy and childbirth. This is a greater concern in the context of high-dose supplements, which may result in total vitamin E intakes exceeding the TUIL when combined with dietary exposure.

96. Evidence reviewed by the World Health Organization indicates that vitamin E supplementation during pregnancy may increase the risk of premature rupture of membranes (PROM) and abdominal pain, despite potential reductions in placental abruption. This highlights uncertainty regarding the overall benefit–risk balance of vitamin E supplementation during pregnancy.

97. The COT reviewed all evidence and agreed that the more recent EFSA 2024 TUIL of 300 mg/day was the most appropriate value as it considers more recent studies and more sources of vitamin E for pregnant women. It was further noted that this TUIL allowed for a suitable margin of safety that takes into account several uncertainties that have been identified more recently since the EFSA TUIL was set, including recent evidence on possible effects of xenobiotics on transplacental transfer.

98. Dietary vitamin E is generally well below established upper intake levels and is unlikely to pose a risk. High-dose supplementation can lead to total intakes exceeding the EFSA TUIL of 300 mg/day. Overall, evidence is inconsistent with limitations, however a consistent finding across studies is that adverse effects are more likely to occur in the context of high-dose vitamin E supplementation rather than habitual dietary intake.

99. The NHS recommends that for a healthy diet, 4 mg for men and 3 mg for women of vitamin E should be consumed daily and would be easily obtained by eating a balanced diet.

100. Based on the TUIL of 300 mg/day and taking women of childbearing age as a whole, the dietary intake of vitamin E from food sources is below the TUIL and therefore would not be a concern for maternal health or for fetal development.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Vitamin E is widely distributed in common foods such as vegetable oils, nuts, seeds and cereals, and typical dietary patterns do not result in excessive intakes.

101. However, use of high-dose vitamin E supplements may result in intakes exceeding the EFSA TUIL. Individuals consuming the highest-level supplements of α -tocopherol in combination with a high-level dietary exposure estimate (97.5th percentile) have calculated intakes of 550 mg/day (shown in Table 4), exceeding the EFSA TUIL.

102. Considering the use of high-dose vitamin E supplements, particularly in pregnancy or individuals with conditions affecting blood coagulation, individuals would be advised seek advice from their medical practitioner prior to taking high-dose supplements to reduce potential risk associated with excessive vitamin E intake.

Secretariat

October 2026

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Abbreviations

α -CEHC	α -Carboxyethyl Hydroxymethyl
α -TTP	α -tocopherol transfer protein
ATBC	Alpha-Tocopherol Beta-Carotene
CHAOS	Cambridge Heart Antioxidant Study
COT	Committee on Toxicity
EAT	Exposure and Trade Team
EFSA	European Food Safety Authority
EU	European Union
FSA	Food Standards Agency
FSS	Food Standards Scotland
IU	International Units
NDNS	National Diet and Nutrition Survey
NHS	National Health Service
NOAEL	No Observed Adverse Effect Level
PROM	Premature Rupture of Membranes
ROS	Reactive Oxygen Species
SACN	Scientific Advisory Committee on Nutrition
SUL	Safe Upper Level
TDS	Total Diet Study
TUIL	Tolerable Upper Intake Level
UF	Uncertainty Factor
WHO	World Health Organisation

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

References

Abdo, K. M., Rao, G., Montgomery, C. A., Dinowitz, M., & Kanagalingam, K. 1986. Thirteen- week toxicity study of d- alpha- tocopheryl acetate (vitamin E) in Fischer 344 rats. Food and Chemical Toxicology, 24, 1043–1050.

[https://doi.org/10.1016/0278-6915\(86\)90287-5](https://doi.org/10.1016/0278-6915(86)90287-5)

Allan KM, Prabhu N, Craig LC, McNeill G, Kirby B, McLay J, Helms PJ, Ayres JG, Seaton A, Turner SW and Devereux G, 2015. Maternal vitamin D and E intakes during pregnancy are associated with asthma in children. European Respiratory Journal, 45, 1027-1036.

Anthony, J., Smith, P., Mantel, G., & Johanson, R. 1996. A randomised controlled trial of vitamin E supplementation in conservatively managed pre- eclamptic patients. Proceedings of the 10th world congress of the International Society for the Study of hypertension in pregnancy; 1996 August 4–8 (p. 193). Seattle, USA.

Bastani, P., Hamdi, K., Abasalizadeh, F., & Navali, N. 2011. Effects of vitamin E supplementation on some pregnancy health indices: A randomized clinical trial. International Journal of General Medicine, 4, 461–464.

<https://doi.org/10.2147/IJGM.S20107>

Booth, S. L., Golly, I., Sackeek, J. M., Roubenoff, R., Dallal, G. E., Hamada, K., & Blumberg, J. B. 2004. Effect of vitamin E supplementation on vitamin K status in adults with normal coagulation status. The American Journal of Clinical Nutrition, 80, 143–148. <https://doi.org/10.1093/ajcn/80.1.143>

Boots. 2025. A-Z multivitamins. [Boots A-Z 180 Tablets \(6 month supply\) - Boots](#). Viewed 24/11/2025.

Boots. 2025. Boots skin formula Vitamin E, 400iu capsules. [Boots Skin Formula Vitamin E, 90 Capsules - Boots](#). Viewed 21/11/2025.

Boskovic R, Gargaun L, Oren D, Djulus J, Koren G. Pregnancy outcome following high doses of Vitamin E supplementation. Reprod Toxicol. 2005 May-Jun;20(1):85-8. [Pregnancy outcome following high doses of Vitamin E supplementation - Ariel University](#)

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Brigelius-Flohe R: Vitamin E: the shrew waiting to be tamed. Free Radic Biol Med. 2009.;46(5):543-54. <https://doi.org/10.1016/j.freeradbiomed.2008.12.007>

Bulk. 2025. Vitamin E softgels, 400iu. [Vitamin E Softgels 400 IU Pure Vitamin E Bulk™](#). Viewed 21/11/2025.

Corrigan, J.J. and Marcus, F.I., 1974. Coagulopathy associated with vitamin E ingestion. **Jama**, **230**(9), pp.1300-1301.

COT. 2026. Discussion paper on the effects of excess Vitamin E on maternal health. GOV.UK. Updated 17 September 2026. [Discussion paper on the effects of excess Vitamin E on maternal health - GOV.UK](#)

Cytoplan 2025. Vitamin E as tocopherol and tocotrienols. [Tocopherols & Tocotrienols Complex Vitamin E Cytoplan](#). Viewed 21/11/2025.

Cytoplan 2025. Women's wholefood multi with Iron . [Women's Wholefood Multi Award-Winning Multivitamin Capsules](#). Viewed 24/11/2025.

Devereux G, Turner SW, Craig LC, McNeill G, Martindale S, Harbour PJ, Helms PJ and Seaton A, 2006. Low maternal vitamin E intake during pregnancy is associated with asthma in 5-year-old children. American Journal of Respiratory and Critical Care Medicine, 174, 499-507.

Didenco, S., Gillingham, M. B., Go, M. D., Leonard, S. W., Traber, M. G., & McEvoy, C. T. 2011. Increased vitamin E intake is associated with higher alpha- tocopherol concentration in the maternal circulation but higher alpha- carboxyethyl hydroxychroman concentration in the fetal circulation. The American Journal of Clinical Nutrition, 93, 368–373. <https://doi.org/10.3945/ajcn.110.008367>

Dror, D.K. and Allen, L.H., 2011. Vitamin E deficiency in developing countries. **Food and nutrition bulletin**, **32**(2), pp.124-143.

EFSAa (EFSA Panel on Dietetic Products, Nutrition and Allergies), 2015. Scientific Opinion on Dietary Reference Values for vitamin E as α -tocopherol. **EFSA Journal**, **13**(7), p.4149.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

EFSA Ab (EFSA Panel on Food Additives and Nutrient Sources added to Food). 2015. Scientific Opinion on the re- evaluation of tocopherol- rich extract (E 306), α -tocopherol (E 307), γ - tocopherol (E 308) and δ - tocopherol (E 309) as food additives. EFSA Journal, 13(9), 4247. [https:// doi. org/ 10. 2903/j. efsa. 2015. 4247](https://doi.org/10.2903/j.efsa.2015.4247)

EFSA NDA Panel (EFSA Panel on Dietetic Products, Nutrition and Allergies), 2009. Scientific Opinion on the appropriate age for introduction of complementary feeding of infants. EFSA Journal 2009;7(12):1423, 38 pp.
<https://doi.org/doi:10.2903/j.efsa.2009.1423>

EFSA NDA Panel (Panel on Nutrition, Novel Foods and Food Allergens), Turck, D., Bohn, T., Castenmiller, J., de Henauw, S., Hirsch-Ernst, K.I., Knutsen, H.K., Maciuk, A., Mangelsdorf, I., McArdle, H.J. and Pentieva, K., 2024. Scientific opinion on the tolerable upper intake level for vitamin E. *EFSA Journal*, 22(8), p.e8953.

Elise Kelly, Simon Sinclair. 2025. [Nutridex](#)

Expert Group on Vitamins and Minerals (EVM). 2003. Safe Upper Levels for Vitamins and Minerals. [\[ARCHIVED CONTENT\] Expert Group on Vitamins and Minerals \(2003\) Safe Upper Levels for Vitamins and Minerals | Food Standards Agency](#)

FAO/WHO/UNU (Food and Agriculture Organization of the United Nations/World Health Organization/United Nations University), 2004. Human energy requirements. Report of a Joint FAO/WHO/UNU Expert Consultation: Rome, 17–24 October 2001. FAO food and nutrition technical report series, 103 pp.

Frank, J., Weiser, H., & Biesalski, H. K. 1997. Interaction of vitamins E and K: Effect of high dietary vitamin E on phyloquinone activity in chicks. *International Journal for Vitamin and Nutrition Research*, 67, 242–247.

Freedman, J. E., Farhat, J. H., Loscalzo, J., & Keaney, J. F., Jr. 1996. Alpha-tocopherol inhibits aggregation of human platelets by a protein kinase C- dependent mechanism. *Circulation*, 94, 2434–2440. <https://doi.org/10.1161/01.CIR.94.10.2434>

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

FoodPlus. 2025. Dr Witt Premium metabolism green multivitamin drink. [Dr Witt Premium Metabolism Green Multivitamin Drink 1l Food Plus Shop online](#). Viewed 24/11/2025.

Food Standard Agency. 2014. Total diet study: Metals and other elements. [Total diet study: metals and other elements](#)

Gagné, A., Wei, S.Q., Fraser, W.D. and Julien, P., 2009. Absorption, transport, and bioavailability of vitamin e and its role in pregnant women. **Journal of Obstetrics and Gynaecology Canada**, **31**(3), pp.210-217.

Gianello, R., Hall, W.C., Kennepohl, E., Libinaki, R. and Ogru, E., 2007. Subchronic oral toxicity study of mixed tocopheryl phosphates in rats. **International journal of toxicology**, **26**(5), pp.475-490.

Gillilan, R. E., Mondell, B., & Warbasse, J. R. 1977. Quantitative evaluation of vitamin E in the treatment of angina pectoris. American Heart Journal, 93, 444–449. [https://doi.org/10.1016/s0002-8703\(77\)80406-7](https://doi.org/10.1016/s0002-8703(77)80406-7)

Greco E, Romano S, Iacobelli M, Ferrero S, Baroni E, Minasi MG, Ubaldi F, Rienzi L and Tesarik J, 2005. ICSI in cases of sperm DNA damage: beneficial effect of oral antioxidant treatment. Human Reproduction, 20, 2590–2594.

Helson, L. 1984. The effect of intravenous vitamin E and menadiol sodium diphosphate on vitamin K dependent clotting factors. Thrombosis Research, 35, 11–18. [https://doi.org/10.1016/0049-3848\(84\)90308-6](https://doi.org/10.1016/0049-3848(84)90308-6)

Herrera E, Barbas C. Vitamin E: action, metabolism and perspectives. J Physiol Biochem. 2001. Mar;57(2):43-56. PMID: 11579997. [Vitamin E: action, metabolism and perspectives - PubMed](#)

Holland and Barrett. 2025. Centrum women. [Centrum Women \(60 Tablets\) H&B](#). viewed 24/11/2025.

Holland and Barrett. 2025. Multivitamins and minerals, Ultra woman. [Holland & Barrett Ultra Woman Tablets 3 Months Supply Bundle H&B](#). viewed 24/11/2025.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Holland and Barrett. 2025. SevenSeas Omega-3 and multivitamins (woman). [Omega-3 & Multivitamins Woman Duo Pack Seven Seas H&B](#). viewed 24/11/2025.

Holland and Barrett. 2025. Vitamin E 400iu capsules. [Holland & Barrett Vitamin E 400iu 30 Capsules H&B](#). Viewed 21/11/2025.

Hook EB, Healy KM, Niles AM and Skalko RG, 1974. Letter: vitamin E: teratogen or anti-teratogen? Lancet, 1, 809.

Huel. 2025. Ready-to-drink On-the-go meal shakes. [Ready-To-Drink Meal Replacement Shakes Huel](#). Viewed 24/11/2025.

iHerb. 2025. NOW Foods, Vitamin E-Oil, 170mg (253 iu). [NOW Foods, Vitamin E-Oil, Antioxidant Protection, 170 mg \(253 IU\), 1 fl oz \(30 ml\)](#). Viewed 21/11/2025.

Inessa. 2025. Advanced multivitamin. [Inessa Advanced Multivitamin](#). Viewed 24/11/2025.

IOM (Institute of Medicine). 2001. Dietary reference intakes for vitamin C, vitamin E, selenium, and carotenoids (p. 531). Food and Nutrition Board. National Academy Press.

Jandak, J., Steiner, M., & Richardson, P. D. 1989. Alpha- tocopherol, an effective inhibitor of platelet adhesion. Blood, 73, 141–149. [https:// doi. org/ 10. 1182/ blood. V73.1. 141. 141](https://doi.org/10.1182/blood.V73.1.141.141)

Jennifer Huizen. 2023. 10 foods rich in vitamin E. [The 10 best foods high in vitamin E](#)

Kappus, H. and Diplock, A.T., 1992. Tolerance and safety of vitamin E: a toxicological position report. **Free Radical Biology and Medicine**, 13(1), pp.55-74.

Kaempf-Rotzoll DE, Horiguchi M, Hashiguchi K, Aoki J, Tamai H, Linderkamp O and Arai H, 2003. Human placental trophoblast cells express alpha-tocopherol transfer protein. Placenta, 24, 439-444.

Kaempf-Rotzoll, D.E., Igarashi, K., Aoki, J., Jishage, K., Suzuki, H., Tamai, H., Linderkamp, O. and Arai, H., 2002. α -Tocopherol transfer protein is specifically

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

localized at the implantation site of pregnant mouse uterus. **Biology of reproduction**, **67**(2), pp.599-604.

Kakishita, E., Suehiro, A., Oura, Y., & Nagai, K. 1990. Inhibitory effect of vitamin E (alpha- tocopherol) on spontaneous platelet aggregation in whole blood. *Thrombosis Research*, 60, 489–499. Klein EA, Thompson IM, Jr., Tangen CM, Crowley JJ, Lucia MS, Goodman PJ, Minasian LM, Ford LG, Parnes HL, Gaziano JM, Karp DD, Lieber MM, Walther PJ, Klotz L, Parsons JK, Chin JL, Darke AK, Lippman SM, Goodman GE, Meyskens FL, Jr. and Baker LH, 2011. Vitamin E and the risk of prostate cancer: the Selenium and Vitamin E Cancer Prevention Trial (SELECT). *Journal of the American Medical Association*, 306, 1549-1556.

Krasavage, W.J. and Terhaar, C.J., 1977. d-α-Tocopheryl poly (ethylene glycol) 1000 succinate: acute toxicity, subchronic feeding, reproduction, and teratologic studies in the rat. **Journal of Agricultural and Food Chemistry**, **25**(2), pp.273-278.

Litonjua AA, Rifas-Shiman SL, Ly NP, Tantisira KG, Rich-Edwards JW, Camargo CA, Jr., Weiss ST, Gillman MW and Gold DR, 2006. Maternal antioxidant intake in pregnancy and wheezing illnesses in children at 2 y of age. *American Journal of Clinical Nutrition*, 84, 903-911.

Marneys. 2025. Liquid Vitamin E VITAHELP. [Liquid Vitamin E MARNYS](#). Viewed 21/11/2025.

March, B. E., Wong, E., Seier, L., Sim, J., & Biely, J. 1973. Hypervitaminosis E in the chick. *The Journal of Nutrition*, 103, 371–377. <https://doi.org/10.1093/jn/103.3.371>

Martin, M.M and Hurley, L.S, 1977. Effect of large amounts of vitamin E during pregnancy and lactation. *American Journal of Clinical Nutrition*, 30, 1629–1637.

Martindale S, McNeill G, Devereux G, Campbell D, Russell G and Seaton A, 2005. Antioxidant intake in pregnancy in relation to wheeze and eczema in the first two years of life. *American Journal of Respiratory & Critical Care Medicine*, 171, 121-128.

Megavitamin E Supplementation and Vitamin K-Dependent Carboxylation, **Nutrition Reviews**, Volume 41, Issue 9, September 1983, Pages 268 270,

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

<https://doi.org/10.1111/j.1753-4887.1983.tb07197.x>

Meydani, S. N., Meydani, M., Blumberg, J.B., Leka, L.S., Pedrosa, M., Diamond, R., Schaefer, E.J. 1998. Assessment of the safety of supplementation with different amounts of vitamin E in healthy older adults. American Journal of Clinical Nutrition 68, 311-318.

Muller-Schmehl K, Beninde J, Finckh B, Florian S, Dudenhausen JW, Brigelius-Flohe R and Schuelke M, 2004. Localization of alpha-tocopherol transfer protein in trophoblast, fetal capillaries' endothelium and amnion epithelium of human term placenta. Free Radical Research, 38, 413-420.

NHS. 2023. Vitamin E-Vitamins and minerals. [Vitamins and minerals - Vitamin E - NHS](#)

NHS (2020). NHS advice on vitamins and minerals: Vitamin E. Last reviewed, August 2020 [Vitamins and minerals - Vitamin E – NHS](#)

Nutravita. 2025. Multivitamins and minerals. [Multivitamin Minerals - Vegan & Vegetarian Multivitamins - Nutravita | Nutravita](#). Viewed 24/11/2025.

Nutritionvalu.org. 2025. Beverages fortified acai berry drink. [Beverages, fortified, Acai berry drink nutrition facts and analysis](#). viewed 24/11/2025.

OECD (Organisation for Economic Co-operation and Development), 1998a. OECD Guideline for testing of chemicals. Test No. 408: Repeated Dose 90-day Oral Toxicity Study in Rodents. Adopted 21 September 1998. [Test No. 408: Repeated Dose 90 Day Oral Toxicity Study in Rodents OECD](#)

Podszun, M., & Frank, J. 2014. Vitamin E- drug interactions: Molecular basis and clinical relevance. Nutrition Research Reviews, 27, 215–231.
<https://doi.org/10.1017/S0954422414000146>

Pressman EK, Cavanaugh JL, Mingione M, Norkus EP and Woods JR, 2003. Effects of maternal antioxidant supplementation on maternal and fetal antioxidant levels: A randomized, double-blind study. American Journal of Obstetrics and Gynecology, 189, 1720-1725.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

ProteinPackage. 2025. Vitamin Well Vitamin Drinks. [Vitamin Well Vitamin Drinks 12x500ml Protein Package Protein Package](#). Viewed 24/11/2025.

Purolabs. 2025. Puro vegan Multivitamin. [Vegan Multivitamin Multivitamins Purolabs](#). Viewed 24/11/2025.

Rotzoll, D.E., Scherling, R., Etzl, R., Stepan, H., Horn, L.C. and Pöschl, J.M., 2008. Immunohistochemical localization of α -tocopherol transfer protein and lipoperoxidation products in human first-trimester and term placenta. **European Journal of Obstetrics & Gynecology and Reproductive Biology**, **140**(2), pp.183-191.

Rumbold, A., Ota, E., Hori, H., Miyazaki, C., & Crowther, C. A. 2015. Vitamin E supplementation in pregnancy. Cochrane Database of Systematic Reviews, 2015, CD004069. [https://doi.org/ 10.1002/14651858.CD004069.pub3](https://doi.org/10.1002/14651858.CD004069.pub3)

Rutkowski, M., Grzegorzczak, K. 2012. Adverse effects of antioxidative vitamins. **International Journal of Occupational Medicine and Environmental Health**. **25**, 105–121. [pdf-2262-2130](#)

Sawhney, H., Singhal, S., Vasishta, K., & Majumbar, S. 2003. Effect of vitamin E supplementation on lipid peroxide levels in preeclampsia. International Journal of Gynecology & Obstetrics, 70, E31. [https:// doi. org/ 10. 1016/ S0020- 7292\(00\) 82441- 8](https://doi.org/10.1016/S0020-7292(00)82441-8)

SCF (Scientific Committee on Food), 2003. Opinion of the Scientific Committee on Food on the Tolerable Upper Intake Levels of vitamin E. SCF/CS/NUT/UPPLEV/39 Final, 10 pp.

Schneider, M.H., 1991. The role of the placenta in nutrition of the human fetus. **American journal of obstetrics and gynecology**, **164**(4), pp.967-973.

Scholl TO, Chen X, Sims M and Stein TP, 2006. Vitamin E: maternal concentrations are associated with fetal growth. American Journal of Clinical Nutrition, 84, 1442–1448.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Shahraki, A. D. 2006. Effects of vitamin E, calcium carbonate and milk of magnesium on muscular cramps in pregnant women. *Journal of Medical Sciences*, 6, 979–983.

<https://doi.org/10.3923/jms.2006.979.983>

Srivastava, K. C. 1986. Vitamin E exerts antiaggregatory effects without inhibiting the enzymes of the arachidonic acid cascade in platelets. *Prostaglandins, Leukotrienes, and Medicine*, 21, 177–185. [https://doi.org/10.1016/0262-1746\(86\)90151-4](https://doi.org/10.1016/0262-1746(86)90151-4)

Steiner, M. 1983. Effect of alpha- tocopherol administration on platelet function in man. *Thrombosis and Haemostasis*, 49, 73–77. <https://doi.org/10.1055/s-0038-1657324>

Steiner, M. 1999. Vitamin E, a modifier of platelet function: Rationale and use in cardiovascular and cerebrovascular disease. *Nutrition Reviews*, 57, 306–309. [10.1111/j.1753-4887.1999.tb06903.x](https://doi.org/10.1111/j.1753-4887.1999.tb06903.x)

Stephens, N. G., Parsons, A., Schofield, P. M., Kelly, F., Cheeseman, K., & Mitchinson, M. J. 1996. Randomised controlled trial of vitamin E in patients with coronary disease: Cambridge heart antioxidant study (CHAOS). *Lancet*, 347, 781–786. [https://doi.org/10.1016/s0140-6736\(96\)90866-1](https://doi.org/10.1016/s0140-6736(96)90866-1)

Supplemented. 2025. Vitamin E 400iu softgel capsules. [Vitamin E 400iu Softgel Capsules – Supplemented](#). Viewed 21/11/2025.

Swallow. 2025. Daily multivitamin. [Daily Multivitamin Tablets for Women and Men - High Dose – The Swallow Co](#). viewed 24/11/2025.

Takahashi, O., Ichikawa, H., & Sasaki, M. 1990. Hemorrhagic toxicity of d- alpha-tocopherol in the rat. *Toxicology*, 63, 157–165. [https://doi.org/10.1016/0300-483X\(90\)90039-J](https://doi.org/10.1016/0300-483X(90)90039-J)

Tappel, A. 1972. Vitamin E and free radical peroxidation of lipids. **Ann. N. Y. Acad. Sci.** **203**(1):12-28.

Tovar, A., Ameho, C.K., Blumberg, J.B., Peterson, J.W., Smith, D. and Booth, S.L., 2006. Extrahepatic tissue concentrations of vitamin K are lower in rats fed a high vitamin E diet. *Nutrition & Metabolism*, 3(1), p.29.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Verve. 2025. Transparent Greens V80 Powder. [V80 Greens Powder from Verve - Boost Your Nutrition](#). Viewed 24/11/2025.

Vitabiotics. 2025. Pregnacare him and her conception tablets. [Pregnacare® Him & Her Conception Tablets By Vitabiotics](#). Viewed 21/11/2025.

Vitabiotics. 2025. Pregnacare original tablets. [Pregnacare® Original Pregnancy Supplement Vitabiotics](#). Viewed 21/11/2025.

Vitabiotics. 2025. Pregnacare max. [Pregnacare® Max Pregnancy Vitamins By Vitabiotics](#). Viewed 21/11/2025.

Vitabiotics. 2025. Pregnacare gummies. [Pregnacare® Gummies Pregnancy Gummies Vitabiotics](#). Viewed 21/11/2025.

Vitabiotics. 2025. Pregnacare liquid. [Pregnacare® Liquid Pregnancy Vitamins Vitabiotics](#). Viewed 21/11/2025.

Vitabiotics. 2025. Wellwoman multivitamin gummies. [Wellwoman® Multi - Vitamin Gummies For Women](#). Viewed 24/11/2025.

Vitabiotics. 2025. Wellwoman original. [Wellwoman Original Multivitamin For Women Vitabiotics®](#). Viewed 24/11/2025.

Vitabiotics. 2025. Wellwoman plus. [Wellwoman® Plus Omega 3-6-9 By Vitabiotics](#). Viewed 24/11/2025.

Vitabiotics. 2025. Wellwoman Max. [Wellwoman® Max Supplement For Women By Vitabiotics](#). Viewed 24/11/2025.

Wangkheimayum, S., Kumar, S., & Suri, V. (2011). Effect of vitamin E on sP- selectin levels in pre- eclampsia. Indian Journal of Clinical Biochemistry, 26, 169–171. [Effect of Vitamin E on sP-Selectin Levels in Pre-Eclampsia Indian Journal of Clinical Biochemistry Springer Nature Link](#)

WeightWorld. 2025. Multivitamins and Minerals tablets. [Multivitamin and Mineral Tablets 400 Tablets WeightWorld](#). Viewed 24/11/2025.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Wheldon, G. H., Bhatt, A., Keller, P., & Hummler, H. (1983). d,1- alpha- Tocopheryl acetate (vitamin E): A long term toxicity and carcinogenicity study in rats.

International Journal for Vitamin and Nutrition Research, 53, 287–296.

WHO. (no date given). **Vitamin E supplementation in pregnancy.** [Vitamin E supplementation in pregnancy](#) [Online]. World Health Organisation. [Accessed 2 July 2026].

Woolley, D. W. (1945). Some biological effects produced by α - tocopherol quinone. Journal of Biological Chemistry, 159, 59–66. [https://doi.org/10.1016/S0021-9258\(19\)51301-1](https://doi.org/10.1016/S0021-9258(19)51301-1)

Yong, H.E., Chan, S.Y., Chakraborty, A., Rajaraman, G., Ricardo, S., Benharouga, M., Alfaidy, N., Staud, F. and Murthi, P., 2021. Significance of the placental barrier in antenatal viral infections. **Biochimica et Biophysica Acta (BBA)-Molecular Basis of Disease**, **1867**(12), p.166244.

Yue, Q.Y. and Jansson, K., 2001. Herbal drug curbicin and anticoagulant effect with and without warfarin: possibly related to the vitamin E component. **J Am Geriatr Soc**, **49**(6), p.838.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Annex B to TOX/2026/37

Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment

Annex B: Statement paper on the effects of excess Vitamin E on maternal health

Vitamin E supplement Information

1. Table 1 provides the summary of dosage information for vitamin E supplements (vitamin E only and multi-ingredient dietary supplements (MIDS)) listed in no particular order. Where the vitamin E content was provided on the packaging and/or website, calculations have been performed to estimate the maximum daily exposure to vitamin E from the supplement in mg per person per day. Depending on information on the product label, the maximum daily serving was calculated based on the assumption that the supplement is consumed at the maximum recommended daily intake.
2. An internet search was conducted using the term '**bestselling Vitamin E supplements in the UK**' to perform market analysis of the commercially available vitamin E supplements on sale in the UK only. Table 2 provides the full list of vitamin E supplements (vitamin E only supplements and MIDS) with source information on supplement name, type, retailer, dose information, recommendation for use, composition, and additional information and warnings.
3. There are also a number of drinks available for sale which are marketed as beneficial to health because they are multivitamin drinks, metabolism boosting or similar which contain vitamin E. Some meal replacements drinks also contain vitamin E. These have not been included in the supplements section as they are not considered vitamin E or MIDS supplements. For additional information only, a summary of Vitamin E containing drinks with source information was provided in Table 3.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

4. Table 4 provides a summary of vitamin E content in some common foods. This information is based on data UK where possible. This information is presented for information only as the exposure assessment for vitamin E has been performed using a nutrient assessment.

5. Table 5 provides a summary of the daily vitamin E dose resulting from the consumption of the supplements identified for the exposure assessment.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Table 1. Dosage information for vitamin E Supplements (Vitamin E only and MIDS), as sold in UK online retailers at the time of the assessment.

Supplement name	Supplement type	Maximum recommended daily serving	Vitamin E content per unit (capsule/ tablet/ scoop etc) (mg)	Vitamin E intake from a daily serving (maximum serving size*) (mg)
Vitamin E 400iu Softgel Capsules	Capsules – Vitamin E only	2 capsules	268	536
Holland and Barrett Vitamin E capsules	Capsules – Vitamin E only	1 capsule	268	268
Boots Skin Formula Vitamin E	Capsules – Vitamin E only	1 capsule	268	268
Cytoplan Vitamin E as tocopherols and tocotrienols	Capsules – Vitamin E only	1 capsule	300	300
Bulk vitamin E softgels	Capsules – Vitamin E only	1 capsule	268	268
NOW Foods, Vitamin E-Oil, Antioxidant Protection, 170 mg (253 IU)	Liquid – Vitamin E only	8 drops (0.32ml)	170	170
Marney's Vita Help Natural Vitamin E	Liquid – Vitamin E only	0.5ml	12	12
Vitabiotics Pregnacare Him & Her Conception	Tablet - MIDS	1 tablet	4	4
Vitabiotics Pregnacare Original	Tablet - MIDS	1 tablet	4	4
Vitabiotics Pregnacare Max	Tablet - MIDS	2 tablets	2	4
Vitabiotics Pregnacare Gummies	Gummies - MIDS	2 gummies	1.5	3
Vitabiotics Pregnacare Liquid Pregnancy Vitamins	Liquid - MIDS	Two 5ml teaspoonfuls per day (10mls).	2 (per 5ml)	4

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Supplement type	Maximum recommended daily serving	Vitamin E content per unit (capsule/ tablet/ scoop etc) (mg)	Vitamin E intake from a daily serving (maximum serving size*) (mg)
Vitabiotics Wellwoman Multivitamin Gummies for Women	Gummies - MIDS	3 gummies	8	24
Vitabiotics Wellwoman Original Multivitamin for Women	Capsule - MIDS	1 capsule	30	30
Vitabiotics Wellwoman Plus	Tablet - MIDS	1 tablet (micronutrient tablet) + 1 Omega 3-6-7 capsule	30 (micronutrient tablet) + 6.6 (Omega 3-6-7 capsules)	36.6
Vitabiotics Wellwoman Max	Tablet - MIDS	1 tablet	20	20
Centrum women	Tablet - MIDS	1 tablet	16	16
Inessa advanced multivitamin	Tablet - MIDS	1 tablet	12	12
Cytoplasm women's wholefood multivitamin capsules	Capsules - MIDS	2 capsules	15	30
Seven Seas Omega-3 and multivitamins	Tablet - MIDS	1 tablet	18	18
Boots a-z vitamins and minerals	Tablet - MIDS	1 tablet	12	12
Purolabs multivitamin	Capsules- MIDS	1 capsule	25	25
Nutravita multivitamins	Tablet - MIDS	1 tablet	12	12
Swallow multivitamin	Tablets - MIDS	2 tablets	6	12
Holland and Barrett Ultra woman	Caplet - MIDS	1 caplet	22	22
Weightworld multivitamin and mineral	Tablet - MIDS	1 tablet	12	12

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

* Maximum serving assumes the maximum amount recommended on the packaging or website of the supplement. E.g. if recommended to take 1-2 capsules per day, this table assumes 2 capsules would be taken. Another example is if the website suggests a serving of 2 capsules a day, but the packaging suggests 3, then the highest suggestion has been used.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Table 2. Full list of vitamin E Supplements (vitamin E only supplements and MIDS) with source of information

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
Vitamin E 400iu Softgel Capsules	Vitamin E 400iu Softgel Capsules – Supplemented	Capsules – Vitamin E only	Take two capsules daily. Take one hour before bedtime as a food supplement or as directed by a healthcare professional.	536 mg daily (268mg per capsule)	Vitamin E 400iu. (2680% RDA) dl-alpha-tocopherol, Soybean oil, Gelatin, Glycerine, Purified Water.	Not intended for persons under 18 years. If under medical supervision, taking medication, pregnant or lactating consult a doctor before. Packaging states 1 capsule, website states 2.
Holland and Barrett Vitamin E capsules	Holland & Barrett Vitamin E 400iu 30 Capsules H&B	Capsules– Vitamin E only	Take 1 capsule per day, preferably with a meal. Do not exceed stated dose.	268 mg daily (268mg per capsule)	Vitamin E (DL-Alpha-Tocopherol Acetate), Capsule Shell (Gelatine), Humectant (Glycerol), Sunflower Seed Oil.	If you are pregnant, breastfeeding, taking any medications or under medical supervision, please consult a doctor or healthcare professional before use. Discontinue use and consult a doctor if adverse reactions occur. Keep out of sight

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
						and reach of young children. Do not use if seal under cap is broken or missing.
Boots Skin Formula Vitamin E	Boots Skin Formula Vitamin E, 90 Capsules	Capsules – Vitamin E only	Take 1 capsule a day with plenty of liquid. Do not exceed the daily dose.	268 mg daily (268mg per capsule)	Vitamin E, tapioca starch, Glycerine	Suitable for adults and children aged 12 years and over. Not suitable for Vegetarians. Food Supplements are intended to supplement the diet and should not be regarded as a substitute for a balanced and varied diet or a healthy lifestyle. Not suitable for children under 12. Before taking this product, please consult your doctor or pharmacist if you are taking any medication, have any medical condition, are

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
						pregnant or breastfeeding.
Cytoplan Vitamin E as tocopherols and tocotrienol	Tocopherols & Tocotrienols Complex Vitamin E Cytoplan	Capsules – Vitamin E only	Take 1 capsule daily with food, or as recommended by a practitioner.	300 mg daily (300mg per capsule)	Vitamin E (as mixed tocopherols and tocotrienols), anti-caking agent (microcrystalline cellulose, silicon dioxide), plant cellulose (capsule shell).	If you are taking any medications, consult your doctor before use.
Bulk vitamin E softgels	Vitamin E Softgels 400 IU Pure Vitamin E Bulk™	Capsules – Vitamin E only	Take 1 softgel per day, with food.	268 mg daily (268 per capsule)	Vitamin E (DL Alpha Tocopheryl Acetate), Softgel (Gelatin, Glycerine, Water).	Food supplements are not intended to replace a varied and balanced diet and a healthy lifestyle. Do not exceed the recommended usage. Keep out of reach of children. Although every care has been taken to keep product information up to date on our website, please always read the information

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
						provided on product label or packaging before use. The actual results of consuming dietary supplements may differ from those implied. Individuals may respond differently, and the suggested results presume appropriate nutrition and training plan.
NOW Foods, Vitamin E-Oil, Antioxidant Protection, 170 mg (253 IU)	NOW Foods, Vitamin E-Oil, Antioxidant Protection, 170 mg (253 IU), 1 fl oz (30 ml)	Liquid – Vitamin E only	Take 8 drops (0.32ml) daily with a meal.	170 mg daily (170mg per 8 drop (0.32ml) serving)	Other ingredients: Organic extra virgin olive oil. Contains soy (vitamin E from non-GMO soy). Not manufactured with wheat, gluten, milk, egg, fish, shellfish, or tree nut ingredients.	For adults only. Consult physician if pregnant/nursing, taking medication, or have a medical condition. Keep out of reach of children.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Produced in a GMP facility that processes other ingredients containing these allergens.	
Marney's Vita Help Natural Vitamin E	Liquid Vitamin E MARNYS	Liquid – Vitamin E only	Take 0.5ml a day, preferably in the morning.	12 mg daily (12mg per 0.5ml serving)	Vitamin E in an extra virgin olive oil base.	Food supplements should not be used as a substitute for a balanced nutrition. It is recommended to keep a varied and balanced diet and healthy lifestyle. Do not exceed the recommended daily dose. Keep away from children. Do not store at a temperature above 30°C.
Vitabiotics Pregnacare Him & Her Conception	Pregnacare® Him & Her Conception Tablets By Vitabiotics	Tablet - MIDS	Women: one tablet per day, with your main meal (pink blister). Swallow with water or a cold drink.	4 mg daily (4 mg per tablet)	Maltodextrin, Bulking Agent: Microcrystalline Cellulose, Vitamin C (Ascorbic Acid), Magnesium Oxide,	Not to be chewed. Do not exceed recommended intake. To be taken only on a full stomach. Not

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					L-Carnitine Tartrate, Inositol, Vitamin E (D-Alpha Tocopheryl Acid Succinate) (from Soya), Maca Extract, Zinc Sulphate, Tablet Coating (Hydroxypropylmethylcellulose, Glycerin, Colours [Iron Oxides]), Crosslinked Cellulose Gum, Pine Bark Extract, Anti-Caking Agents: Stearic Acid, Magnesium Stearate & Silicon Dioxide, Thiamine (Vitamin B1 as Mononitrate), Niacin (as Nicotinamide), Ferrous Fumarate, Citrus Bioflavonoids, Pantothenic Acid (as Calcium Salt), Vitamin B6 (Pyridoxine HCl), L-	suitable for children. Pregnacare® Conception is a nutrient based, scientifically researched formula without any drugs or hormones. It contains no ingredients known to cause irregularity in the monthly cycle. Some women have reported a delay in their monthly cycle while using this product. If you experience a delay or change in your monthly cycle, this may not necessarily mean you are pregnant and it is advised to take a pregnancy

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Arginine, Vitamin A (as Acetate, Antioxidants: DL-Alpha Tocopherol), Vitamin D3 (Cholecalciferol, Antioxidant: DL-Alpha Tocopherol), Siberian Ginseng Extract, Riboflavin, Octacosanol (Rice Bran), Copper Sulphate, L-Glutathione, Coenzyme Q10, Manganese Sulphate, Lycopene Extract, Folic Acid (as Pteroylmonoglutamic Acid), Sodium Selenate, Chromium Trichloride, Biotin, Vitamin B12 (Cyanocobalamin).	test and speak to your doctor or health professional.
Vitabiotics Pregnacare Original	Pregnacare® Original Pregnancy	Tablets - MIDS	Take one tablet per day with your main meal. Swallow with water or cold drink	4 mg daily (4 mg per tablet)	Maltodextrin, Magnesium Oxide, Bulking Agent: Microcrystalline	Not to be chewed. Do not exceed recommended intake. You can

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
	Supplement Vitabiotics		with main meal (to be taken with full stomach).		Cellulose, Vitamin C (Ascorbic Acid), Ferrous Fumarate, Zinc Sulphate, Tablet Coating (Hydroxypropylmethylcellulose, Polydextrose, Medium Chain Triglycerides, Glycerin, Talc, Colours [Calcium Carbonate, Iron Oxides]), Anti-Caking Agents: Silicon Dioxide, Stearic Acid & Magnesium Stearate, Niacin (as Nicotinamide), Vitamin B6 (Pyridoxine HCl), Betacarotene, Pantothenic Acid (as Calcium Salt), Vitamin B12 (Cyanocobalamin), Vitamin E (D-Alpha Tocopheryl Acid	take Pregnacare during all stages of your pregnancy. This comprehensive formula replaces other Pregnacare multivitamins. There is no need to take an additional multivitamin.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Succinate) (from Soya), Vitamin D3 (Cholecalciferol), Thiamin (Vitamin B1 as Mononitrate), Riboflavin, Copper Sulphate, Vitamin K (Vitamin K1), Folic Acid (as Pteroylmonoglutamic Acid), Potassium Iodide, Biotin, Sodium Selenate.	
Vitabiotics Pregnacare Max	Pregnacare® Max Pregnancy Vitamins By Vitabiotics	Tablet - MIDS	Two (2) pregnacare® max tablets per day, plus one (1) omega-3 capsule per day, with your main meal. Swallow with water or cold drink with main meal (to be taken with full stomach).	4 mg daily (4 mg per 2 tablets)	Calcium Carbonate, Magnesium Oxide, Maltodextrin, Bulking Agent: Microcrystalline Cellulose, L-Arginine, Vitamin C (Ascorbic Acid), Tablet Coating (Hydroxypropylmethylcellulose, Colours: [Calcium Carbonate, Iron Oxide Yellow & Copper Chlorophyllin (Natural Source)],	Not to be chewed. Do not exceed recommended intake. Pregnacare Max can be started at any point during pregnancy. This comprehensive formula replaces other Pregnacare® multivitamins. There is no need to take an additional multivitamin.

OFFICIAL

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Polydextrose, Medium Chain Triglycerides, Glycerin), Inositol, Anti-Caking Agents: Silicon Dioxide, Stearic Acid & Magnesium Stearate, N-Acetyl Cysteine, Ferrous Fumarate, Zinc Sulphate, Niacin (as Nicotinamide), Vitamin B6 (Pyridoxine HCl), Vitamin B12 (Cyanocobalamin), Betacarotene (Antioxidant: DL- Alpha Tocopherol), Thiamin (Vitamin B1 as Mononitrate), Pantothenic Acid (as Calcium Salt), Vitamin E (D-Alpha Tocopheryl Acid Succinate (from Soya), Vitamin D3 (Cholecalciferol,	

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Antioxidant: DL-Alpha Tocopherol), Copper Sulphate, Riboflavin, Vitamin K (Vitamin K1), Manganese Sulphate, Folic Acid (as Pteroylmonoglutamic Acid & Calcium-L-Methylfolate), Potassium Iodide, Biotin, Sodium Selenate.	
Vitabiotics Pregnacare Gummies	Pregnacare® Gummies Pregnancy Gummies Vitabiotics	Gummies - MIDS	Chew 2 gummies per day with your main meal.	3 mg daily (3mg per two gummies)	Glucose Syrup, Granulated Sugar, Water, Gelling Agent (Pectins), Acidity Regulators (Citric Acid, Sodium Citrate), Suspending Agent (Vegetable Fat), Vitamin C (L-Ascorbic Acid), Medium Chain Triglycerides, Zinc Citrate, Purple Black Carrot & Apple Concentrate,	Do not exceed the recommended intake. Pregnacare can be taken all stages of pregnancy. This comprehensive formula replaces other Pregnacare multivitamins. There is no need to take an additional multivitamin.

OFFICIAL

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Nicotinamide, Ferrous Fumarate, Natural Flavourings, Emulsifier (Sunflower Lecithin), Pantothenic Acid, Vitamin B12 (Cyanocobalamin), Sodium Selenite, Vitamin E (D Alpha Tocopherol), Beta-carotene, Vitamin B6 (Pyridoxine Hydrochloride), Vitamin B1 (as Thiamin Nitrate), Riboflavin, Vitamin K1, Vitamin D3 (as Cholecalciferol), Folic Acid (Pteroylmonoglutamic Acid), Biotin, Potassium Iodide, Glazing Agent (Modified Corn Starch).	
Vitabiotics Pregnacare	Pregnacare® Liquid Pregnancy	Liquid - MIDS	Two 5ml teaspoonsful per day. One	4 mg daily (4 mg per 10 ml serving)	Purified Water, Raw Cane Sugar, Sweetener: Maltitol	Pregnacare liquid should not be taken on an empty

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
Liquid Pregnancy Vitamins	Vitamins Vitabiotics		teaspoonful = approx. 5ml 5ml spoon included Pregnacare Liquid should not be taken on an empty stomach. Ideally taken with a main meal.		Syrup, Magnesium Gluconate, Glycerin, Vitamin C (Ascorbic Acid), Ferrous Sulphate, Betacarotene (Vegetable Glycerin, Polysorbate 80, Vegetable Oil, Rosemary Extract, Antioxidant: Mixed Tocopherols), Zinc Gluconate, Acidity Regulators: Citric Acid & Sodium Hydroxide, Stabiliser: Xanthan Gum, Niacin (as Nicotinamide), Vitamin B6 (Pyridoxine HCl), Natural Flavouring: Orange Oil, Preservative: Potassium Sorbate, Pantothenic Acid (D-Panthenol), Vitamin E (DL-Alpha Tocopheryl Acetate),	stomach. Ideally taken with a main meal. Do not exceed the recommended intake. Excessive consumption may produce laxative effects. You can take Pregnacare during all stages of your pregnancy. This comprehensive formula replaces other Pregnacare multivitamins. There is no need to take an additional multivitamin.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Thiamin (Vitamin B1 as Hydrochloride), Copper Sulphate, Riboflavin, Folic Acid (as Pteroylmonoglutamic Acid), Potassium Iodide, D-Biotin, Vitamin K, Sodium Selenate, Antioxidant: Butylated Hydroxyanisole, Vitamin D3 (Cholecalciferol), Vitamin B12 (Cyanocobalamin).	
Vitabiotics Wellwoman Multivitamin Gummies for Women	Wellwoman® Multi - Vitamin Gummies For Women	Gummies - MIDS	Chew 3 gummies per day with your main meal.	24 mg daily (24 mg per 3 gummies)	Wheat Glucose Syrup, Sugar, Fructooligosaccharides, Gelling Agent: Fruit Pectin, Vitamin and Nutrient Blend (Citrus Bioflavonoids, Niacin [as Nicotinamide], Ferric Pyrophosphate, Sodium Selenite,	Do not exceed the recommended intake. This comprehensive formula replaces other Wellwoman multivitamins. There is no need to take an additional multivitamin.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Zinc Citrate, Pantothenic Acid, Potassium Iodide, Vitamin D3 [Cholecalciferol (Vegan)], Vitamin B6 [as Pyridoxine HCl], Vitamin B1 [as Thiamin HCl], Riboflavin, Vitamin B12 [as Cyanocobalamin], Vitamin K [as Vitamin K1], Copper Citrate, Folic Acid, Chromium Picolinate, Biotin), Acidity Regulators: Citric Acid & Sodium Citrate, Vitamin C [Ascorbic Acid], Black Carrot Juice Concentrate, Vitamin E [as D-Alpha Tocopheryl Acetate], Starflower Oil, Evening Primrose Oil, Blueberry	Not suitable for children. As this product contains vitamin K, if you are taking anticoagulants (blood thinners) do not take these gummies except on the advice of a doctor. Not to be taken on an empty stomach. This product contains iron, which if taken in excess, may be harmful to very young children. Food supplements must not replace a varied and balanced diet and a healthy lifestyle. As with other food supplements, consult your doctor or pharmacist before using if you

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Flavouring, Strawberry Flavouring, Antioxidant: Mixed Tocopherols, Coating: Vegetable Oils (Coconut Oil, Rape Seed Oil), Glazing Agent (Carnauba Wax) and Antioxidant (Alpha Tocopherol), Betacarotene.	are under medical supervision, pregnant, breast-feeding, have epilepsy, a thyroid condition, haemochromatosis, suffer from food allergies, or are allergic to any of the ingredients.
Vitabiotics Wellwoman Original Multivitamin for Women	Wellwoman Original Multivitamin For Women Vitabiotics®	Capsules -MIDS	One capsule per day with your main meal. Not to be chewed. Swallow with water/cold drink.	30 mg daily (30 mg per capsule)	Capsule Shell (Pharmaceutical Grade Gelatin [Halal Bovine Source], Glycerin, Colour [Iron Oxides], Orange Flavour), Soya Bean Oil (from Soya), Magnesium Oxide, Evening Primrose Oil, Starflower Oil, Vitamin C (Ascorbic Acid), Vitamin E (DL-Alpha Tocopheryl Acetate),	Do not exceed the recommended intake. To be taken on a full stomach. This comprehensive formula replaces other Wellwoman® multivitamins. There is no need to take an additional multivitamin. As with other food supplements, consult your doctor

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Niacin (as Nicotinamide), Ferrous Fumarate, Zinc Sulphate, Para Amino Benzoic Acid, Lecithin (from Soya), Citrus Bioflavonoids, Thiamin (Vitamin B1 as Mononitrate), Flavouring: Natural Orange Oil, Vitamin B6 (as HCl), Pantothenic Acid (Calcium Salt), Manganese Sulphate, Betacarotene (Antioxidant: DL-Alpha Tocopherol), Riboflavin (Vitamin B2), Copper Sulphate, Thickener: Beeswax, Vitamin D3 (Cholecalciferol [Antioxidant: DL-Alpha Tocopherol]), Folic Acid (as Pteroylmonoglutami	or pharmacist before using if you are under medical supervision, pregnant, breast-feeding, have epilepsy, haemochromatosis, suffer from food allergies, or are allergic to any of the ingredients. Not suitable for children.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					c Acid), Chromium Trichloride, Selenium (Sodium Selenite), Vitamin K, Biotin, Vitamin B12 (as Cyanocobalamin).	
Vitabiotics Wellwoman Plus	Wellwoman® Plus Omega 3-6-9 By Vitabiotics	Tablets - MIDS	One tablet (purple blister) plus one capsule (aqua blister) per day with your main meal. Not to be chewed. Swallow with water/cold drink.	36.6 mg daily (30 mg per tablet; 6.6 mg per capsule)	Bulking Agents: Dibasic Calcium Phosphate & Microcrystalline Cellulose, Magnesium Oxide, Vitamin C (Ascorbic Acid), Tablet Coating: (Hydroxypropylmethylcellulose, Glycerin, Colours: Calcium Carbonate & Copper Chlorophyllin [Natural Source]), Vitamin E (D-Alpha Tocopheryl Acid Succinate) (from Soya), Ferrous Fumarate, Zinc Sulphate,	Do not exceed the recommended intake. To be taken on a full stomach. This comprehensive formula replaces other Wellwoman® multivitamins. There is no need to take an additional multivitamin. As with other food supplements, consult your doctor or pharmacist before using if you are under medical supervision, pregnant, breast-feeding, have

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Niacin (Nicotinamide), Hydroxypropylcellulose, Para Amino Benzoic Acid, Vitamin B12 (Cyanocobalamin), Citrus Bioflavonoids, Anti-Caking Agents: Stearic Acid, Silicon Dioxide & Magnesium Stearate, Thiamin (Vitamin B1 as Mononitrate), Vitamin B6 (Pyridoxine HCl), Betacarotene, Vitamin D3 (Cholecalciferol), Pantothenic Acid (as Calcium Salt), Polyvinylpyrrolidone, Riboflavin, Manganese Sulphate, Copper Sulphate, Vitamin K1 (Phytomenadione),	epilepsy, haemochromatosis, suffer from food allergies, or are allergic to any of the ingredients. Not suitable for children.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Folic Acid (as Pteroylmonoglutamic Acid), Sodium Selenate, Chromium Trichloride, Biotin.	
Vitabiotics Wellwoman Max	Wellwoman® Max Supplement For Women By Vitabiotics	Tablets - MIDS	Take with your main meal: one max tablet (purple blister), plus one omega 3-6-9 capsule (green blister), plus one calcium tablet (blue blister). Swallow each with water or a cold drink.	20 daily (20 mg per tablet)	Bulking Agents: Microcrystalline Cellulose, Starch (Pregelatinised Maize Starch) & Potato Starch, Magnesium Oxide, Vitamin C (Ascorbic Acid), Tablet Coating (Hydroxypropylmethylcellulose, Polydextrose, Talc, Medium Chain Triglyceride, Colours [Iron Oxides & Calcium Carbonate]), L-Carnitine Tartrate, Niacin (as Nicotinamide), Ferrous Fumarate, Zinc Sulphate, L-Methionine, N-	Not to be chewed. Do not exceed the recommended intake. To be taken on a full stomach. This comprehensive formula replaces other Wellwoman multivitamins. There is no need to take an additional multivitamin. As with other food supplements, consult your doctor or pharmacist before using if you are under medical supervision, pregnant, breast-feeding, have epilepsy,

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Acetyl Cysteine, Vitamin E (D Alpha Tocopheryl Acid Succinate) (from Soya), Anti-Caking Agents: Magnesium Stearate, Stearic Acid, Silicon Dioxide & Purified Talc, Polyvinylpolypyrrolidone, Guarana Extract, Thiamin (Vitamin B1 as Mononitrate), Citrus Bioflavonoids, Ethyl Cellulose, Vitamin B6 (Pyridoxine HCl), Betacarotene, Pantothenic Acid (as Calcium Salt), Vitamin D3 (Cholecalciferol), Manganese Sulphate, Vitamin B12 (Cyanocobalamin), Riboflavin, Green Tea Extract, Copper	haemochromatosis, suffer from food allergies, or are allergic to any of the ingredients. Not suitable for children.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Sulphate, Vitamin K1 (Phytomenadione), Coenzyme Q10, Folic Acid (as Pteroylmonoglutamic Acid), Chromium Trichloride, Sodium Selenate, Potassium Iodide, Biotin.	
Centrum women	Centrum Women (60 Tablets) H&B	Tablets - MIDS	Take one tablet a day with water, preferably with food.	16 mg daily (16 mg per tablet)	Dicalcium phosphate; Calcium carbonate; Magnesium oxide; Bulking agents: E 460, E 464, E 1200; L-ascorbic acid; Anticaking agents: E 468, E 551, E 553b, E 470b; Ferrous fumarate; DL-alpha tocopheryl acetate; Nicotinamide; Calcium D-pantothenate; Zinc oxide; Pyridoxine hydrochloride; Riboflavin; Thiamine	Food Supplements are intended to supplement the diet and should not be regarded as a substitute for a balanced and varied diet or a healthy lifestyle.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					mononitrate; Vegetable oil (Coconut, Palm kernel); Beta-carotene; Cupric sulphate; Retinyl acetate; Pteroylmonoglutamic acid; Chromium III chloride; Sodium molybdate; Potassium iodide; Sodium selenate; D-biotin; Phylloquinone; Cholecalciferol; Cyanocobalamin; Colours: E 120, E 133.	
Inessa advanced multivitamin	Inessa Advanced Multivitamin	Tablets - MIDS	Reach your daily nutrition goals with the world's most comprehensive one-a-day multivitamin.	12 mg daily (12 mg per tablet)	Plant fibre (Microcrystalline Cellulose), Vitamin C (Ascorbic Acid), Dicalcium Phosphate Dihydrate, Vitamin B1 (Thiamine HCl), Zinc Citrate, Vitamin K2, Co Enzyme	Not provided.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Q10, Vitamin B5 (Calcium-D-Pantothenate), Vitamin B2 (Riboflavin), Vitamin B3 (Nicotinamide), Lutein, Inositol, Vitamin D3 (Cholecalciferol), Stearic Acid, Coating (Hydroxy Propyl Methyl Cellulose [plant fibre], Glycerol), Vitamin E (D-alpha Tocopherol Succinate), Vitamin B6 (Pyridoxal 5' Phosphate), Beta-Carotene (Dunliella Salina), L-Methionine, Silicon Dioxide, Manganese Citrate, Boron (Di-Sodium Tetraborate), Vitamin A (Retinyl Acetate), Riboflavin 5 Phosphate,	

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Chromium Polynicotinate, 5-Methyltetrahydrofolate, Methylcobalamine, D-Biotin, Potassium Iodide, Sodium Molybdate.	
Cytoplan women's wholefood multivitamin capsules	Women's Wholefood Multi Award-Winning Multivitamin Capsules	Capsules - MIDS	1 to 2 capsules daily. Take with food or as directed by a practitioner.	30mg daily (30 mg per two capsules)	Broccoli powder (<i>brassica oleracea</i>), calcium ascorbate (providing vitamin C), magnesium (from citrate), chromium (from yeast), vitamin B5 (as calcium D-pantothenate), iron (as ferrous citrate), vitamin E (as d-alpha tocopherol succinate), spirulina powder (<i>arthrospira platensis</i>), carrot powder (<i>daucus carota</i>), zinc (from citrate), selenium (as selenomethionine),	Do not exceed the recommended daily intake. This product should not be used as a substitute for a varied balance diet and lifestyle.

OFFICIAL

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					kelp extract (<i>laminaria japonica</i>) providing iodine, vitamin B1 (as thiamin hcl), vitamin B2 (as riboflavin), vitamin B3 (as nicotinamide), vegan D3 (cholecalciferol) preparation (mct oil, arabic gum, maltodextrin, ascorbic acid, d-alpha tocopherol, beta carotene (<i>daucus carota</i>), vitamin B6 (as P5P), acai berry (<i>euterpe oleracea</i>), acerola cherry extract (<i>malpighia emarginata</i>), copper (as glycinate), vitamin K2 (MK-7), boron (as sodium borate), manganese (as citrate), folic acid (as L-5-	

OFFICIAL

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					methylnetrahydrofolate calcium), vitamin B12 (as methylcobalamin), molybdenum (as sodium molybdate), biotin, plant cellulose (capsule shell).	
Seven Seas Omega-3 and Multivitamins	Omega-3 & Multivitamins Woman Duo Pack Seven Seas H&B	Tablets - MIDS	Adults (18+): Take one Vitamin and Mineral tablet (pink blister) and one Omega-3 Fish Oil capsule (red blister) a day with a glass of cold water; take during or immediately after a meal.	18 mg daily (18 mg per tablet)	<u>Capsule</u> : Fish Oil; Beef Gelatin; Humectant: Glycerol; Antioxidant: Tocopherol <u>Tablet</u> : Calcium carbonate; Bulking agent: Microcrystalline Cellulose; Magnesium oxide; L-ascorbic acid; Ferrous fumarate; Maltodextrin; Nicotinamide; Modified starch; DL-alpha-tocopheryl acetate; Riboflavin; Bulking agents: Dicalcium	Do not exceed the recommended daily dose. Food supplements are not intended as a substitute for a varied and balanced diet and a healthy lifestyle. Contains iron, which, if taken in excess, may be harmful to very young children. Keep out of sight and reach of young children. If you are pregnant, intending to become

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					phosphate, Cross-linked sodium carboxymethylcellulose; Thiamine mononitrate; Zinc oxide; Calcium D-pantothenate; Glazing agents: Hydroxypropyl methyl cellulose, Talc; Pyridoxine hydrochloride; Anti-caking agents: Silicon dioxide, Magnesium salts of fatty acids, Fatty acids; Carrier: Acacia gum; Sugar; Starch; Glucose syrup; Manganese sulphate; Copper sulphate; Retinyl acetate; Pteroylmonoglutamic acid; D-biotin; Chromium chloride; Potassium iodide; Sodium selenite; Phytomenadione;	pregnant, breastfeeding or postmenopausal, have any concerns or questions, are taking any other food supplements or medication, including warfarin or other blood thinning medicines, or have an existing health condition, please talk to your healthcare professional before taking this product.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Cyanocobalamin; Cholecalciferol	
Boots a-z Vitamins and minerals	Boots A-Z 180 Tablets (6 month supply) - Boots	Tablets - MIDS	Take 1 tablet a day with plenty of liquid. Do not exceed the daily dose.	12 mg daily (12 mg per tablet)	Calcium Carbonate, Magnesium Oxide, Ascorbic Acid, Cellulose, Maltodextrin, Ferrous Fumarate, Dicalcium Phosphate, Vitamin E Acetate, Nicotinamide, Hydroxypropylmethylcellulose, Zinc Oxide, Cross-linked Sodium Carboxymethylcellulose, Silicon Dioxide, Magnesium Stearate, Calcium Pantothenate, Manganese Sulphate, Copper Sulphate, Pyridoxine Hydrochloride, Thiamine Mononitrate, Riboflavin, Vitamin A	Suitable for Adults and children aged 12 years and over. Food Supplements are intended to supplement the diet and should not be regarded as a substitute for a balanced and varied diet or a healthy lifestyle. Keep out of sight and reach of children. In case of overdose seek medical attention. Before taking this product, please consult your doctor or pharmacist if you are taking any medication, or are taking warfarin or other blood thinning medications, have

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Acetate, Antioxidants (DL Alpha Tocopherol, Tartaric Acid, Sodium Ascorbate), Folic Acid, Potassium Iodide, Chromium Chloride, Sodium Molybdate, Sodium Selenite, Talc, Vitamin K1, Biotin, Vitamin D3 (Cholecalciferol), Methylcobalamin.	any medical condition, have diabetes, or are pregnant, trying to become pregnant or breastfeeding.
Purolabs multivitamin	Vegan Multivitamin Purolabs	Capsules - MIDS	Take 1 capsule per day. Take consistently with water or food for the best results.	25 mg daily (25 mg per capsule)	Vegetable Cellulose (HPMC), Magnesium Ascorbate, Brown Rice Flour, Nicotinamide (Niacin), Vitamin E Acetate, Calcium Carbonate DC (Contains Starch), Pantothenic Acid (D-Calcium Pantothenic), Magnesium Citrate, Choline Bitartrate,	If you are taking medication or under medical supervision, please consult your healthcare practitioner before taking any food supplement. Store in a cool, dry place away from direct sunlight. Keep out of reach of children. Food supplements are

OFFICIAL

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Zinc Citrate, L-Seleno Methionine (Selenium), Bamboo Silica, Rice Extract Blend, Pyridoxine Hydrochloride (Vitamin B6), Thiamine Hydrochloride (Vitamin B1), Olive Leaf Extract, Vitamin B2 (Riboflavin), Inositol, Para Aminobenzoic Acid (PABA), Ferrous Fumarate, Manganese Citrate, Sodium Tetraborate Anhydrous (Boron), Co-Enzyme Q10 Powder (Ubiquinone), Vitamin A Acetate (Contains Starch), Lutein (Contains Starch), Vitamin D2 (Ergocalciferol), Sodium Molybdate (Molybdenum),	not to be used as a substitute for a varied, balanced diet and healthy lifestyle.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Cupric Sulphate (Copper), Chromium Picolinate, Bilberry Extract, Folic Acid, Biotin, Beta Carotene, Potassium Iodide, Vitamin B12 (Cyanocobalamin).	
Nutravita multivitamins	Multivitamin Minerals - Vegan & Vegetarian Multivitamins - Nutravita Nutravita	Tablets -MIDS	Take one tablet a day with a full glass of water preferably with breakfast.	12 mg daily (12 mg per tablet)	Bulking Agents (Dicalcium Phosphate, Microcrystalline Cellulose), Magnesium Oxide, Calcium Carbonate (Maltodextrin), Vitamin C (Ascorbic Acid) (HydroxyPropylMethyl Cellulose), Potassium Chloride, Ferrous Fumarate, Vitamin E Acetate (Modified Food Starch, Silicon Dioxide), Vitamin B3 (Nicotinamide), Zinc Oxide, Glazing	Food supplements must not be used as a substitute for a varied and balanced diet and a healthy lifestyle. If you are pregnant, breastfeeding, taking any medications or under medical supervision, please consult a doctor or healthcare professional before use.

OFFICIAL

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Agents (HydroxyPropyl MethylCellulose, Glycerin, Carnauba Wax) Vitamin A (Retinyl Palmitate) (Maltodextrin, Arabix Gum, Corn Starch, Vegetable Oil, Tocopherol), Anti-Caking Agents (Magnesium Stearate, Silicon Dioxide), Vitamin B5 (D-Calcium Pantothenate), Manganese Sulphate, Sodium Selenite (Microcrystalline Cellulose), Copper Sulphate, Vitamin B12 (Cyanocobalamin) (Maltodextrin), Vitamin B6 (Pyridoxine Hydrochloride), Vitamin K1 (	

OFFICIAL

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Maltodextrin), Vitamin B2 (Riboflavin), Vitamin B1 (Thiamine Hydrochloride), Chromium Picolinate, Folic Acid, Potassium Iodide, Sodium Molybdate, Vitamin D (Cholecalciferol) (Maltodextrin, Sugar, Ascorbyl Palmitate), Biotin.	
Swallow multivitamin	Daily Multivitamin Tablets for Women and Men - High Dose – The Swallow Co	Tablets - MIDS	Take 2 tablets a day, with a drink or food. Ideally, take one in the morning and one in the evening. Do not exceed the stated dose.	12 mg daily (12 mgs per 2 tablets)	Magnesium Bisglycinate, Dicalcium Phosphate, Vitamin-C (PureWay-C®), Iron (Ferrous Bisglycinate), Coenzyme Q10 (Ubiquinone), Glazing Agent (HydroxyPropylMethylCellulose, Glycerol), Zinc Citrate, Rice Extract	If you are pregnant, breastfeeding, taking medication or due for surgery it is advisable to consult a GP prior to taking any supplements. Not intended for use by persons under the age of 18 years old.

OFFICIAL

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Blend, Nicotinamide, Vitamin E (D-Alpha Tocopheryl Succinate), Bulking Agent (Microcrystalline Cellulose), Thiamine Hydrochloride, Manganese Bisglycinate, L-Selenomethionine, Retinol Acetate, Calcium Pantothenate, Lutein Ester, Copper Gluconate, Vitamin K2 MK7, Vitamin B6 (Pyridoxal 5-Phosphate), Vitamin D3 (from Algae), Riboflavin 5-Phosphate Sodium (R5P), Chromium Picolinate, L-5-Methyletetrahydrofolate MTHF, Potassium Iodide, D-Biotin,	

OFFICIAL

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Methylcobalamin (methylated Vitamin B12).	
Holland and Barrett Ultra woman	Holland & Barrett Ultra Woman Tablets 3 Months Supply Bundle H&B	Caplets - MIDS	Take one caplet daily, preferably with a meal. Do not exceed stated dose.	22mg daily (22mg per caplet)	Calcium Carbonate, Bulking Agent (Microcrystalline Cellulose), Magnesium Oxide, Potassium Chloride, Vitamin C (as Ascorbic Acid), Dicalcium Phosphate, Iron Fumarate, Citrus Sinensis Extract, Glazing Agents (Hydroxypropylmethyl Cellulose, Glycerine, Hydroxypropyl Cellulose), Vitamin E (as d-Alpha Tocopheryl Acid Succinate), Emulsifiers (Cross-linked Sodium Carboxymethylcellulose, Sodium Carboxymethylcellul	Food supplements must not be used as a substitute for a varied and balanced diet and a healthy lifestyle. If you are pregnant, breastfeeding, taking any medications or under medical supervision, please consult a doctor or healthcare professional before use.

OFFICIAL

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					ose), Beta-Carotene, Anti-Caking Agents (Magnesium Stearate, Silicon Dioxide), Manganese Gluconate, Pantothenic Acid (as d-Calcium Pantothenate), Niacin (as Nicotinamide), Copper Gluconate, Zinc Oxide, Vitamin D3 (as Cholecalciferol), Vitamin B6 (as Pyridoxine Hydrochloride), Vitamin B12 (as Cyanocobalamin), Pomegranate Extract, Vitamin B1 (as Thiamin Mononitrate), Vitamin B2 (as Riboflavin), Chromium	

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Picolinate, Grapeseed Extract, Cranberry Extract, Flaxseed Powder, Sodium Borate, Bilberry Fruit Extract, Vitamin K1 (as Phylloquinone), Folic Acid (as Pteroylmonoglutamic Acid), Sodium Selenite, Potassium Iodide, Sodium Molybdate, Biotin (as d-Biotin), Lycopene, Lutein, Zeaxanthin, Coenzyme Q10 (as Ubiquinone).	
WeightWorld Multivitamin and Mineral	Multivitamin and Mineral Tablets 400 Tablets WeightWorld	Tablets - MIDS	Take 1 tablet daily with a full glass of water, preferably with a main meal. You can take the tablet during the day, at noon or at night, whatever you prefer. For optimal results, it is	12mg daily (12 mg per tablet)	Vitamin C (as L-Ascorbic acid), Magnesium (as magnesium oxide), potassium (as Potassium Chloride), Vitamin E (as DL-Alpha Tocopherol Acetate), Vitamin B3 (as	Do not exceed the recommended daily dose. Food supplements must not be used as a substitute for a varied and balanced diet and a healthy lifestyle. If you are

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
			recommended that you take the tablet at approximately the same time every day.		Nicotinamide), Iron (as Ferrous Fumarate), Zinc (as Zinc Citrate), Calcium (as Calcium Carbonate), Vitamin B5 (as Pantothenic Acid), Manganese (as Manganese Citrate), Vitamin B2 (as Riboflavin), Vitamin B6 (as Pyridoxine Hydrochloride), Vitamin B1 (as Thiamin Mononitrate), Copper (as Copper Gluconate), Vitamin A (as Retinyl Acetate), Selenium (as L-Selenomethionine), Sodium (as Sodium Chloride), Vitamin B9 (as Folic Acid), Iodine (as Potassium Iodide), Vitamin B12 (as	pregnant, breastfeeding, taking any medications or are under medical supervision, please consult a healthcare professional before use. Discontinue use if any adverse reactions occur. Not intended for use by persons under the age of 18.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Website link/retailer	Supplement type	Recommendations for use	Dosage information	Composition	Additional information and warnings
					Cyanocobalamin), Vitamin B7 (as D-Biotin), Chromium (as Chromium Chloride), Boron (as Boric Acid), Cholin (as Cholin Bitartrate), Molybdenum (as Sodium Molybdate), Vitamin D3 (as Cholecalciferol), Vitamin K2 MK7 (as Menoquinone).	

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Table 3: Summary of drinks products marketed as meal replacements and/ or beneficial to health which contain vitamin E with source information

Product	Website/ retailer	Product type	Recommendations for use	Vitamin E content	Composition	Additional information and warnings
Huel Ready-to-drink On-the-go complete meal	Huel Ready-to-drink On-the-go complete meal	Drink – meal replacement shake.	Each bottle contains one portion and is considered a meal replacement.	3.0-3.2 mg (highest, banana flavour)	Varied based on flavour, example: Water, Pea protein, Tapioca starch, gluten-free oat flour, rapeseed oil, cocoa powder (1.5%), ground flaxseed, soluble vegetable fibre (chicory, corm), medium-chain triglyceride powder (from coconut), micronutrient blend (Minerals: potassium, chloride, calcium, magnesium, phosphorus, copper, zinc, iodine, chromium; Vitamins: C, K, E, A, Niacin, D, B12, Pantothenic acid, biotin, B6, B2, B1, folate; Cholin), natural flavourings, brown rice flour, coconut sugar, sunflower lecithin, gellan gum, sea salt, sucralose	We recommend one serving a day if you are pregnant or breastfeeding.
Verve Transparent Greens V80 Powder	V80 Greens Powder from Verve - Boost Your Nutrition	Drink – powder.	Add one heaped 10g scoop to 300ml of water, shake and enjoy. Best taken in the morning on an empty stomach.	12 mg per 10g serving	Spirula, Pea protein, sugar beet oligofructose soluble fibre powder, kiwi pear powder, barley grass, chlorella, wheat grass, alfalfa, potassium phosphate, flaxseed extract, broccoli powder, inulin, bamboo extract, calcium (as calcium citrate), strawberry	Not provided.
Vitamin Well vitamin drinks	Vitamin Well Vitamin Drinks 12x500ml Protein Package Protein Package	Drink – flavoured soft drink.	Not provided.	6 – 7.2 mg per 500ml bottle (depends on type/ flavour)	Water, Fructose, Acidity Regulators (Citric Acid, Calcium Carbonate), Vitamins (Vitamin D3, Vitamin E, Niacin, Folic Acid, Vitamin B12, Biotin, Pantothenic Acid), Minerals (Magnesium, Zinc, Selenium), Flavouring	Not provided.
Dr Witt Premium Metabolism Green Multivitamin Drink	Dr Witt Premium Metabolism Green Multivitamin	Drink – flavoured soft drink.	Not provided.	1.8 mg (assumed to be per L bottle)	Water, apple juice from apple juice concentrate 20%, sugar, juices from juice concentrates: lime juice from juice concentrate 0,1%, pineapple juice from concentrated juice 0,1%, grape juice from juice concentrate 0,1%, kiwi juice from juice concentrate	Not provided.

OFFICIAL

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

	Drink 1l Food Plus Shop online				0,05%, acidity regulators: citric acid and sodium citrates, stabilisers: guar gum and xanthan gum, colourings – carotenes, copper complexes of chlorophylls and chlorophyllin, flavourings, zinc, Vitamins: E, C, niacin, B6, folic acid, B12, biotin, pantothenic acid, sweetener – sucralose.	
Beverages, fortified, Acai berry drink	Beverages, fortified, Acai berry drink nutrition facts and analysis.	Drink – flavoured soft drink.	Not provided.	29.55 mg	Not provided.	Not provided.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Table 4. Summary of the typical vitamin E content in foods reported to be main dietary sources of vitamin E.

Food type	Food	Typical vitamin E content (mg /100 g)*	Reference
Oils	Rapeseed oil	22	Nutridex
Oils	Wheatgerm oil	140	Nutridex
Oils	Olive oil	5.1	Nutridex
Oils	Sunflower oil	49	Nutridex
Oils	Corn oil	17	Nutridex
Oils	Soybean oil	16	Nutridex
Nuts, seeds	Sunflower seeds	38	Nutridex
Nuts, seeds	Almonds (whole kernels)	26	Nutridex
Nuts, seeds	Peanuts (dry roasted)	1.1	Nutridex
Cereals and cereal products (including Wheatgerm)	Breakfast cereal, fruit and fibre type, fortified	1.4	Nutridex
Cereals and cereal products (including Wheatgerm)	Breakfast cereal, wheat biscuits, Weetabix type, fortified	1.5	Nutridex
Cereals and cereal products (including Wheatgerm)	Breakfast cereal, oat, instant, plain, fortified, cooked, made up with semi-skimmed milk	0.14	Nutridex
Cereals and cereal products (including Wheatgerm)	Breakfast cereal, cornflakes, fortified	0.14	Nutridex
Cereals and cereal products (including Wheatgerm)	Breakfast cereal, rice, toasted/crisp, fortified	0.16	Nutridex
Cereals and cereal products (including Wheatgerm)	Bran, wheat	1.0	Nutridex
Cereals and cereal products (including Wheatgerm)	Bread, wheatgerm	0.48	Nutridex
Cereals and cereal products (including Wheatgerm)	Bread, white, average	0.080	Nutridex
Cereals and cereal products (including Wheatgerm)	Bread, brown, average	0.010	Nutridex
Cereals and cereal products (including Wheatgerm)	Bread, wholemeal, average	0.28	Nutridex
Vegetables	Broccoli	1.7	Nutridex
Vegetables	Spinach	1.7	Nutridex
Vegetables	Tomatoes	0.52	Nutridex
Vegetables	Swiss chard	1.9	10 best foods high in vitamin E
Fruits	Avocado	2.2	Nutridex
Eggs	Egg	1.3	Nutridex

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Food type	Food	Typical vitamin E content (mg /100 g)*	Reference
Fish	Tuna: Canned in brine	0.42	Nutridex
Fish	Tuna: Canned in sunflower oil	2.8	Nutridex
Fish	Tuna: Fresh	0.13	Nutridex
Fish	Herring: Pickled	0.64	Nutridex
Fish	Herring: Fresh	0.76	Nutridex
Fish	Kipper	0.47	Nutridex

* Rounded to 2 significant figures.

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Table 5: Exposure estimates for women of childbearing age (16-49 years) to vitamin E from supplements (vitamin E only and MIDS), identified by online research of UK retailers at the time of the assessment.

Supplement name	Supplement type	Vitamin E content in a daily serving (maximum serving size*) (mg)*	Exposure to Vitamin E (maximum daily serving*) (mg/kg bw/day)**
Vitamin E 400iu Softgel Capsules	Capsules – Vitamin E only	536	7.6
Holland and Barrett Vitamin E capsules	Capsules – Vitamin E only	268	3.8
Boots Skin Formula Vitamin E	Capsules – Vitamin E only	268	3.8
Cytoplan Vitamin E as tocopherols and tocotrienols	Capsules – Vitamin E only	300	4.3
Bulk vitamin E softgels	Capsules – Vitamin E only	268	3.8
NOW Foods, Vitamin E-Oil, Antioxidant Protection, 170 mg	Liquid – Vitamin E only	170	2.4
Marney's Vita Help Natural Vitamin E	Liquid – Vitamin E only	12	0.17
Vitabiotics Pregnacare Him & Her Conception	Tablet - MIDS	4	0.057
Vitabiotics Pregnacare Original	Tablet - MIDS	4	0.057
Vitabiotics Pregnacare Max	Tablet - MIDS	4	0.057
Vitabiotics Pregnacare Gummies	Gummies - MIDS	3	0.043
Vitabiotics Pregnacare Liquid Pregnancy Vitamins	Liquid - MIDS	4	0.057
Vitabiotics Wellwoman Multivitamin Gummies for Women	Gummies - MIDS	24	0.34
Vitabiotics Wellwoman Original Multivitamin for Women	Capsule - MIDS	30	0.43
Vitabiotics Wellwoman Plus	Tablet - MIDS	36.6	0.52
Vitabiotics Wellwoman Max	Tablet - MIDS	20	0.28
Centrum women	Tablet - MIDS	16	0.23
Inessa advanced multivitamin	Tablet - MIDS	12	0.17
Cytoplan women's wholefood multivitamin capsules	Capsules - MIDS	30	0.43

This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Supplement name	Supplement type	Vitamin E content in a daily serving (maximum serving size*) (mg)*	Exposure to Vitamin E (maximum daily serving*) (mg/kg bw/day)**
Seven Seas Omega-3 and multivitamins	Tablet - MIDS	18	0.26
Boots a-z vitamins and minerals	Tablet - MIDS	12	0.17
Purolabs multivitamin	Capsules- MIDS	25	0.36
Nutravita multivitamins	Tablet - MIDS	12	0.17
Swallow multivitamin	Tablets - MIDS	12	0.17
Holland and Barrett Ultra woman	Caplet - MIDS	22	0.31
Weightworld multivitamin and mineral	Tablet - MIDS	12	0.17

* Maximum serving assumes the maximum amount recommended on the packaging or website of the supplement is consumed. E.g. if recommended to take 1-2 capsules per day, this table assumes 2 capsules would be taken. Another example is if the website suggests a serving of 2 capsules a day, but the packaging suggests 3, then the highest suggestion has been used.

** Rounded to 2 significant figures .