Nutritional information for vegan women who are planning a pregnancy, are pregnant or breastfeeding – Alison Boffa

In general, it is ideal to look into pregnancy nutrition before you start trying for a baby, especially as a vegan. Starting pregnancy with adequate nutritional needs also reduces the risk of deficiencies during pregnancy. In addition, starting pregnancy in a healthy weight range is ideal for all women, in order to reduce the risk of pregnancy complications related to being over- or underweight.

As plant-based diets increase in popularity, quality evidence on their effects on pregnancy and breastfeeding is still lacking, however they can be considered safe in pregnancy, if attention is given to the following vitamin and trace element requirements 12. This is because those following a plant-based diet are at a higher risk of deficiency 1.

Folic acid

Whilst you are trying for a baby and during the first 12 weeks of pregnancy, a folic acid supplement containing 400 mcg/day is recommended, to reduce the risk of spina-bifida and other neural tube defects in your baby 34.

Calcium

Including plenty of calcium rich food sources during pregnancy and breastfeeding is important for both your baby’s bone development and keeping your bones healthy5,6. Calcium requirements increase further during breastfeeding and you will need to add extra sources of calcium to your diet once you start breastfeeding5,6. Rich sources of vegan calcium which should form part of the diet include edamame, calcium-fortified plant milks, soybeans and soy-containing foods such as tofu, tempeh7,8. Other sources include sesame seeds, almonds, chia seeds and leafy greens such as kale, spinach, collard greens and bok-choy7,8.

Vitamin D

Vitamin D during pregnancy is also important your overall bone health, immune function and calcium absorption. Adequate vitamin D status may also reduce the risk of pre-eclampsiaand low birth weight, when compared to those who are deficient 9. Our bodies are able to produce vitamin D upon exposure to Ultra Violet rays from the sun, however, you should avoid prolonged sun exposure without the use of sunscreen, particularly during hot summer months since your skin is more sensitive and more prone to sunburn and skin pigmentation during pregnancy 10.

Apart from Vitamin D-fortified cereals and plant milks, the only good vegan source of vitamin D is mushrooms which were exposed to light when growing (not grown in the dark) since they absorb vitamin D from sunlight. Unfortunately, most commercially grown mushrooms are grown in the dark, however leaving them in the sunlight for some time may help improve their vitamin D levels 11.

Vitamin D from plant sources is not well absorbed, it is therefore recommended that all pregnant and breastfeeding women take a vitamin D supplement of 10 mcg/day (note that not all vitamin D supplements are vegan-friendly) 12,13. Look for supplements containing both vitamin D2 and D3 12,13.

Iodine

It is important that your diet contains a reliable source of iodine, which is needed for brain development since deficiency may result in damage to your baby’s developing brain 14. The World Health Organisation says that iodine deficiency is the most important preventable cause of brain damage since even in mild to moderate iodine deficiencies in pregnancy, there has been evidence of lower IQ, reading and learning skills in children at 8-9 years of age 14 15. It is important that iodine stores are adequate before entering pregnancy due to important brain development in early pregnancy 14.

Vegan foods, apart from seaweed and kelp, contain no or only minimal amounts of iodine. However, amounts of iodine in these foods are variable and can be very high and cause toxicity 16 17. Even though 500ml of fortified plant/day provides adequate iodine intake in non-pregnant women, it is advised that while trying for a baby, during pregnancy and breastfeeding, vegan women take a supplement containing 140 mcg/day (make sure supplements are not seaweed or kelp based) 18.

Vitamin B12

Including a reliable source of vitamin B12 in your diet is essential for a healthy pregnancy and breastfeeding. The only vegan dietary sources of vitamin B12 are fortified foods such as plant milks, nutritional yeast and cereals 19. Therefore, all vegans (even if not pregnant) are advised to take a supplement containing 10µg/day 20.

Iron

Iron requirements increase during pregnancy and breastfeeding and if you do not get enough iron, it may lead to extreme tiredness and anaemia 21. Make sure to include good sources of iron in meals and snacks, which include lentils, chickpeas, black-eyed beans, soybeans, tofu, several nuts and seeds (including pumpkin, sesame, hemp and flax seeds) and fortified cereals.

Increasing the vitamin C content of your meals and snacks helps your body to absorb iron. Good sources of vitamin C include citrus fruits such as oranges, lemons, pineapple, grapefruit and kiwi, peppers and broccoli 22,23. Drinking tea and coffee with your food may make it more difficult for your body to absorb iron and should therefore be avoided 22. However, iron from plant sources is not absorbed as well as that obtained from animal sources 22,23.

Iron supplementation is recommended during pregnancy and breastfeeding, with doses of 30-60 mg/day of elemental iron to prevent iron-deficiency anaemia 24.

Omega-3

You should also make sure that you are getting enough omega-3 fat during pregnancy. The essential omega-3 fat is alpha-linolenic acid (ALA), which our bodies can make into other omega-3 fats, including eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) 25. DHA and EPA are needed for the development of your baby's brain, nerves and eyes 25. Good sources of ALA include chia seeds, ground linseed, hemp seeds and walnuts. Unfortunately, your body’s ability to convert ALA is limited and only about 5% of ALA is converted to EPA, while less than 0.5% is converted to DHA 26.

Therefore, since vegans consume almost no EPA and DHA from natural sources, and some experts recommend that pregnant vegans take a 200mg supplement/day containing DHA (or DHA and EPA) from microalgae instead trying to increase ALA consumption 27.

Zinc

Zinc is important for your baby’s growth and development, as well as milk production and secretion 28,29. Therefore, during pregnancy and particularly in the first 4 months of breastfeeding, zinc requirements increase, and food sources rich in zinc should be included in meals and snacks. These include wholegrain products, tofu, nuts and seeds. Soaking nuts, seeds, and legumes overnight and eating [enough protein](https://www.healthline.com/nutrition/protein-for-vegans-vegetarians), boosts zinc absorption 2,28,29.

In summary, well-planned vegan diets, with supplementation as needed, can fulfil your nutritional needs during pregnancy and breastfeeding. However, always speak to your health care provider before taking supplements to ensure their safety for your specific needs.

References

1. Sebastiani G, Barbero AH, Borrás-Novell C, et al. The Effects of Vegetarian and Vegan Diet during Pregnancy on the Health of Mothers and Offspring. *Nutr 2019, Vol 11, Page 557*. 2019;11(3):557. doi:10.3390/nu11030557

2. Messina V, Mangels AR. Considerations in planning vegan diets: Children. *J Am Diet Assoc*. 2001;101(6):661-669. doi:10.1016/S0002-8223(01)00167-5

3. WHO | Periconceptional folic acid supplementation to prevent neural tube defects. *WHO*. 2019. http://www.who.int/elena/titles/folate\_periconceptional/en/. Accessed June 6, 2021.

4. de la Fournière B, Dhombres F, Maurice P, et al. Prevention of neural tube defects by folic acid supplementation: A national population-based study. *Nutrients*. 2020;12(10):1-10. doi:10.3390/nu12103170

5. Hacker AN, Fung EB, King JC. Role of calcium during pregnancy: Maternal and fetal needs. *Nutr Rev*. 2012;70(7):397-409. doi:10.1111/j.1753-4887.2012.00491.x

6. Kohlenberg-Mueller K, Raschka L. Calcium balance in young adults on a vegan and lactovegetarian diet. *J Bone Miner Metab*. 2003;21(1):28-33. doi:10.1007/s007740300005

7. Petre A. Top 10 Vegan Sources of Calcium. https://www.healthline.com/nutrition/vegan-calcium-sources. Accessed June 14, 2021.

8. Nutritics - Nutrition Analysis, Menu Management & Labelling software. https://www.nutritics.com/p/home. Accessed June 14, 2021.

9. Thorne-Lyman A, Fawzi WW. Vitamin D during pregnancy and maternal, neonatal and infant health outcomes: A systematic review and meta-analysis. *Paediatr Perinat Epidemiol*. 2012;26(SUPPL. 1):75-90. doi:10.1111/j.1365-3016.2012.01283.x

10. Lyons, Faye; Ousley L. *Dermatology for the Advanced Practice Nurse*. Springer Publishing Company; 2015.

11. Keegan RJH, Lu Z, Bogusz JM, Williams JE, Holick MF. Photobiology of vitamin D in mushrooms and its bioavailability in humans. *Dermatoendocrinol*. 2013;5(1):165-176. doi:10.4161/derm.23321

12. De-Regil LM, Palacios C, Lombardo LK, Peña-Rosas JP. Vitamin D supplementation for women during pregnancy. *Cochrane Database Syst Rev*. 2016;(1):CD008873. doi:10.1002/14651858.CD008873.pub3

13. *Vitamin D and Health 2016 Ii*.; 2016. https://www.gov.uk/government/groups/scientific-advisory-committee-on-nutrition. Accessed July 14, 2019.

14. Bath SC. The effect of iodine deficiency during pregnancy on child development. *Proc Nutr Soc*. 2019;78(02):150-160. doi:10.1017/S0029665118002835

15. WHO | Assessment of iodine deficiency disorders and monitoring their elimination. *WHO*. 2014.

16. Teas J, Pino S, Critchley A, Braverman LE. Variability of iodine content in common commercially available edible seaweeds. *Thyroid*. 2004;14(10):836-841. doi:10.1089/thy.2004.14.836

17. Di Matola T, Zeppa P, Gasperi M, Vitale M. Thyroid dysfunction following a kelp-containing marketed diet. *BMJ Case Rep*. 2014;2014:bcr2014206330. doi:10.1136/bcr-2014-206330

18. Zimmermann M, Delange F. Iodine supplementation of pregnant women in Europe: A review and recommendations. *Eur J Clin Nutr*. 2004;58(7):979-984. doi:10.1038/sj.ejcn.1601933

19. Webster-Gandy, Joan; Madden, Angela; Holdsworth M. Micronutrients. In: *Oxford Handbook of Nutrition and Dietetics*. second. Oxford, UK: Oxford University Press; 2012:93-153.

20. Institute of Medicine Staff, Food and Nutrition Board Staff. *Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin and Choline.* National Academies Press; 2000.

21. Zimmermann MB, Hurrell RF. Nutritional iron deficiency. *Lancet*. 2007;370(9586):511-520. doi:10.1016/S0140-6736(07)61235-5

22. Agget PJ. Iron. In: Erdman, John W; Macdonald, Ian A; Zeisel SH, ed. *Present Knowledge in Nutrition*. 10th ed. Oxford: Wiley-Blackwell; 2012:506-518.

23. Hurrell R, Egli I. Iron bioavailability and dietary reference values. *Am J Clin Nutr*. 2010;91(5). doi:10.3945/ajcn.2010.28674F

24. WHO | Daily iron and folic acid supplementation during pregnancy. *WHO*. 2018.

25. Coletta JM, Bell SJ, Roman AS. Fish, omega-3 fatty acids, and pregnancy. *Harv Ment Health Lett*. 2011;27(7):7.

26. Plourde M, Cunnane SC. Extremely limited synthesis of long chain polyunsaturates in adults: Implications for their dietary essentiality and use as supplements. *Appl Physiol Nutr Metab*. 2007;32(4):619-634. doi:10.1139/H07-034

27. Baroni L, Goggi S, Battaglino R, et al. Vegan nutrition for mothers and children: Practical tools for healthcare providers. *Nutrients*. 2019;11(1):5. doi:10.3390/nu11010005

28. Hess SY, King JC. Effects of maternal zinc supplementation on pregnancy and lactation outcomes. *Food Nutr Bull*. 2009;30(1 SUPPL.). doi:10.1177/15648265090301s105

29. Hambidge KM, Miller L V., Mazariegos M, et al. Upregulation of zinc absorption matches increases in physiologic requirements for zinc in women consuming high- or moderate-phytate diets during late pregnancy and early lactation. *J Nutr*. 2017;147(6):1079-1085. doi:10.3945/jn.116.245902