



PREGNANCY AND POSTPARTUM

This resource is in collaboration with [Melanie Sulaver MS, RD, CDN, CISSN and Herathlete®](#)

Pregnancy brings maternal physiological changes that increase resting metabolic rate. In addition to the fetus developing entirely on the nutrients provided by the mother, these changes typically raise the caloric needs of the mother. This includes:

- Hormonal shifts
- Increased maternal bone turnover
- Greater oxygen demand
- Expanded blood volume

These adaptations create a heightened need for nutrients to support both maternal changes and fetal growth. It can be helpful to view nutritional interventions based on specific **micronutrients** needed trimester by trimester.



Micronutrients

There is an increased demand for micronutrient needs during pregnancy and postpartum. Below, we break it down per trimester and post pregnancy.

Pregnancy: 1st Trimester



This is the foundational stage of fetal development, influencing early embryonic growth, organogenesis, and neural development. Preconception nutrition is critical, as entering pregnancy with depleted nutrient stores increases the risk of complications. **Nutrients to focus on:**

Folate

- *Leafy greens: spinach, cabbage, kale, and spring greens.*
- *Vegetables: broccoli, asparagus, brussel sprouts, and beets.*
- *Legumes: lentils, black beans, and chickpeas*
- *Other: beef liver, fortified cereals, bananas, and eggs.*

Iodine

- *Seafood: cod, shrimp, oysters, seaweed, and tuna.*
- *Dairy: non-fat greek yogurt and non-fat milk.*
- *Other: table salt, enriched breads and pastas, eggs, and beef liver.*

Vitamin D

- *Seafood: cod liver oil, trout, sockeye salmon, and sardines.*
- *Fortified: milk, yogurt, and cereals.*
- *Other: white mushrooms exposed to UV light and 5-30 mins of sun exposure between 10 am and 4 pm daily.*



Pregnancy: 2nd Trimester



Fetal nutrients accumulate to be used after birth - therefore it is critical to have an adequate supply of all essential nutrients. **Nutrients to focus on:**

Carotenoids

Play important roles during the development of the infant eye and brain. This can start as early as 17 weeks of gestation. Carotenoids can be found in yellow and orange fruits and vegetables.

Folate

Critical to normal neural tube development within the first 28 days of conception. Folate is commonly found in green vegetables.

Iron

Pregnancy requires double the amount due to increased blood volume needed to supply oxygen to the baby. Iron is found in both animal foods like red meats and in some plant foods.

(Considered critical during third trimester as well)

Omega 3s

This polyunsaturated fat is important for early eye and brain development, as well as baby's immunity. Omega 3's are found in fatty fish, nuts, seeds, and avocados.

(Considered critical during third trimester as well)



Pregnancy: 3rd Trimester



Fetal nutrients accumulate to be used after birth - therefore it is critical to have an adequate supply of all essential nutrients. **Nutrients to focus on:**

Calcium

Critical for baby's bone development and the maintenance of the mother's own skeleton. Calcium is found in dairy, fortified foods, and plant foods.

Vitamin D- promotes calcium absorption

Carotenoids

Particularly during the third trimester, there is an increase in retinal and neural development. Placental and umbilical cord blood rely on the mother's dietary intake.

Choline

Important in cell growth and proliferation, as well as nervous and cognitive system development. A lack of choline in the maternal diet during fetal development may cause lifetime changes in the child's brain structure and function. Choline can be found in animal meat, eggs, and soybeans.

Iodine

Necessary to support the thyroid gland as iodine needs are increased more than 50% due to increases in maternal thyroid hormone production. This increase is needed to support fetal growth of thyroid gland which is not fully functioning until 20 weeks gestation.



Postpartum

Postpartum nutrition is under-researched, with most guidelines focusing on lactation rather than the total physical toll of pregnancy and childbirth. What we know for return-to-sport guidelines are even more scarce. Whether the mother is returning back to their Sunday strolls or elite athletics, supporting recovery requires replenishing vital nutrients for maternal healing and milk production. These needs vary by individual and by activity goals.

Baseline Recommendation

Carbs	45–64% of daily calories
Protein	1.8–2.0 g/kg/day
Hydration	80–100 oz/day (adjusted for activity and climate)

Micronutrients related to lactation: (Jouanne, et al., 2021)

Table 2. Micronutrient requirements in lactating women.

	Recommendations	Justifications for Breastfeeding
Calcium	1000 mg/day	Maintenance and production of breast milk
Magnesium	390 mg/day	Muscle relaxant Prevention of constipation
Zinc	19 mg/day	Participation in postpartum healing
Vitamin C	130 mg/day	Stimulation of immune functions
Vitamin D	10 µg/day = 400 IU ^a /day	Important contribution to obtain good quality milk
Vitamin A	10,000 IU/day or max 25,000 IU/week or unique intake 200,000 IU	Only in deficient populations, as soon as possible after childbirth, but not more than 8 weeks afterwards
Iron	60 mg/day	Prevention of maternal anemia
Vitamin B9	400 µg/day	For 3 months after postpartum
Omega-3	100 mg/day of DHA ^b during the 1st year of the newborn's life	Newborn brain development

^a IU: international units; ^b DHA: docosahexaenoic acid.

SUMMARY: To best support pre-pregnancy, pregnant, and postpartum athletes, prioritize the following hierarchy of needs:

Meet energy and hydration requirements.

Focus on key macronutrients and micronutrients.

Identify and address knowledge gaps related to pregnancy nutrition.

Overcome barriers to implementing nutritional strategies.

Build a comprehensive support system (including mental health, pelvic health, and medical professionals).

As always, for personalized nutrition care, please refer to a registered dietitian. This guide is not intended to provide medical advice or replace the guidance of a healthcare professional. Always consult a physician or qualified health provider with any questions regarding your medical condition or dietary needs.

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