SUPPLEMENTS FOR WOMEN PLANNING PREGNANCY, PREGNANT WOMEN AND BREASTFEEDING WOMEN

Pregnancy: Prenatal Vitamins

- Prenatal vitamins are specially formulated multivitamins that mothers-to-be are advised to take for their own health as well as for the health of their babies.
- Taking folic acid can reduce your risk of having a baby with a serious birth defect of the brain and spinal cord, called the "neural tube."
- A baby with spina bifida, the most common neural tube defect, is born with a spine that is not completely developed.
- The exposed nerves are damaged, leaving the child with varying degrees of paralysis, incontinence, and sometimes mental retardation.
- These vitamins make up for most nutritional deficiencies in your diet during pregnancy.
- Prenatal vitamins are specially formulated multivitamins that mothers-to-be are advised to take for their own health as well as for the health of their babies.
- These vitamins make up for any nutritional deficiencies in your diet during your pregnancy. he supplements contain numerous vitamins and minerals, folic acid, iron.
- Calcium should be taken separately since adequate amounts are not present in PNV.

Why do pregnant women need high levels of folic acid, iron, and calcium?

Folic Acid

Folic acid is an essential nutrient to take at least one month before attempting to become pregnant because of its role in preventing neuro tube defects (NTD).

Taking adequate amounts of folic acid before and during pregnancy may help decrease the risk of:

- neural tube defects
- congenital heart defects
- cleft palate
- cleft lip

- You should take 400-800 micrograms of folic acid every day for at least one month before pregnancy and continue until 12 weeks pregnant.
- Folic acid is not stored in fat so excess intake is excreted
- All prenatal and many multivitamins contain at least 0.4 mg of folic acid.
- Neural tube closure occurs 26 to 28 days after conception [by six weeks of gestation].
- This amount increases to 1,000 mcg with twins.
- Folic acid can help prevent birth defects known as neural tube defects, including spinal bifida.
- You should also eat foods that contain folate, a water-soluble vitamin also referred to as Vit B9, the natural form of folic acid.

Sources

- Folate occurs naturally in several foods, including beef liver, leafy vegetables, peas and beans, avocados, eggs, and milk.

- Folic acid is available in multivitamins, prenatal vitamins, and as a pure folic acid supplement. It is also added to fortify certain foods, including flour, pasta, breads, cereals, cornmeal, and rice.

- It's difficult to get the amount of folate recommended for a healthy pregnancy from food alone, which is why it's important to take a folic acid supplement.

Increased amounts may be needed with the following disorders:

- kidney disease and are on dialysis
- sickle cell disease
- liver disease
- drinks more than one alcoholic beverage daily
- takes medications to treat epilepsy (see meds below), type 2 diabetes, lupus, psoriasis, rheumatoid arthritis, asthma, or inflammatory bowel disease
- Interference by some medications:
  -phenytoin, sulfasalazine, trimethoprim, methotrexate
- Dealing with medical or surgical conditions associated with malabsorption:
  - inflammatory bowel disease
  - major intestinal resection or bypass;
  - less commonly: documented celiac disease, significant liver disease, renal failure requiring dialysis, and ethanol abuse

High Risk for NTD

- **High-dose prophylaxis is recommended for women at high risk of offspring with NTD**.
- They are candidates for higher (1 to 4 mg) dose folic acid supplementation
- This dose should be initiated one to three months prior to conception and maintained through the first 12 weeks of gestation, after which the dose is reduced to 0.4 mg. The choice of dose between 1 and 4 mg depends on the reason that the patient is high risk and is discussed below. (see chart below)

Supplementation recommendations by indication	**Amount each day**
High risk	
• Either parent with a parent of personal history of open NTD.	4mg
Moderate risk	
• Personal or family history of folate-sensitive congenital anomaly other than NTD	1mg
• Family history of NTD (first- or second-degree relative)	1 mg
• Type I or II diabetes	1 mg
• Maternal gastrointestinal malabsorption	1 mg
• Medical conditions associated with risk (advanced liver disease, dialysis, alcohol overuse)	1 mg

- See risk related to antiseizure medications below. Since the neural tube is complete by 12 weeks. The dose of these medications is to be reduced to at least 0.4 mg.

Low Risk Meds. Normal folic acid dosage: levetiracetam, lamotrigine

High Risk Meds. These are known to reduce the availability of folic acid.

Take increased dosage of 4mg a day in divided dosages:

-valproate or carbamazepine triamterene, trimethoprim, sulfasalazine

Calcium

- Taking calcium during pregnancy can prevent a new mother from losing her own bone density as the fetus uses the mineral for bone growth. Calcium helps strengthen your baby's rapidly-developing bones and teeth, and boosts muscle, heart and nerve development as well.

- While a daily vitamin supplement is no substitute for a healthy diet, most pregnant and lactating women need supplements to make sure they get adequate levels of these minerals.
- Calcium supplements help prevent pre-eclampsia and preterm birth and lower the risk of having serious problems related to high blood pressure in pregnancy.
- Too much calcium may cause kidney stones and prevent your body from absorbing zinc and iron, which you need to stay healthy. While you're pregnant, don't take more than 2,500 mg of calcium each day (3,000 mg if you're 18 or younger)
- Take 1,000 mg a day during pregnancy (1,300 mg is <18 y/o) continue these dosages during breastfeeding as well.

Sources of calcium include:

- milk, cheese and yogurt
- green leafy vegetables, such as rocket, watercress or curly kale
- tofu
- soya drinks with added calcium
- bread and any foods made with fortified flour
- fish where you eat the bones, such as sardines and pilchards

DHA

The American College of Obstetricians and Gynecologists (ACOG), recommends pregnant and lactating women should aim for an average daily intake of at least 200 mg docosahexaenoic acid (DHA) a day in addition to their prenatal vitamins.

Fish consumption and marine omega-3 fatty acid supplementation in pregnancy:

- Maternal consumption of fish and marine omega-3 The fetus depends on transplacental transfer of DHA for optimal visual and cognitive development.

- Two to three weekly servings of fish high in DHA and low in mercury is the optimal method for obtaining DHA because no other food contains naturally occurring marine omega-3 fatty acids in abundance.

- Rapid accumulation of DHA into the central nervous system continues during the first 24 months of life, with ongoing accrual throughout childhood.

- Appropriate maternal marine omega-3 fatty acid intake during pregnancy might reduce inflammation-mediated disorders, such as preterm birth, preeclampsia, and allergic/atopic disease in offspring

- Early observational studies linked fish intake during pregnancy with gestational age at delivery and neurodevelopment in offspring.

- Groups consistently recommend that pregnant women consume two to three servings of fish weekly.

- Because fish consumption also exposes the fetus to methylmercury and other environmental contaminants in fish, guidelines for fish consumption in pregnancy emphasize choosing fish species high in DHA and low in mercury. (See article on foods to avoid in pregnancy)

Potential Harms

- **Methylmercury in fish** — Fish consumption is the primary source of nonoccupational maternal methylmercury exposure.

- The fetal brain is considered the tissue most sensitive to the harms of mercury. Children can have delayed attainment of developmental milestones and, in some cases, devastating neurologic handicaps, including blindness, deafness, and cerebral palsy.

- **Fish oil supplements** — Harmful effects have not been reported from fish oil supplementation during pregnancy

- Fish oil supplements contain no or minimal mercury. Most fish oil supplements have been purified to reduce environmental toxins to negligible amounts.

- For women who may become pregnant, are currently pregnant, or are breastfeeding, expert panels worldwide suggest a minimum DHA intake of 200 to 300 mg/day

- A number of foods fortified with DHA are also available, including yogurt, milk, eggs, and cereals.

Vitamin D in Pregnancy

- All adults, including pregnant and breastfeeding women, need 10 micrograms of vitamin D each day.

- Vitamin D regulates the amount of calcium and phosphate in the body, which are needed to keep bones, teeth and muscles healthy.
- Our bodies make vitamin D when our skin is exposed to summer sunlight.
- Vitamin D is also in some foods, including:

  -Oily fish (such as salmon, mackerel, herring and sardine
  -Eggs
  -Red meat

Iron in pregnancy

- If you're short of iron, you'll probably get very tired and may suffer from anemia.
- Make sure your PNV contains iron.
- Lean meat, green leafy vegetables, dried fruit, and nuts contain iron.
- Many breakfast cereals have iron added to them. If the iron level in your blood becomes low, a GP or midwife will advise you to take iron supplements.

Vitamin C in pregnancy

- Vitamin C protects cells and helps keep them healthy.
- It's found in a wide variety of fruits and vegetables, and a balanced diet can provide all the vitamin C you need.
- Good sources include:

  - oranges and orange juice
  - red and green peppers
  - strawberries and blackcurrants
  - broccoli, brussels sprouts and potatoes

Vegetarian, vegan and special diets in pregnancy

- A varied and balanced vegetarian diet should provide enough nutrients for you and your baby during pregnancy.
- But you might find it more difficult to get enough iron and vitamin B12.

- If you are vegan or you follow a restricted diet because of a food intolerance (for example, a gluten-free diet for celiac disease) or for religious reasons. Seek a dietician for guidance about acquiring the necessary nutrition for you and your baby.