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Preconception Nutrition

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Ideally, planning for optimal nutrition during pregnancy begins before conception. However, approximately half of all pregnancies are unintended, and rates in Delaware are among the highest in the nation. In 2011, when women who had recently delivered a baby were asked if they had been trying to become pregnant, 51.3% of the national sample said yes – but in Delaware that number was 43.3%.[1] Women with unintended pregnancies often present later for prenatal care, and may miss opportunities for early screening and intervention to prevent adverse pregnancy outcomes.[2]

Improving nutrition for women of childbearing age may impact future pregnancy outcomes, even if pregnancies are unplanned. Important nutrition-related issues that may impact pregnancy outcomes include obesity and food safety. Additionally, folic acid supplementation is key to neural tube defect prevention in pregnancy. Other important supplements include Vitamin D, calcium and iron. Specific recommendations are outlined in Tables 1 and 2 below.

Table 1. Food safety concerns in pregnancy[3–5]

Exposure or infection	**Clinical concern**	**Common sources of exposure**	**Strategies to avoid exposure**
Listeriosis	Higher risk of infection in pregnant women. Associated with miscarriage and stillbirth.	Unpasteurized milk and cheese, cold smoked seafood, cold cuts and leftover foods, pate	Drink pasteurized milk, avoid soft cheeses such as Brie and queso fresco, heat hotdogs, cold cuts and leftover foods until steaming
Salmonella infections	Can cause fever, vomiting and diarrhea, leading to dehydration	Raw or undercooked meat, poultry or eggs	Avoid raw or undercooked meat, poultry and eggs, wash cutting/cooking surfaces and utensils in hot, soapy water
Toxoplasmosis	Can cause miscarriage and stillbirth	Raw or undercooked meat or poultry	Avoid raw meat or poultry. Cook meat to 145 degrees F and poultry to 165 degrees F (check with meat thermometer).
Mercury exposure	Can affect fetal neurologic development	Certain types of fish	Avoid shark, swordfish, king mackerel or tilefish. Limit albacore (canned white) tuna to 6 oz per week.

Table 2. Supplements in Pregnancy[4–6]

Supplement	**Benefit**	**Recommended dosage and source**

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Folic acid	Prevention of neural tube defects	400 mcg in a supplement to reach goal of 600 mcg total intake per day. In women with prior history of pregnancy affected by a neural tube defect or on anti-seizure medication, the recommended supplement is 4 mg per day. Ideally, supplementation should begin 3 months before conception.
Vitamin D	Important for fetal bone, tooth development	600 IU in supplement, fortified milk, fatty fish (such as salmon)
Iron	Used in production of hemoglobin to carry oxygen to developing fetus	27 mg in supplement or iron-rich foods such as red meat, lentils, soybeans and spinach. Absorption of iron from non- meat sources is improved when consumed with Vitamin C-containing foods such as fruits and vegetables.
Calcium	Important for fetal bone, tooth development	1300 mg per day from dairy foods or supplement; also found in dark leafy greens and sardines
Omega-3 fatty acids	Important for fetal brain development	8-12 ounces of fish or shellfish per week. Recommended fish include shrimp, catfish, pollock, salmon, scallops, sardines, light tuna. May also be taken as a supplement – recommended 650 mg omega-3 fatty acids, of which 300 mg come from Docosahexaenoic acid (DHA)

Obesity is an important risk factor for gestational diabetes, hypertensive disorders of pregnancy including preeclampsia, and preterm delivery. Additionally, obesity is linked to higher rates of cesarean delivery and birth trauma and may be a risk factor for childhood obesity and associated health problems. New recommendations for healthy weight gain during pregnancy are based on pre-pregnancy body mass index, or BMI. Table 3 summarizes the weight gain recommendations.

Table 3. IOM Recommended Weight Gain by Pre-Pregnancy BMI[7,8]

Pre-pregnancy BMI	**Recommended total weight gain**
<18.5	28-40
18.5-24.9	25-35
25.0-29.9	15-25
>= 30	11-20

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