

COPING WITH MORNING SICKNESS:

How to Prevent Nausea

- Do not use coffee, cigarettes, and alcohol since they can upset your stomach and harm your baby.
- Keep away from stale odors, strong cooking odors, smoke, cleaning fluids, paints, perfumes, or other scents.
- Stay away from crowded places and areas with poor air circulation.
- Do not eat foods that can cause gas, like garlic, oregano, onion, and bell peppers.
- Stay away from foods that make nausea worse, like high-fat, fried foods, and dishes with heavy spicy foods & acidic foods:

Fried eggs	Sausage
Pizza	Bacon
French fries	Cream
Gravy	Butter
Fried chicken	Oils
Cream sauces	Lard
Onions	Pepper
Chili	Orange Juice

Listen to your body's food cravings.

If the only foods that taste good or keep you from vomiting are "junk foods," then eat them:

Potato chips	Plain burgers
Pickles	Lemonade
Hot dogs	French fries

Try to cut back on these once nausea is gone.

Ideas to Help You Feel Better

- Get plenty of fresh air. Open windows and use fans. Take a walk outdoors.
- In the morning, get up very slowly, taking 5 to 6 minutes. Avoid sudden movements when getting out of bed. Try placing some dry cereal or dry bread within reach of your bed. Toast, dry biscuits or crackers work as well. Take a few bites before getting up.
- Drink fluids at least 1 ½ hours before or after mealtime.
- Sip small amounts of liquid as often as you can. Try to drink at least 8 glasses of liquids every day.
- Add water to juices (apple, grape, mango, punch, lemonade), or make broth or noodle soups.
- Try snack foods like nuts, string cheese, crackers, dried fruits, trail mix, sandwiches, fruit juices, and hard lemon candies.
- Eat small amounts every 2 or 3 hours, day or night. Eat, even if you are not hungry.
- Decide which foods sound good to you. Try some of these snacks:

Ice cream	Breads	Cottage Cheese
Popsicles	Crackers	Berries
Yogurt	Dry Cereal	Lemonade
Melon	Popcorn	Sour candies
Toast		

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Nutrition in Pregnancy

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Common Clinical Scenario: A 30-year-old woman in her first pregnancy presents for her initial prenatal care visit. She is well educated, apparently maintains a healthy diet, and exercises regularly. She has a number of concerns about dietary restrictions in pregnancy. She is curious about your recommendations regarding consumption of fish and caffeine during pregnancy. Having reviewed the latest literature, you are able to make your recommendations.

A woman's nutritional health begins prior to pregnancy. Most nutritional advice for pregnant women is based on the 1990 Institute of Medicine (IOM) Pregnancy Report, the 2005 *Dietary Guidelines for Americans* from the Department of Health and Human Services and the Department of Agriculture (USDA), and the 2006 IOM publication *Dietary Reference Intakes: The Essential Guide to Nutrient Requirements*.¹⁻³ Recommended daily allowances (RDAs) of nutrients are established by an expert IOM panel.

A careful history can reveal unhealthy habits, evidence of undiagnosed chronic disease, dietary needs for current conditions (eg, celiac disease, anemia, seizure disorder, malabsorption syndromes, prior bariatric surgery), and behavioral habits that may pose a risk to mother or fetus. Baseline dietary habits can be discovered using food diaries or self-administered questionnaires. Obstetrical history should also be reviewed for previous pregnancies with neural tube defects. See

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Table 1 for specific recommendations that may be prompted by the patient history.

Typically, women consuming 3 meals a day including fruits and vegetables, low-fat proteins, and low saturated fats have appropriate servings of essential nutrients. However, women who frequently skip meals or have a high intake of soft drinks, fast foods, and snacks are often deficient in nutrients and benefit from nutritional counseling. Women should aim to:

- Eat healthy meals with a balanced diet low in saturated fats
- Limit high-fat foods and concentrated sweets
- Avoid skipping meals and implementing special diets (which lead to inappropriate weight gain during pregnancy and poor nutrient intake)
- Avoid excessive amounts of vitamin A (teratogenic).⁴

Physical examination includes determining prepregnancy height and weight and calculation of body mass index (BMI). A prepregnancy BMI of 19.8 to 26.0 is considered normal. The clinician should evaluate for signs of nutritional deficiency or chronic disease, including evidence of eating disorders.

NUTRITIONAL GOALS AND WEIGHT MANAGEMENT

Weight gain guidelines were modified in 2009 by the IOM.⁵ The guidelines had not been revised in nearly 2 decades. Now, a different population of women are carrying pregnancies. American mothers now tend to be older, have higher frequency of multiples, higher prepregnancy BMI, and higher burden of chronic diseases. Recommendations are the same for women of smaller stature and differing races and ethnicity (Table 2).

Achieving a normal BMI prior to conception improves general health maintenance, mental health, and energy as a new parent. Nearly all

FOCUSPOINT

American mothers now tend to be older, have higher frequency of multiples, higher prepregnancy BMI, and higher burden of chronic diseases.

TABLE 1. Special Nutritional Recommendations in Pregnancy

Scenario	Recommendation
Prior pregnancy with neural tube defect	Supplementation with 4 mg of folic acid instead of 400 µg
Malabsorption syndromes (including prior bariatric surgery)	Assess for anemia, vitamin B ₁₂ and vitamin D deficiency, and compliance with prenatal vitamins to supplement fat-soluble vitamins
Substance use or abuse	Promote cessation of usage and avoidance of risky behavior
Excessive use of herbal supplements	Herbal products lack safety and efficacy data
Excessive amounts of vitamin A (>10,000 IU)	Associated with neural crest anomalies ³
Eating disorders	May require medication, hospitalization, and multidisciplinary treatment approach
Iron deficiency anemia	Encourage iron supplementation

complications of pregnancy are increased in obese women. Morbidly obese women (BMI >35) are more likely to develop gestational hypertension, preeclampsia, and gestational diabetes and to have increased risk for preterm delivery, macrosomic infants (>4,500 g), and cesarean delivery.^{6,7} Obese women also have greater long-term health risks, such as cardiovascular disease, as they age. Obesity carries an increased risk not only for the parturient but also for her child. Maternal obesity in the first trimester of pregnancy is associated with elevated risk for having an overweight child.⁸ Finally, weight reduction is not recommended during pregnancy.

CALORIE AND MICRONUTRIENT CHANGES

Calories are the most important factor in nutrition correlated with infant birth weight; yet, the relationship between maternal calories consumed, weight gained, and infant birth weight is complex. Pregnant women are recommended to increase daily calorie intake by

340 kcal/day in the second trimester and 452 kcal/day in the third trimester. However, calorie requirements vary by current weight and energy expenditure.¹

Diets low in cholesterol and saturated fats are preferred and have been associated with decreased risk for preterm delivery. *Trans* fatty acids are transported across the placenta and may affect essential fatty acid metabolism, adversely impacting fetal growth and development.⁹ “My Pyramid for Moms” from the USDA offers assistance with food selection at www.mypyramid.gov/mypyramidmoms/index.html.

The RDAs are different in females of different ages and during pregnancy and lactation. Micronutrients do not have profound effects on fetal birth weight in well-nourished women, with few exceptions. In prospective studies in Tanzania, women receiving prenatal vitamins had lower rates of small-for-gestational-age infants, while rates of preterm delivery were not statistically different.¹⁰ The IOM and CDC recommend that pregnant women who do not consume an adequate, balanced diet supplement it with prenatal vitamins containing iron and folic acid (Table 3).^{1,11} Iron deficiency anemia is common in pregnancy, especially in women with poor nutritional habits. Severe iron deficiency anemia in early pregnancy is associated with low birth weight and prematurity.¹²

Foodborne illnesses can contribute to maternal and fetal disease, miscarriage, and preterm birth. Reducing risk for foodborne illness is important and can be accomplished with attention to these basic principles:

- Personal hygiene, specifically hand washing
- Eating fully cooked meats and eggs

TABLE 2. New 2009 IOM Recommendations for Total Weight Gain and Rate of Weight Gain During Pregnancy⁵

Weight	Prepregnancy BMI (kg/m ²)	Total Weight Gain (lb)	Rates of Weight Gain in 2nd and 3rd Trimesters (mean range, lb/wk)
Underweight	<18.5	28–40	1 (1–1.3)
Normal weight	18.5–24.9	25–35	1 (0.8–1)
Overweight	25.0–29.9	15–25	0.6 (0.5–0.7)
Obese	≥30.0	11–20	0.5 (0.4–0.6)

TABLE 3. Micronutrient Alterations in Pregnancy^{1,11}

Micronutrient	Prepregnancy	Pregnancy	Purpose/Role in Fetal/Maternal Unit
Protein	0.8 g/kg/d	1.1 g/kg/d	<ul style="list-style-type: none"> Fetal/placental unit consumes 1 kg during gestation (most during last 6 mo)
Carbohydrates	130 g/d	175 g/d of complex carbohydrates	<ul style="list-style-type: none"> Metabolism of complex carbohydrates supplies glucose and amino acids to developing fetal brain
Calcium	1,000 mg/d (ages 19–50) 1,300 mg/d (ages 14–18)	same as prepregnancy	<ul style="list-style-type: none"> Required for fetal skeletal development, especially third trimester Maternal physiology allows improved absorption and progressive retention of calcium
Iron	15 mg/d	30 mg/d (unless hemoglobin <10.4 g/dL)	<ul style="list-style-type: none"> Expand maternal red cell mass Needed for fetal-placental development Supplement with 30–120 mg/d or until anemia corrects
Folic acid	0.4 mg/d for several months prior to conception and during pregnancy	0.6 mg/d	<ul style="list-style-type: none"> Early pregnancy: reduce risk of neural tube defect Later pregnancy: need average of 0.6 mg/d to meet growth needs of fetus and development of placenta

- Avoiding unpasteurized cheeses
- Rinsing fruits and vegetables prior to consumption
- Avoiding raw sprouts, since the root of the sprout is difficult to clean
- Cleaning utensils and preparation areas after working with raw meats.

The FDA provides reference guides with specific information on food safety for pregnant women at www.fda.gov/Food/ResourcesForYou/HealthEducators/ucm082539.htm.

DIETARY MODIFICATIONS

Fish consumption

Omega-3 fatty acids, found in fish and shellfish, have a beneficial effect on maternal health and fetal neurodevelopment.¹³ Conversely, diets high in mercury-containing fish can have teratogenic effects. Following initial reports in the 1960s correlating elevated maternal mercury levels with teratogenicity, there have been several longitudinal cohort studies investigating this relationship. These studies yield conflicting results. Overall, significantly elevated mercury levels have adverse effects on the fetal central nervous system; conversely avoidance of fish yields lower maternal and fetal health benefits.¹⁴

Predatory and older fish contain higher levels of mercury. These fish include shark, mackerel,

tile fish, and marlin. Commonly consumed fish with lower levels of mercury are shrimp, canned light tuna, salmon, pollack, and catfish. Albacore tuna has more mercury than canned light tuna, and therefore consumption should be limited to once weekly. Specific information on foodborne pathogens and contaminants in seafood can be found online at www.fda.gov/Food/FoodSafety/Product-SpecificInformation/Seafood.

Most fish consumers are unlikely to be at risk regarding exposure to methylmercury, provided their consumption of fish with higher mercury content is less than once per week. An exposure assessment is recommended for those who have a diet high in seafood (Table 4). The Environmental Protection Agency and local health departments provide information regarding safety of fish consumption in local areas. More information can be found at www.who.int/foodsafety/publications/chem/mercury.

Caffeine

The consumption of caffeine in pregnancy has been historically linked with increased rates of miscarriage and low birth weight.¹⁵ Data are not conclusive and at best are fraught with numerous confounders including drink serving size, brand of coffee, tea, or soda, and brewing method. One recent randomized trial gave pregnant women either caffeinated

TABLE 4. Exposure Recommendations for Fish Consumption

	Less Than 1 Meal With Fish per Week	1 to 3 Meals With Fish per Week	Greater Than 3 Meals With Fish per Week
Pregnancy recommendations	Encourage more fish for benefit of omega-3 fatty acids ¹⁴	Ensure that no more than 1 meal contains orange roughy, sea perch, catfish, albacore tuna	Evaluate with exposure assessment

or decaffeinated coffee starting at 20 weeks of gestation. Average birth weight and length of gestation were similar in both groups, discounting the correlation with low birth weight.¹⁶ Because data are limited, current recommendations are conservative and suggest limiting caffeine intake to less than 300 mg/day. Table 5 lists average caffeine content in common beverages.

Artificial sweeteners

There are many artificial sweeteners available on the market. To date, none are associated with an increased risk of birth defects above the baseline rate in the general population.¹⁷ Sweeteners evaluated include aspartame (NutraSweet®), sucralose (Splenda®), saccharin (Sweet’N Low®), acesulfame potassium (Sunett®), and stevioside (Stevia). Consistent with most dietary recommendations, artificial sweeteners should be used in moderation during pregnancy.

CONCLUSION

In general, women should aim to maintain a healthy lifestyle throughout pregnancy. Healthy practices should include avoidance of high-risk behaviors, gaining the appropriate amount of weight, participation in daily exercise, and consumption of a variety of foods. There are few absolute dietary restrictions; eating in moderation with appropriate portions is encouraged.

Table 5. Average Caffeine Content in Common Beverages

Beverage	Serving Size (oz)	Caffeine Content (mg)
Drip coffee	8	234
Instant coffee	8	85
Brewed tea	8	9–46
Hot chocolate	6	10
Soda	12	40–55

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Carrier Screening in Pregnancy for Common Genetic Diseases

Although most people have healthy babies, with every pregnancy there is a 3-4% chance to have a baby born with problems. The following are a few common, serious disorders that can occur even without a family history. You can have carrier screening (a simple blood test) before the baby is born to determine if you carry the genes that cause the disorders shown below.

What is a carrier?

A carrier is a person who has a gene that increases the risk to have children with a specific genetic disease. People do not know if they are carriers until they have a blood test or an affected child. Some disorders occur only if both parents are carriers and other disorders occur only when the mother is a carrier.

What is carrier screening?

Carrier screening involves a blood test from one or both parents to determine if they carry a specific gene that increases the risk for that disorder. If you turn out to be a carrier, prenatal testing such as amniocentesis or chorionic villus sampling (CVS) is available to determine if your unborn baby is affected. All testing is optional and you can choose which disorder(s) for which you want to be tested.

Disease	Cystic Fibrosis (CF)	Fragile X Syndrome	Spinal Muscular Atrophy (SMA)
Symptoms of Disease	<i>Most common inherited disease in North America.</i> A chronic disorder that primarily involves the respiratory, digestive and reproductive systems. Symptoms include pneumonia, diarrhea, poor growth and infertility. Some people are only mildly affected, but individuals with severe disease may die in childhood. With treatments today, people with CF can live into their 20's and 30's. CF does not affect intelligence.	<i>The most common inherited cause of mental retardation.</i> Fragile X syndrome is a disorder that causes mental retardation, autism, and hyperactivity. It affects both boys and girls, although boys are usually more severely affected than girls. Women who are carriers are at risk to have a child with mental retardation.	<i>Most common inherited cause of infant death.</i> SMA destroys nerve cells that affect voluntary movement. Infants with SMA have problems breathing, swallowing, controlling their head or neck, and crawling or walking. The most common form of SMA affects infants in the first months of life and can cause death between 2 and 4 years of age. Less commonly the disease starts later and people can survive into adulthood. SMA does not affect intelligence. There is no cure or treatment.
Inheritance	If both parents are carriers, there is a 1 in 4 (25%) chance to have a child with cystic fibrosis.	If a mother is a carrier, there is up to a 50% chance to have a child fragile X syndrome.	If both parents are carriers, there is a 1 in 4 (25%) chance to have a child with SMA.
General Population Carrier Frequency	1 in 25 Caucasians 1 in 26 Ashkenazi Jewish 1 in 46 Hispanics 1 in 65 African Americans ~1 in 90 Asian	1 in 260 females in North America Occurs in all ethnic backgrounds	1 in 35 Caucasians 1 in 41 Ashkenazi Jewish 1 in 117 Hispanics 1 in 66 African Americans 1 in 53 Asian
Have you ever had testing for this condition? (please circle one)	YES NO Not Sure	YES NO Not Sure	YES NO Not Sure
Do you want this testing or more information?	YES NO	YES NO	YES NO

General Guidelines for Pregnancy

Safe Medications to Use During Pregnancy

Cold/Sinuses

Tylenol Cold
Sudafed
Saline nasal spray
Breathe Right Strips

Indigestion

Tums
Mylanta
Maalox
Gaviscon
Pepto-Bismol

Allergies

Claritin
Zyrtec
Tylenol Allergy/Sinus
Benadryl
Sudafed

Insomnia

Tylenol PM
Benadryl
Unisom

Cough

Robitussin DM or Plain
Dextromethorphan
Vicks Vapor Rub

Sore Throat

Halls Drops
Chloraseptic Spray
Cepacol
Sucrets
Cepastat

Headache

Tylenol

Yeast Infection

Mycelex
Gyne-Lotrimin
Monistat 7-day

Diarrhea

Imodium
Kaopectate

Aches/Pain/Fever

Tylenol or Tylenol #3
Vicodin

Nausea

Vitamin B6

Constipation

Fibercon
Metamucil
Fiberall
Konsyl
Ducolax
Citricil
Milk of Magnesia

Hemorrhoids

Preparation H
Anusol HC

Heartburn

Tagamet
Zantac
Pepcid
Tums

**Any medications that our doctors prescribe for you are okay to take.*

Safe Antibiotics for Pregnant Women

- Penicillin/Ampicillin
- Erythromycin
- Azithromycin
- Augmentin
- Macroclantin (except the last month of pregnancy)
- Keflex

Exercise During Pregnancy

- Pilates/ yoga modified for pregnancy
- Keep heart rate below 140 beats per minute
- Avoid any exercise where you could fall down or have impact to the abdomen (i.e. **moving** bicycle, kick boxing, surfing, horseback riding)
- Do not become overheated
- Stay well hydrated
- Avoid lifting > 25 lbs.

Avoid These Foods and Additives

- Alcohol
- Saccharin
- MSG (monosodium glutamate)
- Swordfish, Shark, King Mackerel, Tilefish (they contain high levels of mercury)
- Sushi and raw seafood
- Raw or rare meat
- Unpasteurized or raw dairy products

Be Watchful For and Limit These Foods

- Limit Tuna to one can of "light" tuna per week
- Limit fish consumption to 12 oz. of a variety of fish per week
- Limit caffeine to one serving a day
- Cold cuts need to be **heated** prior to eating to kill Salmonella bacteria

Avoid High Temperature Environments

- Saunas ***As long as water temperature is below 101° F, hot tubs, Jacuzzis, or bathtubs are acceptable*
- Tanning Booths
- If you have a fever of 101° then take Tylenol

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