

Food-borne Risks in Pregnancy

When a pregnant woman eats right, she helps ensure that her baby gets all the nutrients needed for healthy growth and development. A healthy, well-balanced diet includes: protein foods (meats, poultry, fish, beans); grains (cereals, bread, pasta, rice); dairy products (milk, cheese); fruits and vegetables.

Most of these foods are safe and should be part of a healthy pregnancy diet. However, a few foods (including certain fish, some soft cheeses, ready-to-eat meats and raw sprouts) may pose risks during pregnancy. A pregnant woman should be aware of these risks, so she can choose the safest foods to nourish herself and her baby.

Which fish are unsafe to eat in pregnancy?

Fish provides plenty of protein and some vitamins and is low in fat. For these reasons, most types of fish are good choices for a healthy diet.

However, a March 2004 advisory from the Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA) recommends that pregnant women, women who could become pregnant, nursing mothers and young children avoid eating certain types of fish that are high in mercury (1). These include shark, swordfish, king mackerel and tilefish.

According to the FDA/EPA, a pregnant woman can safely eat up to 12 ounces (two average meals) a week of a variety of fish and shellfish that are lower in mercury (1). These include shrimp, canned light tuna, salmon, pollock and catfish. But she should eat no more than 6 ounces (one can) of albacore (white) tuna per week, because white tuna has more mercury than canned light tuna. For the same reason, she should limit her consumption of tuna steak to up to 6 ounces per week.

By following these guidelines, a pregnant woman can obtain the health benefits of eating fish, while reducing her baby's exposure to mercury. High levels of mercury can harm an unborn baby or a young child's developing nervous system.

Mercury is a metal that is present naturally in the environment. It can be released into the air through industrial pollution. When mercury settles into bodies of water, bacteria convert it into a more dangerous form (methylmercury) that accumulates in the fatty tissues of fish. While trace amounts of mercury are present in nearly all types of fish, it builds up most in large predatory fish, such as swordfish and sharks.

According to the FDA/EPA, women who are pregnant or who could become pregnant should check local advisories about the safety of fish caught by family and friends in local waters. This information is generally available from local and state health departments and the EPA. If no advice about a particular location or kind of fish is available, these women should limit consumption to less than 6 ounces (one average meal) a week of fish caught in local waters, and not eat any other fish during that week (1). Some game fish (including bluefish, striped bass, salmon, trout and northern and walleyed pike) may be contaminated by mercury and other industrial pollutants, such as PCBs (polychlorinated biphenyls). Some studies suggest that exposure to high levels of PCBs before birth may contribute to learning problems, decreased IQ and reduced birthweight (2).

Pregnant women should make sure all fish they eat is thoroughly cooked to kill any disease-causing bacteria or parasites. Women should cook fish until it is opaque and flakes easily with a fork, or use a food thermometer to make sure the fish reaches an internal temperature of at least 145° F. A pregnant woman should avoid sushi and other raw fish, especially shellfish (oysters, clams). These can be polluted by raw sewage and can contain harmful microbes that can lead to severe gastrointestinal illness.

What risks do soft cheeses and ready-to-eat meats pose?

Certain soft cheeses, ready-to-eat meats (including packaged luncheon meats and deli meats) and unpasteurized milk (and products made from it) can cause a form of food poisoning called listeriosis. Listeriosis is caused by a bacterium (*Listeria monocytogenes*) and is especially dangerous during pregnancy.

When a pregnant woman is infected with listeriosis, she may have a miscarriage, premature delivery or stillbirth, or her newborn baby may become seriously ill and may die.

Most people do not become ill when they eat *Listeria*-contaminated foods. However, pregnant women are more likely than other healthy adults to get listeriosis and more likely to become dangerously ill from it. Listeriosis often starts with a flu-like illness with fever, muscle aches, chills and, sometimes, nausea or diarrhea. However, it can progress to a potentially life-threatening meningitis (infection of the membranes covering the brain, with symptoms such as severe headache and stiff neck) and blood infection. A pregnant woman should contact her healthcare provider if she develops any of these symptoms.

A blood test can show if she has listeriosis. If she does, she can be treated with antibiotics that sometimes prevent fetal infections that could result in miscarriage and stillbirth.

A pregnant woman can help protect herself and her baby from listeriosis by following these guidelines from the FDA (3, 4):

- Do not eat hot dogs or luncheon meats (including deli meats such as ham, turkey, salami, bologna) unless they are reheated until steaming hot.
- Avoid soft cheeses, such as feta, brie, Camembert, Roquefort, blue-veined, queso blanco, queso fresco or Panela, unless it is labeled as made with pasteurized milk. Hard cheeses, processed cheeses, cream and cottage cheeses are safe.
- Do not eat refrigerated pates or meat spreads. (*Listeria* thrives at refrigerator temperatures.) Canned and shelf-stable versions are safe.
- Avoid refrigerated smoked seafood unless it has been cooked (as in a casserole). Canned and shelf-stable versions can be eaten safely.
- Do not consume unpasteurized milk or foods made from it.

Is it safe to consume raw sprouts and unpasteurized juices?

Raw vegetable sprouts (including alfalfa, clover, radish and mung bean) and fresh (unpasteurized) fruit and vegetable juices are loaded with vitamins. Unfortunately, they can carry disease-causing bacteria (such as *Salmonella* and *E. coli*), making them unsafe choices for pregnant women (4).

In healthy adults, salmonellosis and *E. coli* infection generally cause diarrhea, nausea, abdominal cramping and fever that lasts for several days. However, pregnant women can sometimes become seriously ill from these infections. Occasionally, a pregnant woman can pass a *Salmonella* or *E. coli* infection on to her fetus, who can develop diarrhea, fever and, less frequently, meningitis after birth.

A pregnant woman should drink only pasteurized juices. Check the label: the FDA requires that packaged unpasteurized juices carry a label stating that they are not pasteurized (4).

Is it risky to eat undercooked meat, poultry or eggs during pregnancy?

Lean meats, poultry and eggs are rich in protein and some vitamins and are an important part of a healthy diet. However, pregnant women should avoid eating raw or undercooked meats, poultry and eggs because they can increase their risk of a number of food-borne illnesses (including listeriosis, *E. coli* and *Campylobacter* infections, salmonellosis and toxoplasmosis).

Toxoplasmosis is a parasitic infection that often causes no symptoms or only mild flu-like symptoms. However, if a pregnant woman contracts it, there's about a 50 percent chance she will pass it on to her unborn baby (5). Some affected babies develop vision and hearing loss, mental retardation, seizures and other problems. When toxoplasmosis is diagnosed during pregnancy, antibiotic treatment often can help reduce the severity of symptoms in the newborn. (Besides undercooked meats, another common cause of toxoplasmosis is contact with cat feces. A pregnant woman always should have someone else clean the litter box.)

Pregnant women should use a meat thermometer to make sure that meat and poultry are thoroughly cooked. Pork roasts and chops and ground beef should be cooked to at least 160° F. (no pink is usually visible); beef, veal and lamb roasts and steaks to 145° F. (slightly pink in the center); whole poultry to 180° F. and chicken breasts to 170°F (4). Eggs, which can be contaminated with *Salmonella*, should be cooked until both the yolk and white are firm. Pregnant women should avoid foods made with raw or partially cooked eggs, like egg nog and hollandaise sauce.

Should a pregnant woman eat liver?

There is some concern about consuming liver during pregnancy. Liver is a good source of protein and is rich in certain vitamins and minerals. These include the B vitamin folic acid (which helps prevent certain birth defects), iron (which helps prevent anemia) and vitamin A (needed for normal fetal growth and development). However, in the case of vitamin A, liver may contain too much of a good thing.

Some studies suggest that high doses of vitamin A may cause birth defects. A 1995 study found that women who took more than 10,000 IU (international units) of vitamin A daily in the first two months of pregnancy had more than double the risk of having a baby with birth defects (6). More than 10,000 IU of vitamin A is nearly four times the Institute of Medicine's Recommended Dietary Allowance (RDA) of 2,565 IU for pregnant women.

(7). Other studies have suggested that doses under 30,000 IU daily probably do not cause birth defects, but the lowest dose that may cause birth defects is unknown (8).

The body is able to make its own vitamin A, when needed, from substances such as beta carotene, which is found in yellow and green vegetables. This raw material for the vitamin is considered completely safe and healthy during pregnancy. However, much of the vitamin A we consume is the preformed vitamin (retinol) which, in excessive amounts, may cause birth defects. Preformed vitamin A is found in many vitamin supplements and some foods, including meats, eggs, dairy products and fortified breakfast cereals.

Liver is the only food that provides very high amounts of vitamin A. The amount of vitamin A found in liver varies. For example, a 3-ounce serving of beef liver may contain 27,000 IU and chicken liver, 12,000 IU (8). A pregnant woman who eats liver regularly may consume enough vitamin A to pose a risk to her baby.

Though it is not proven that eating liver causes birth defects, the safest approach is for pregnant women to minimize their consumption of liver. A pregnant woman also should be sure that her multivitamin or prenatal supplement contains no more than 5,000 IU (international units) of preformed vitamin A (some prenatal vitamins contain no preformed vitamin A, substituting beta-carotene or omitting vitamin A entirely), and she should not take any vitamin A supplements beyond that amount (9).

What safe food handling practices can help prevent food poisoning?

Everyone should be careful to avoid contamination when handling and preparing food. This is especially important for pregnant women. The FDA recommends that individuals wash their hands with hot soapy water before and after handling food (4). Also wash cutting boards, other work surfaces and utensils with soap and hot water after contact with raw meat, poultry or fish. These foods should always be kept separate from cooked or ready-to-eat foods. Always rinse fruits and vegetables under running tap water before eating, and remove surface dirt with a scrub brush. Remove and throw away the outermost leaves of lettuce and cabbage, and cut away any damaged sections of fruits or vegetables (which can contain bacteria). Refrigerate any leftovers promptly, and never eat cooked food that has been out of the refrigerator longer than two hours. Make sure the temperature in your refrigerator is 40° F. or below, and the freezer 0° F. or below, to slow the growth of bacteria (4).

Where can woman find additional information on food safety?

Visit the Web site Food Safety for Moms-to-Be from the U.S. Food and Drug Administration (FDA).