

## Preconception

### Improve Your Health and Enhance Fertility

As you prepare for pregnancy, it's key to remember that your health *and* the father-to-be's health are important for a healthy egg and sperm, and a healthy pregnancy and baby! The time to begin improving your health is four months prior to conception, as sperm development and egg maturation both take about 100 to 120 days. The sooner you start making healthier choices, the better. Even if you've already been trying to conceive, you can improve your chances of becoming pregnant and having a healthy pregnancy with the tips below.

#### PRECONCEPTION WELLNESS

##### *Eat a healthy diet to prepare your body for pregnancy.*

Start by taking 400 micrograms of folic acid per day (or 1 milligram if you have diabetes or epilepsy, or are obese). Folic acid greatly reduces the risk of certain birth defects and miscarriage. It may be best to get folic acid in supplement form; the Institute of Medicine says that the body only absorbs about 50 percent of the folate (naturally occurring folic acid) in foods and 85 percent of the folic acid in fortified foods (like bread and cereal), but 100 percent of the folic acid in vitamin supplements.

Drink plenty of fluids: Budget a ½ ounce a day per pound that you weigh (for example, a 150-pound woman should drink 75 ounces of fluids).

Take a good multivitamin, but avoid taking over 10,000 international units (IU) of vitamin A in one day. Taking in too much vitamin A can cause birth defects.

Choose healthy, whole foods (organic, if possible) with few additives and hormones. For more nutritional recommendations, see Chapter 6 (Eating Well) of *Pregnancy, Childbirth, and the Newborn* and the Nutrients, Vitamins, and Minerals: Daily Recommendations chart in the Eating Well section. The recommendations for pregnancy will be helpful for you, but don't add any extra calories yet!

It's also important to diagnose food allergies, intolerances, and malabsorption problems before you become pregnant.

##### *Get to a healthy weight before conceiving.*

Ideally, your body mass index (BMI) should be between 20 and 25 before pregnancy. A BMI under 18 is considered underweight and a BMI over 25 is considered overweight. (Visit <http://www.nhlbisupport.com/bmi/> to calculate your BMI.)

If you are underweight, you might have reduced fertility. While your ovaries might produce and release eggs, the lining of your uterus might not be adequate for a healthy pregnancy. If you are severely underweight, you might not be menstruating, and might be infertile. Additionally, beginning pregnancy underweight can increase your chances of preterm birth and your baby's chances of a low birth weight and the complications that come with it. If you've had an eating disorder, work with a counselor and your physician to address any related issues prior to pregnancy. If the father-to-be is underweight or has lost significant body weight recently, he may have decreased sperm count or function.

If you are overweight (BMI between 25 and 30) or obese (BMI over 30), you may find it difficult to conceive. And if you do become pregnant, you have a higher risk of gestational diabetes, pregnancy induced high blood pressure, preterm labor, complications during pregnancy and birth, and cesarean birth, and your baby is more likely to be big, have birth defects, and experience childhood obesity.

Do what you can to reach a healthy weight, and maintain that weight prior to becoming pregnant.

##### *Exercise: Begin pregnancy strong and fit.*

Moderate exercise (two to six hours per week) can enhance fertility by regulating hormones, improving circulation to the ovaries and uterus (or to the testes for the father-to-be). It also improves mood and reduces stress. But don't overdo it.

Extreme exercise (such as running 100 miles in a week) can decrease fertility through impaired ovulation for women and reduced sperm count for men.

## PRECONCEPTION HEALTH CARE

*See your dentist for a checkup before you conceive.*

Have any fillings that need to be done, but ask for those without mercury (it's not necessary to remove existing mercury fillings). It's important to treat any existing gum disease, as it can increase the risk of miscarriage and premature birth.

*See your physician for a medical checkup before you conceive.*

Your physician should screen both you and the father-to-be for human immunodeficiency virus (HIV), syphilis, and other sexually transmitted infections, as they can increase the risk of infertility, miscarriage, and disabilities in babies, including cognitive delays and blindness.

Your physician should also address any medical conditions that could complicate conception, pregnancy, or birth. For chronic conditions, try to optimize control of the condition and medication levels before pregnancy. Chronic conditions (such as hypertension, diabetes, and epilepsy) could cause health problems for you and your baby if they are not well controlled prior to pregnancy.

Several medications are known to cause birth defects or otherwise affect pregnancy and healthy fetal development. Below are medical conditions and corresponding medications that could cause problems. It's important to discuss these conditions with your caregiver before pregnancy, and some may also require close monitoring during pregnancy.

- **Diabetes:** Improve your diet and exercise and optimize your medication use to keep your blood sugar well controlled before pregnancy. Talk to your physician about whether you need to switch from oral medications to insulin. For more information, see [http://www.marchofdimas.com/professionals/19695\\_1197.asp](http://www.marchofdimas.com/professionals/19695_1197.asp).
- **Hypertension:** You can improve your blood pressure through eating a better diet, exercising, and quitting smoking. Work with your physician to adjust your medications before pregnancy. Avoid angiotensin-converting enzyme (ACE) inhibitors, angiotensin II receptor antagonists or blockers (ARBs), and thiazide diuretics. For more information, see [http://www.babycenter.com/0\\_chronic-hypertension-during-pregnancy\\_1427404.bc?showAll=true](http://www.babycenter.com/0_chronic-hypertension-during-pregnancy_1427404.bc?showAll=true).
- **Epilepsy:** Optimize control and take 1 milligram of folic acid daily. Avoid Lamictal. For more information, see <http://www.epilepsyfoundation.org/living/women/pregnancy/weipregnancy.cfm>.
- **Depression/anxiety:** Seek counseling and support; avoid Paxil and benzodiazepines, which may cause birth defects. Tricyclic antidepressants and some selective serotonin reuptake inhibitors (SSRIs) are okay.
- **Hypothyroid:** Increase medication dosage early in pregnancy.
- **Anticoagulants:** Switch from those known to cause birth defects, such as warfarin (Coumadin), to Heparin.
- **Acne:** Avoid Accutane.
- **Ulcers:** Avoid misoprostol (Cytotec).
- **Birth control:** Stop taking birth control pills six months before you plan to conceive or Depo-Provera six to nine months before you plan to conceive.

It's important for your physician and pharmacist to know that you're planning to conceive, so they can assess new medications, herbs, and supplements for any potential risks and make substitutions as needed.

*Get up-to-date on your vaccinations.*

If you haven't had the chicken pox, you should get the varicella vaccine. You can be tested for immunity to rubella and if you're not immune (10 percent of U.S. women aren't), you should get vaccinated, as rubella during pregnancy can cause miscarriage, stillbirth, and birth defects. Rubella and varicella are live-virus vaccines, so they should be given at least one month before you conceive. Consider getting the hepatitis B vaccine if you're at risk of sexually transmitted or blood exposure.

*Consider genetic screening.*

Genetic screening may be recommended to you, depending on your and the father-to-be's age and ethnicity. Here are the diseases you may be screened for, as well as how common they are for each ethnic background. (The percentage indicates what number of each ethnic group is a "carrier" of the disease. If only one parent is a carrier, your child will not have the disease. However, if both parents are carriers, your child will have a one in four chance of having the disease.)

- **African:** sickle cell anemia (10 percent), beta thalassemia (5 percent)
- **European Jewish:** Tay-Sachs disease (4 percent)



- **French-Canadian:** Tay-Sachs disease (5 percent)
- **Mediterranean:** Alpha and beta thalassemia (10 to 20 percent)
- **Southeast Asian:** Alpha and beta thalassemia (20 to 40 percent)
- **Indian, Middle Eastern:** sickle cell anemia, alpha and beta thalassemia (Incidence varies depending on specific ethnic group.)<sup>1</sup>
- **Caucasian:** cystic fibrosis (3 percent)<sup>2</sup>

If certain diseases, such as cystic fibrosis and congenital hearing loss, are present in your family history, you may need additional screening.

For more information, visit [http://www.marchofdimess.com/pnhec/4439\\_15008.asp](http://www.marchofdimess.com/pnhec/4439_15008.asp) and <http://www.childbirthconnection.org/article.asp?ck=10310&ClickedLink=486&area=27>.

## PRECONCEPTION HAZARDS

### *Reduce or eliminate use of harmful substances.*

Both you and the father-to-be should reduce your use of caffeine, alcohol, tobacco, and illegal substances four months before you plan to conceive. This chart summarizes the potential risks of each hazard.

#### Harmful Substances

	Affects sperm count/motility	Causes sperm malformation	Reduces fertility	Increases miscarriage	Increases birth defects	Increases preterm birth or low birth weight
Caffeine	X		X	X		X
Alcohol	X	X	X	X	X	
Tobacco/Smoking	X		X	X	X	X
Illegal substances	X	X	X	X	X	X

All effects are dose-related. If you consume only a small amount of a substance, the potential side effects are small. The more you use, the higher your risks will be.

- **Caffeine:** Consuming caffeine in amounts up to 200 to 300 milligrams per day (1 or 2 cups of coffee, 3 cups of tea or 72 ounces of soda) is considered safe for preconception and pregnancy by most authorities. However, multiple studies indicate that drinking even 1 cup of regular coffee per day can decrease chances of conceiving by half<sup>3</sup>, and some show a clear correlation between miscarriage and even small amounts of caffeine. It's probably best to avoid or minimize caffeine use during preconception to maximize your chances of conceiving and maintaining a pregnancy.
- **Alcohol:** Drinking as few as five drinks per week can significantly reduce fertility<sup>4</sup>, so consider avoiding alcohol when trying to conceive. You should also avoid it after conception. Alcohol use in pregnancy increases the chance of miscarriage, developmental delays, and growth retardation.
- **Smoking and secondhand smoke:** If you and/or your partner are smokers, your fertility can be significantly impaired.<sup>5</sup> Once pregnant, you have a higher risk of miscarriage, premature birth or low birth weight, and are more likely to have a baby with congenital malformations, especially cleft palate, deafness, and abnormalities of the central nervous system. For more on harmful substances and resources to help you quit using them, visit <http://www.childbirthconnection.org/article.asp?ck=10299&ClickedLink=486&area=27>.

### *Reduce your exposure to environmental hazards.*

Both you and the father-to-be should reduce your exposure to the following environmental hazards:

- Heavy metals, which are linked to infertility, miscarriage, and birth defects, including:
  - **Lead:** Avoid traffic fumes, lead-based paint, and home renovation.
  - **Mercury:** Avoid fish containing high levels of mercury, amalgam fillings, tattoo inks, and manufacturing involving mercury.
  - **Cadmium:** Avoid smoking cigarettes and ingesting secondhand smoke.
  - **Aluminum:** Avoid food or beverages cooked or stored in aluminum and use aluminum-free baking powder, antacids, and deodorant.





- **General:** Filter your water. Take garlic, vitamins C, B<sub>1</sub>, B<sub>12</sub>, calcium, magnesium, iron, zinc and manganese to combat heavy metal toxicity.
- Solvents, pesticides, chemical fumes from paints, thinners, wood preservatives, glues, benzene, and dry cleaning fluids
- Bisphenol-A (BPA) plastics (For more information, see <http://children.webmd.com/features/bisphenol-a-9-questions-and-answers>)
- Carbon monoxide and anesthetic gases
- Ionizing radiation (from x-rays and radioactive materials)
- High temperatures: Fathers-to-be should limit hot showers, saunas, and hot tub use to under ten minutes with a temperature of lower than 102° F. Excessive heat to the testicles can reduce sperm production and sperm motility.

If you're exposed to hazards at your workplace, shower afterward and wash your work clothes separately. Ask your employer for Material Safety Data Sheets (MSDS), good ventilation, and protective gear.

### *Reduce your exposures to infections.*

Use good food safety practices to protect yourself from food-borne illnesses. Wash your hands and use gloves and other universal precautions to protect yourself from other bacterial and viral infections.

## PRECONCEPTION EMOTIONAL WELLNESS

### *Focus on your emotional health.*

Like many people, you may have emotional baggage from difficult life situations that could challenge your coping mechanisms in pregnancy and labor. Attending counseling, workshops, or support groups, as well as journaling and reading self-help books are ways to explore and process these issues, and learn new coping skills before your baby is born.

### *Reduce stress*

There is no clear evidence that stress can reduce fertility; however, stress can depress your immune system, raise your blood pressure, and alter your hormonal function. And stress *does* increase the risk of miscarriage.

Follow these steps to reduce stress:

- Identify things that cause stress for you.
- Eliminate the causes that you can.
- Find ways to cope, such as journaling, counseling, and relaxation techniques.
- Do things that help you feel good: Exercise, sleep well, eat well, spend time with friends, and do other things that you enjoy.

### *Work on your relationship with your partner.*

The stronger your relationship is before your baby is born, the more easily it will weather the challenges of parenting. Read *And Baby Makes Three* by John Gottman and Julie Schwartz Gottman or other books on becoming parents, or take a Bringing Baby Home workshop (<http://www.bbhonline.org>), a Becoming Parents workshop (<http://becomingparents.com/>), or other workshops on relationship skills. Try any by Gary Chapman, Marlena Lyons and Jett Parris, or Gay and Kathlyn Hendricks. Consider couples' counseling.

### *Think about your finances.*

It's a good idea to start planning financially for your pregnancy now. Learn more at <http://www.pregnancyinsurance.org/>; <http://www.americanpregnancy.org/planningandpreparing/affordablehealthcare.html>; and <http://www.childbirthconnection.org/article.asp?ck=10304&ClickedLink=486&area=27>.



## FERTILITY ISSUES

If you're worried about your fertility, keep the following information in mind:

- It's *normal* to take six months to conceive.
- For adults under thirty, the chance of conceiving on any monthly cycle is 20 percent. For adults in their forties, the chance is 5 percent.<sup>6</sup>
- You are not considered a couple with fertility issues until you have been trying for more than a year (or more than six months if you're over age forty.)
- Optimum fertility can be an issue of timing. Sperm can survive within a woman for three days. Once an egg is released (ovulation), it's viable for twelve to twenty-four hours. Thus, timing intercourse in the three days prior to ovulation significantly increases your chance of conceiving.<sup>7</sup>
  - For more on how to predict and detect ovulation, go to <http://www.fertilityfriend.com> to learn about fertility awareness (monitoring cervical position and cervical mucus) and ovulation detection (through basal body temperature charting, saliva testing or ovulation predictor kits).
  - For couples of all ages who timed intercourse so that it fell within their fertile window of five days prior to ovulation: 38 percent became pregnant in the first month of trying, 81 percent were pregnant by the end of six months of trying, and 92 percent were pregnant by the end of one year of trying.<sup>8</sup>
  - Intercourse two days before ovulation carries a 50 percent chance of conception for a couple aged nineteen to twenty-six (30 percent at ages thirty-five to thirty-nine) versus intercourse four days before ovulation, which carries a thirty percent chance of conception (20 percent at ages thirty-five to thirty-nine).<sup>9</sup>
- Infertility is often due to an imbalance that can be corrected:
  - Pay attention to your overall nutrition and fitness level and minimize exposure to hazards, as described above, to enhance fertility.
  - Certain nutrients are especially helpful to ingest when you're trying to conceive, especially antioxidants: vitamins B<sub>6</sub>, E, and C, and zinc and selenium, as well as anti-inflammatory omega-3 fatty acids (for both you and the father-to-be). Amino acids L-arginine and L-carnitine are helpful for men.<sup>10</sup>
  - Some herbal supplements also can enhance fertility: You can try vitex (chaste tree berry), Siberian ginseng, red clover blossom, red raspberry leaf for women. With all supplements, it's best to consult with a trained provider before taking.
  - Many personal lubricants can reduce sperm motility or weaken sperm<sup>11</sup>. Pre-Seed is a brand of lubricant that claims to enhance fertility, by providing an environment similar to fertile cervical mucus.
  - Acupuncture can also aid conception. Consult with a practitioner for advice.

If the measures described here are not enough to help you conceive, you may consider using assisted reproductive technology (ART). To learn more about ART, visit <http://www.cdc.gov/ART> or [http://www.marchofdimes.com/pnhec/173\\_14308.asp](http://www.marchofdimes.com/pnhec/173_14308.asp).

## END NOTES

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