

Preconception Guidelines

Whenever a couple commits to medical treatment for infertility, it is a substantial financial and emotional investment. As conscientious health care providers, it is important for us to recommend certain preconception testing and precautions.

Alcohol and Drug Use

Fetal alcohol syndrome is characterized by mental retardation and cranial facial deformities. It has been known to occur in infants where the mothers drank even lightly during their pregnancies. For this reason, we advise abstaining from alcohol use while you are trying to conceive and during pregnancy. New evidence also suggests that men who consume alcoholic beverages may have reduced sperm function and that their children may have a greater risk of fetal alcohol syndrome.

Prescription and recreational drug use can have far-reaching consequences for fetal development. Drug interactions with individual genetic vulnerabilities are never completely predictable, and any drug's potential benefit must be weighed against its concomitant risks. Marijuana (THC) use in particular can have dramatic effect on sperm counts and/or functioning. Please inform us if you have a drug use or dependency problem.

A study published in *The New England Journal of Medicine* conducted by researchers at the State University of New York at Buffalo, and presented at the annual meeting of the American Society for Cell Biology, showed that chemicals in marijuana cannabinoids, which mimic our bodies' endocannabinoid compounds may interfere with the sperm's ability to fertilize the woman's egg.

We advise avoidance of any drugs or medications while attempting pregnancy and during pregnancy.

Smoking

Smoking has been proven to be a powerful vasoconstrictor, which can impair blood flow across the placental/fetal unit. This frequently results in low-birth weight infants. Smoking also changes cervical mucus in the female and possibly reduces sperm motility in the male, which may contribute to infertility. We advise that both partners discontinue smoking prior to attempting pregnancy. Smoking and the toxins in cigarettes have adverse effects on sperm quality.

In October 2000, British researchers have concluded, based on data from nearly 15,000 pregnancies, that smoking can significantly delay time to conception. Active smoking was associated with failure to conceive within six to 12 months. Exposure to passive smoke further increased the odds against a woman conceiving within six months.

Environmental Exposures

Living and working in a complex urban society may present certain risks of exposure to toxic substances. Research into the reproductive effects of exposure to pesticides, radioactive materials and industrial solvents is just now being conducted. We recommend minimizing these exposures until definitive research is completed.

The role of video display terminals (VDT) in affecting pregnancy is controversial and unknown.

Another risk to be concerned about is toxoplasmosis, a parasite infection transmitted through cat feces. If you have a cat, avoid changing the litter box.

Exercise and Weight Management

For optimal fertility you should try to maintain your ideal weight. If you are significantly overweight or underweight, you can develop ovulation problems. Exercise regularly — staying fit will help control your weight and will keep your body strong enough to carry a pregnancy more easily. Excessive exercise, which burns more than 2,000 to 4,000 calories per week, may impair ovulation in some women.

Herbal Remedies

Many of these remedies have unknown effects and may interfere with your treatment. We suggest that they not be used. A recent study has shown that sperm have difficulty attempting to penetrate an egg with the use of some herbal medications.

Medication Use

Teratogen Registry: 1.800.532.3749
www.otispregnancy.org

“A community program for the elimination of preventable birth defects.” The California Teratogen Information Service (CTIS) is a statewide program operated by the Department of Pediatrics at the UCSD Medical Center, with satellite offices at UCLA and Stanford. They are part of a nationwide community of Teratogen Information Services (TIS) known as the Organization of Teratology Information Services (OTIS).

The service provides information about prescriptive and non-prescriptive drugs, street drugs, alcohol, chemicals, infectious diseases and any other physical agents, which may be harmful to an unborn child.

Diet and Vitamin Supplementation

A healthy balanced diet composed of fresh foods that are not processed or overcooked is one of the best things you can do for yourselves and your future offspring. Children who start life well nourished have a distinct advantage in their intellectual capacity and ability to fight disease.

A multi-vitamin containing folic acid (0.4-0.8 mg/day) is a good adjunct to dietary nutrition (please see attached list). Vitamin use should be started at least three months prior to attempting pregnancy.

A recent study (N Engl J Med 2000; 343:1839-45) has found that the ingestion of caffeine may increase the risk of an early spontaneous miscarriage among non-smoking women carrying fetuses with normal karyotypes (chromosomes). Reducing caffeine intake during early pregnancy may be prudent. The study suggests that pregnant women curtail their consumption of coffee to two cups of American coffee per day.

Folate (Folic Acid) Sources

These fruits and vegetables are top sources of folic acid. One serving provides up to 25% of the recommended daily allowance (RDA).

Source	Serving Size
Asparagus	6 stalks
Avocado	1/2 medium
Beans*	1/2 cup cooked
Broccoli	3/4 cup cooked
Cabbage	1 cup raw
Cereals (Total, All Bran, Grape Nuts, Product 19)	1 cup
Chicken liver	3 ounces
Greens**	3/4 cup cooked
Lettuce: romaine; bib	1 cup raw
Lentils***	1/2 cup cooked
Okra	1/2 cup cooked
Orange	1 medium
Orange Juice	6 ounces
Peas: green; black-eyed	1/2 cup cooked
Pineapple Juice	6 ounces
Spinach	1/2 cup cooked
Tomato Juice	8 ounces

* Black, garbanzo, kidney, navy, pinto

** Collard, mustard, turnip

*** One serving of lentils and black-eyed peas provides 40 percent or more of the RDA.

It is impossible to be aware of all possible factors that may cause pregnancy or fetal complications. Nevertheless, common sense avoidance of known toxins and a healthy life-style represent a reasonable approach while attempting pregnancy and being pregnant.

Rubella/Varicella Titre and Vaccine

Rubella (German measles or Three-day measles) is a communicable virus, which typically causes low-grade fever, upper respiratory symptoms and a diffuse red rash. In childhood, this infection is usually mild. However, if contracted during pregnancy, this disease can have severe effects on the developing fetus, including blindness, heart defects, hearing defects, musculoskeletal defects, and mental retardation. Varicella (Chickenpox) is also a communicable disease, and now there is a vaccine available.

If you have not been tested for rubella/varicella immunity, we advise that this be done. If there is no immunity, we recommend that you be vaccinated for rubella/varicella and then wait one month before trying to conceive, as it is a live vaccine. (Contraception should be used during this time).

Blood Type and Rh

You should know your blood type and Rh status. If you already know this information, please inform us. We need documentation. If unknown, we advise a blood type and Rh be done.

Genetic Disease Prenatal Screening

It is not possible to screen patients for every known genetic disease, nor is it possible to guarantee a healthy baby. However, it is recommended that couples consider preconception testing for the following ethnically appropriate genetic diseases after consultation with their physician. Some couples may decline testing while others may choose to proceed. Referral to a genetic counselor for more in depth information is available if so desired. More information is available at www.acmg.net or www.genetics.org.

Chromosomes are present in all the cells of our bodies. The normal number of chromosomes in every cell is 46 and the chromosomes exist as 23 pairs. The first 22 pairs are numbered 1 through 22 and are called autosomes, while the final pair are the sex chromosomes, (XX designating a female and XY designating a male). When the eggs and sperm initially form, they are known as germ cells and have 46 chromosomes, just as in all the cells of our bodies. However, when the germ cells mature, they undergo a division and each chromosome of each pair separates so that each mature egg and sperm will have 23 chromosomes, one of each pair. At fertilization, when the egg and sperm unite, the fetus then has the normal number of 46 chromosomes.

Although intrinsic fertility cannot be restored in infertile individuals with chromosome abnormalities; there are currently several assisted reproductive techniques, particularly intracytoplasmic sperm injection (ICSI) that allow infertile couples to have healthy babies.

Cystic Fibrosis affects the mucus secretions from the exocrine glands such that abnormally thick mucus secretions are produced, blocking ducts and body passages. Particularly involved are the lungs and the intestines, which affect vital body functions such as breathing and digestion. The disease is inherited in an autosomal recessive manner and either sex is equally affected. Because the condition is autosomal recessive, both parents of an affected child are asymptomatic carriers, and therefore have a one in four (or 25%) risk of recurrence in any future pregnancies.

Cystic Fibrosis occurs in about one in 3,300 Caucasian births. To be a carrier of the condition without a family history of Cystic Fibrosis carries a population risk of about one in 25.

Down Syndrome is a specific chromosome defect that occurs in about one in every 800 newborns. Although all pregnancies have a risk for chromosome abnormalities, the risk increases as a woman gets older. The option of testing the pregnancy for chromosomal abnormalities is generally offered to women by their obstetrician.

Sickle Cell Anemia is a hereditary chronic form of anemia in which abnormal sickle or crescent-shaped red blood cells are present. The frequency of the gene that causes this disease occurs almost exclusively in the African-American population.

Tay Sachs/Canavans, Gaucher (Jewish) and Tay Sachs (French Canadian/Cajun) is an inherited disease, most common in families of Eastern European Jewish origin and in French Canadian ancestry. No specific therapy is known. Symptoms are very early onset with progression and death usually occurring by age three or four.

α Thalassemia and β -Thalassemia is a group of chronic, hereditary anemias, particularly common in persons of Mediterranean, African and Southeast Asian ancestry. Clinical features are similar but vary in severity. The younger the child when the disease appears, the more unfavorable the outcome.