Preconception Clinical Care for Men
Exposures

Preconception care offers an opportunity, similar to the opportunity it presents for women, for disease prevention and health promotion among men. In addition, preconception care for men is an important factor in improving family planning and pregnancy outcomes for women, enhancing the reproductive health and health behaviors of men and their partners, and preparing for fatherhood.

Alcohol, Tobacco, Illicit Substances

Alcohol

The effects of alcohol use on sperm quality are unclear. Some studies have shown that moderate drinking might be protective against DNA damage, perhaps in part due to the antioxidant effect of some alcohol beverages. Other studies have shown that alcohol might be damaging to sperm DNA. The data are clearer on heavy drinking (>2 drinks a day). In a study in an addiction treatment center of alcoholics, testosterone level, semen volume, sperm count, and the number of sperm with normal morphology and motility were lower among men who abused alcohol than men who did not.

Tobacco

Tobacco use has been associated with a decreased sperm count and abnormal sperm morphology, motility, and fertilizing ability. Recent evidence has suggested that nicotine and other chemicals in cigarettes also can induce oxidative damage to sperm DNA.

In addition, secondhand smoke causes premature death and disease among children and adults who do not smoke. Pregnant women who are exposed to secondhand smoke have 20% higher odds of giving birth to a low birthweight baby than women who are not exposed to secondhand smoke during pregnancy.

Illicit Substances

Several drugs also have been linked to male infertility, including marijuana, cocaine, and anabolic steroids. Marijuana has been shown to reduce testosterone production, sperm count, and semen quality. Cocaine also has been associated with decreased sperm count and abnormal sperm morphology and motility, and the effects can linger for up to 2 years from last use. Anabolic steroids also can reduce testosterone levels and sperm quality.

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Environmental

An increasing number of environmental exposures, pesticides, and dioxins have been shown to cause sperm DNA damage. Physical exposures like heat, sedentary work positions, and radiation have the potential to affect male fertility, though the evidence supporting a direct effect remains unclear.

During a preconception visit, men should be asked about their work environment. Ongoing exposures to metals, solvents, endocrine disruptors, or pesticides at work can impair sperm quality, which might lead to infertility, miscarriage, and birth defects. In addition men can carry chemicals home on their clothes, skin, and shoes, where it can cause exposure to their families. Changing clothes and shoes before or immediately after coming home can reduce the amount of chemicals brought into the home.

If potential exposures are identified, consultation with an occupational medicine specialist might assist with a more detailed investigation regarding recommendations for work modification.

Hobbies

Certain hobbies can expose the patient to reproductive hazards. Hobbies that involve refinishing furniture; repairing cars; painting; building models; or using strippers, degreasers, or non-water-based glues or paints can expose the patient to organic solvents. Hobbies that involve painting; making pottery; making stained glass; or handling, shooting, or cleaning guns can expose the patient to lead or other heavy metals.

Genitourinary complaints are common among cyclists. A higher frequency of lower urinary tract symptoms among cyclists has been related to increased incidence of erectile dysfunction in comparison with men who are not cyclists. A recent study demonstrated that bicycling more than 5 hours per week was associated with lower sperm concentration and total motile sperm. Not having a proper bicycle fit, using an improper type of saddle, and having individual anatomic factors are important evaluation criteria to consider when diagnosing symptoms and determining treatment options.[i]

Medications

The patient's past and current medication use, including prescription, nonprescription, and herbal products, should be reviewed. A number of medications can affect sperm count and quality, including alkylating agents, calcium channel blockers, cimetidine, colchicine, corticosteroids, cyclosporine, erythromycin, gentamicin, methadone, neomycin, nitrofurantoin, phenytoin, spironolactone, sulfasalazine, tetracycline, and thioridazine. Any medication use, including over-the-counter medications, should be guided by a risk–benefit calculus weighing the benefits for men's health against known or potential risks to sperm count and quality.

More Information

This fact sheet is part of a series on the clinical content of preconception care for men. Other fact sheets in the series include:

- Health Promotion
- Personal History

[i]Wise LA, Cramer DW, Hornstein MD, Ashby RK, Missmer SA. Physical activity and semen quality among men attending an infertility clinic Fertil Steril. 2011 Mar 1;95(3):1025-30. Epub 2010 Dec 3.

To see the complete list of the preconception clinical content and description of how the content was selected and rated, please visit: www.cdc.gov/preconception/careformen.