

PATIENT'S FACT SHEET

Smoking and Infertility

The health risks of tobacco smoking are well known with regard to diseases of the heart, lungs, and blood vessels. Substantial harmful effects of cigarette smoke on fertility have become apparent, but are not generally appreciated. Cigarette smoking has a negative impact on the ability to become pregnant and carry a pregnancy to term.

Impact of cigarette smoking on reproduction in women:

Virtually all scientific studies support the conclusion that smoking has an adverse impact on fertility. The prevalence of infertility is higher, and the time it takes to conceive is longer, in smokers compared to nonsmokers. Active smoking by either partner has adverse effects, and the impact of passive cigarette smoke exposure is only slightly smaller than for active smoking. Research indicates that cigarette smoking is harmful to a woman's ovaries, and the degree of harm is dependent upon the amount and the period of time a woman smokes. Smoking appears to accelerate the loss of eggs and reproductive function and may advance the time of menopause by several years. Components in cigarette smoke have been shown to interfere with the ability of cells in the ovary to make estrogen and to cause a woman's eggs (oocytes) to be more prone to genetic abnormalities. Smoking is strongly associated with an increased risk of spontaneous miscarriage and possibly ectopic pregnancy as well. Pregnant smokers are more likely to have low birth weight babies and premature birth. The incidence of sudden infant death syndrome (SIDS) also increases in households where someone smokes.

Impact of cigarette smoking on assisted reproductive therapy outcomes:

Nearly twice as many in vitro fertilization (IVF) attempts are required to conceive in smokers than in nonsmokers. Studies of IVF have reported that female smokers require higher doses of gonadotropins to stimulate their ovaries, have lower peak estradiol levels, fewer oocytes obtained, more canceled cycles, lower implantation rates, and undergo more cycles

with failed fertilization than nonsmokers. Miscarriage rates are also increased. The adverse effect of cigarette smoking is more noticeable in older women. Overall, the reduction in natural fertility associated with smoking may not be overcome by assisted reproductive technologies.

Impact of cigarette smoking on reproduction in men:

Men who smoke cigarettes have a lower sperm count and motility and increased abnormalities in sperm shape and function. The effect of smoking on male fertility, however, is more difficult to discern because it is difficult to create studies to address that question. Although the effects of cigarette smoking on male fertility remain inconclusive, the harmful effect of passive smoke on the fertility of female partners and the evidence that smoking adversely affects sperm quality suggest that smoking in men should be regarded as an infertility risk factor.

Smoking cessation as a treatment issue in couples

undergoing fertility therapy: One important investigation showed that cessation of smoking for at least two months before attempting IVF significantly improved chances for conception. Although long-term cigarette smoking can have an irreversible effect on ovarian function, the harmful effect on treatment outcome may, in part, be reversed if smoking is discontinued prior to entering into fertility therapy.

Summary: The best available scientific data indicate that cigarette smoking strongly contributes to infertility. Smoking should be discouraged for both male and female partners in couples with a history of infertility or recurrent miscarriage. Smoking cessation may improve natural fertility and success rates with infertility treatment.