FACT SHEET: TOBACCO AND REPRODUCTIVE SYSTEM

Tobacco effects on fertility

- The prevalence of infertility is higher, and the time it takes to conceive is longer in smokers compared to nonsmokers.[1]
- Men who smoke cigarettes have a lower sperm count and motility and increased abnormalities in sperm shape and function.[1]
- Smoking causes erectile dysfunction by several mechanisms, including adversely affecting intra-penile blood flow.[2]
- Cigarette smoke contains known reproductive toxicants and has been associated with adverse reproductive outcomes in women such as infertility, sub-fecundity, younger age at menopause, and menstrual disorders.[3]
- Endothelial function was found to be significantly impaired in smoking women in the mid-luteal phase, when compared with non-smoking women.[4]
- Nearly twice as many in vitro fertilization (IVF) attempts are required to conceive in smokers as in nonsmokers.[1]
- Female smokers require higher doses of gonadotropins to stimulate their ovaries, have lower peak estradiol levels, fewer oocytes, more missed cycles, lower implantation rates, and undergo more cycles with failed fertilization than nonsmokers.[1]

Tobacco effects on pregnancy

- Smoking is strongly associated with an increased risk of spontaneous miscarriage.[1]
- Smoking during pregnancy increases the risk of perinatal mortality, lowers mean birth weight, increases the risk of spontaneous abortion, and has a significant influence on risks of premature delivery, placenta previa, and abruptio placentae.[5]
- The frequency of spontaneous abortion appears to be directly related to the number of cigarettes smoked.[5]
- In-utero exposure to maternal smoking was associated with reduced lung function, mainly deficits in small airway flows, and these appear to persist into childhood and adolescence.[6]
- Incidence of preeclampsia was found to be increased in snuff users (adjusted RR = 1.58) compared with tobacco nonusers.[7]
- Smoking reduces birth weight of offspring by about 170 to 200 g at birth compared with non-smokers and the reduced birth weight is primarily due to intrauterine growth retardation (IUGR).[5]
- The risk of a low birth weight baby is doubled among maternal smokers and the risk increases with the increasing number of cigarettes smoked.[8]
- There is no increase in risk of low birth weight for women who stop smoking early in pregnancy.[8]

- Smoking increases the SGA risk 2.5-fold and risk increases with numbers of cigarettes smoked.[8]
- The mechanism of IUGR: Nicotine and carbon monoxide trigger fetal carboxy-hemoglobin → reduces fluidity of blood, slows the oxygenation of the fetus → IUGR.[5,9]
- Maternal smoking during pregnancy is associated with pre-term birth and low birth weight, low birth weight for gestational age, a small head circumference, a small head circumference for gestational age, a low Apgar score at 5 min., stillbirths and neonatal deaths.[10]
- 20% low birth weight and 30% of SGA infants could be prevented if smoking in pregnancy was eliminated.[8]

Passive Smoking and Pregnancy

- An increase in the concentration of cotinine was observed in the amniotic fluid of non-smoking pregnant women chronically exposed to tobacco smoke.[11]
- ETS exposure adversely affects fetal growth with an elevated risk of low birth weight.[11,13]
- An elevated risk of female and male infertility, spontaneous abortion, and sudden infant death syndrome has been observed in epidemiologic studies on passive smoking.[13]
- ETS in the absence of maternal smoking significantly increased the risk of preterm birth.[12]
- A significant dose–response relation has been observed between ETS exposure and early pregnancy loss.[12]

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