



Does smoking reduce sperm count?

Question

Dear Alice,

I heard somewhere that smoking reduces your sperm count. Is this true? How else, other than being a carcinogen, is smoking harmful?

Scared of Smoking

Answer

Dear Scared of Smoking,

Worried your chances of having children will go up in smoke? Research suggests that exposure to a variety of toxic substances, including those found in cigarettes, can damage sperm and lower sperm count. For this reason, smoking is considered a key risk factor for infertility, regardless of how its consumed (such as cigarettes, vaporizers, e-cigarettes, and hookah). The link between infertility and smoking is rooted in the known carcinogens (cancer-causing substances) inhaled when smoking that damage deoxyribonucleic acid (DNA) and lead to defects in cells, including sperm. Some sperm imperfections and mishaps are to be expected, given the sheer volume of sperm in one ejaculation. However, it seems that they occur at a higher rate in those who have been exposed to certain toxins, drugs, alcohol, and radiation. Further, understanding fertility, the way it is impacted by smoking, and other ways exposure to smoking can impact health can all inform your own decision making.

The American Society for Reproductive Medicine (ASRM) defines infertility as the inability to conceive a child after twelve months of unprotected sex. Smoking may contribute to infertility by causing erectile dysfunction and structural damage to sperm. You might be wondering, what's the link between smoking and structural damage? Since smoking is a carcinogen, a person gets exposed to toxic chemicals that can either directly or indirectly impair DNA depending on the type of carcinogen. Damaged or mutated DNA can change the structure and viability of sperm, as well as other negative health outcomes (more on these in a bit). Some of these effects include reduced sperm count, impaired motility, and weaker sperm due to inflammation of semen. A secondary health impact of infertility is depression or other mental health challenges.

It's worth noting that smoking can also impede fertility by damaging ovaries and eggs (which may cause early menopause and menstrual disorders in people assigned female at birth) and lead to ectopic pregnancy. Smoking while pregnant can increase the risk of miscarriage. According to the Cleveland Clinic, exposure to secondhand smoke can also heighten the risk of miscarriage or make the baby prone to having a low birth weight, learning disabilities, respiratory infections, asthma, and sudden infant death syndrome (SIDS). The good news is that quitting smoking, or even cutting back, can help with fertility. Improvements in eggs and sperm health usually take about three months while other health benefits can be visible anywhere from several weeks to up to a year after cessation.

As for the second part of your question, smoking can also create a slew of other health problems. For example, smoking can lead to greater complications from diabetes and can speed up the damaging effects of multiple sclerosis (MS). Plus, many smokers develop circulatory problems, get shortness of breath, and have low energy levels. The main disease categories that smoking impacts include:

- **Cancer:** many types throughout the body (you can visit National Cancer Institute for the full list list)
- **Cardiovascular:** high blood pressure, high cholesterol, stroke, coronary heart disease, and heart attack
- **Lung:** chronic hoarseness, chronic bronchitis, and emphysema
- **Dental:** tooth decay, gum disease, and chronic bad breath
- **Miscellaneous:** includes osteoporosis, ulcers, and diabetes

When it comes to smoking, the list of negative health outcomes is broad, no ifs, ands, or "butts" about it. Good for you for seeking out information about both the short and long-term impacts of smoking on health. To learn more about the effects of smoking on health, you can check out the Cigarettes, Chewing Tobacco, & Other Nicotine section of the *Go Ask Alice!* archives. And if you or a person you care about are looking to quit, speaking with a health care provider or visiting SmokeFree.gov can offer resources and support.

Health topic

Alcohol & Other Drugs

Cigarettes, Chewing Tobacco, & Other Nicotine

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