



**Libyan International Medical University**  
**Faculty of Basic Medical Science**



## **The Relationship Between Smoking And Infertility In Men**

**Submitted by :** Nadeen Ehab Elkaramy.

**Supervisor:** Dr:Sara Elmegerhi.

**Date of submission:** 2018/06/30

**Abstract :**

In both men and women, smoking has been linked to an increased risk for many cancers, heart disease, emphysema, and a number of other health problems, The toxins in cigarettes take their toll not only on the lungs but also on the health of your entire body. This includes your reproductive system.

**Introduction :**

Infertility is “a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse , Cigarette smoking is associated with modest reductions in semen quality including sperm concentration, motility and morphology and sperm fertilizing capacity through increased seminal oxidative stress and DNA damage, the associations between male smoking and sperm concentration and motility are stronger among studies of ‘healthy’ men Smoking has also been associated with alterations in hormone levels in males, for example increases in the levels of oestrone and oestradiol. (1)

**Discussion :**

**First study:** in 01 June 2000 in Canada , 97 healthy male were divided into three groups: non-smokers, light and heavy smokers. There was no difference between the three groups with respect to age, serum testosterone concentration. The percentages of DNA fragmentation in spermatozoa were not statistically different in the heavy smokers (12.11%), light smokers (11.66%) and non-smokers (20.41%). the results indicate no association between smoking and DNA fragmentation in the spermatozoa of healthy men.(2)

**Second study:** in Sept. 10, 2010 in Germany,the finding comes from a study of sperm from 53 heavy smokers and 63 nonsmokers ,the results found that the sperm of smokers has increased DNA fragmentation. DNA damaged sperm may lead to problems with fertilization, embryo development, embryo implantation, and increased miscarriage rates.(3)

**Third study:** in April of 2016, work in analysis on the effect of smoking on semen health. The analysis included 20 studies and just over 5,000 men across Europe. The results found that smoking was associated with decreased sperm count, decreased sperm motility ,and poor sperm morphology.

- Studies have shown a 23 percent decrease in sperm concentration in men who smoke.
- In men who smoke, researchers found a 13 percent decrease in sperm motility.
- Male smokers have fewer healthy shaped sperm than non-smokers.(4)

**Conclusions:**

In both men and women, smoking has been linked to an increased risk for many cancers, heart disease This includes your reproductive system,Cigarette smoking is associated with modest

reductions in semen quality including sperm concentration, motility and morphology and sperm and increased DNA fragmentation.

**References:**

1. Shimokata, Hiroshi, Denis C. Muller, and Reubin Andres. "Studies in the distribution of body fat: III. Effects of cigarette smoking." *Jama* 261.8 (1989): 1169-1173.
2. Sergerie, M., et al. "Lack of association between smoking and DNA fragmentation in the spermatozoa of normal men." *Human Reproduction* 15.6 (2000): 1314-1321.
3. Mostafa, Taymour. "Cigarette smoking and male infertility." *Journal of Advanced Research* 1.3 (2010): 179-186.
4. Zhang, Jin-Ping, et al. "Effect of smoking on semen quality of infertile men in Shandong, China." *Asian journal of andrology* 2.2 (2016): 143-146.