Lifestyles Factors and Infertility

AUSTRALIAN CONCEPT FERTILITY CENTRE

Many lifestyle choices can potentially reduce human fertility.

A large number of research studies have identified alcohol, smoking, caffeine, recreational drug use, excessive exercise and certain occupations as lifestyle factors most likely to contribute to infertility. Body weight can also have a profound influence on fertility. Further information is presented in the "Effect of body weight on fertility" information sheet (12.1.31).

Alcohol

Alcohol consumption is widespread and believed to be increasing in many countries throughout the world. Research on animals has shown that alcohol can decrease steroid hormone production, inhibit ovulation, and disrupt sperm transport through the fallopian tubes. Does alcohol have similar affects in humans? High and frequent alcohol consumption can contribute to menstrual disorders and an increase in the percentage of abnormal sperm. Pregnant women with excessive alcohol intake have a higher incidence of spontaneous abortion, placental abruptions, pre-term delivery, stillbirth and fetal alcohol syndrome. Whether moderate alcohol consumption has such detrimental effects on reproductive health is less clear. A recent research paper published in the British Medical Journal suggests that it does. The researchers reported that the probability of conceiving decreased with increasing alcohol consumption, even among women who were drinking less than five alcoholic drinks in a week. In another study moderate alcohol intake had no effect on the sperm count or percentage of normal sperm. A study by Professor Robert Winston from Hammersmith Hospital in the United Kingdom found that a glass of wine given to patients at the time of embryo transfer improved the chances of pregnancy. Interestingly, the authors observed that red wine was more effective.

These latter studies suggest that low alcohol intake is not likely to adversely affect fertility. However, for couples trying to conceive and pregnant women, avoiding high and consistent alcohol intake is recommended. Couples with a high alcohol intake who are considering assisted reproduction are advised to seek counselling before commencing treatment.

Smoking

The World Health Organization estimates that approximately one-third of the world population over 15 years of age smokes, even though it is well known that the constituents of cigarettes can cause considerable side effects that are detrimental to general health. Smoking can also adversely affect reproductive health. Recent research suggests that smoking can have harmful effects on both male and female fertility. One comprehensive study showed that smoking can affect all parts of the reproductive system.

These studies have shown that smoking can reduce the number of sperm in an ejaculate and cause DNA damage to developing sperm cells. In one study, smokers were reported to have a reduction in sperm count of 13 to 17% when compared to non-smokers. A small study tracking the sperm count of three smokers 5 to 15 months after they had stopped smoking reported that sperm counts increased by at least 50%, suggesting that any reduction in sperm count is potentially reversible.

A recent study showed that germinal cells in the testes are vulnerable to genetic damage. It is also evident that smoking induced sperm DNA damage can be transmitted to the embryo and subsequent offspring. When examining pre-implantation embryos, researchers found that the altered DNA from the sperm was present in the embryo. Altered sperm DNA from smoking fathers was also associated with an increased risk of childhood cancers.

The evidence that smoking can be detrimental to female fertility is controversial. One study showed that smokers were 3-4 times more likely to take longer than a year to conceive than non-smokers. The chemical components of cigarettes have been isolated in the fluid surrounding developing oocytes (eggs) and smoking has been shown to cause DNA damage during oocyte cell division. However, unlike sperm, oocytes have the capacity to repair DNA damage before fertilization occurs. One study suggested smoking can age the ovaries by 10 years.