The Effect of Alcohol on the Reproductive System

Abstract:
Alcohol has many adverse effects on the human body, including the reproductive system. Impotence is one of the effects of acute alcoholism, and testicular atrophy, infertility, and decreased libido are associated with alcoholism (70–80% of the time). Lower hormone levels caused by alcohol consumption will decrease plasma testosterone levels in males and inhibit ovulation in females. Lowered sperm production and sperm damage are also consequences of drinking alcohol. Increased miscarriages and menstruation changes are other effects of alcohol on the female reproductive system. This poster focuses on the prenatal effect of alcohol on the reproductive system, even though alcohol consumption can cause great damage to a fetus. Based on literature reviews, the consumption of alcohol in both males and females negatively affects the function of the reproductive system.

Introduction:
This research explores the effect of alcohol on reproductive hormones and organs. The human reproductive system consists of the testes, penis, seminal vesicles, prostate, and urethra (fig. 1). The female reproductive system consists of the ovaries, fallopian tubes, uterus, vulva, and vagina (fig. 2). Estrogen and progesterone in women and testosterone in men are common reproductive hormones. Alcohol decreases the production of reproductive hormones in both males and females, which can occur just a few minutes after consumption. Alcohol also decreases the signals these hormones send to and from the brain, hindering the production of other beneficial hormones and reproductive functions (fig. 3). The consumption of alcohol also causes damage to crucial cells within the reproductive organs, particularly the testes.

Males
Myth: Alcohol causes the deformation and dysfunction of sperm.
Truth: The consumption of alcohol significantly increases damage to the sperm head, swelling in the midsection of the sperm, and curling (dysfunction) of the tail. These deformations can cause DNA damage in the sperm, which leads to infertility and possibly infertility in offspring.
Myth: Lower sperm counts are attributed to alcohol consumption.
Truth: Chronic alcohol abuse lowers sperm production in men as well as other animals. Lower sperm production, which can be caused by the tissue damage that occurs with alcohol consumption, also leads to a decrease in the size of the genitals, called testicular atrophy.
Myth: Decreased libido is an effect of alcohol consumption.
Truth: Research shows that alcohol consumption is related to lowered sexual responsiveness in complex situations (high-attention demand) more so than in simple situations (lower-attention demand). Other research claims that sexual responsiveness is not affected by small amounts of alcohol.

Females
Myth: Menstruation changes and abnormalities can be caused by alcohol.
Truth: Alcohol consumption decreases the amount of reproductive hormones produced, which can inhibit ovulation. It is reported that moderate consumption of alcohol decreases the onset of menopause.
Myth: Increased miscarriages are consequences of alcohol consumption.
Truth: Consumption of alcohol in both females and males during the week of conception increases the risk of spontaneous abortions. The risk is 2-3 times greater when females consume alcohol and 2-5 times greater when males consume alcohol.
Myth: Alcohol decreases a woman’s natural lubrication.
Truth: I have yet to find any published, peer-reviewed articles on the effect of alcohol on natural lubrication.

Discussion:
The consumption of alcohol has negative effects on both the male and female reproductive systems. Research shows that alcohol consumption increases miscarriages and menstruation changes in females. Alcohol inhibits the development of critical reproductive hormones and causes cell damage that leads to infertility. Alcohol also decreases libido or sexual arousal. Sperm damage and lower sperm counts are all effects of alcohol consumption.

Method:
Through the review of peer-reviewed literature this project aims to make fuzzy facts clear, to inform students of the effects of alcohol on the reproductive system. The referenced literature, primarily draws conclusions from human case studies and animal research.