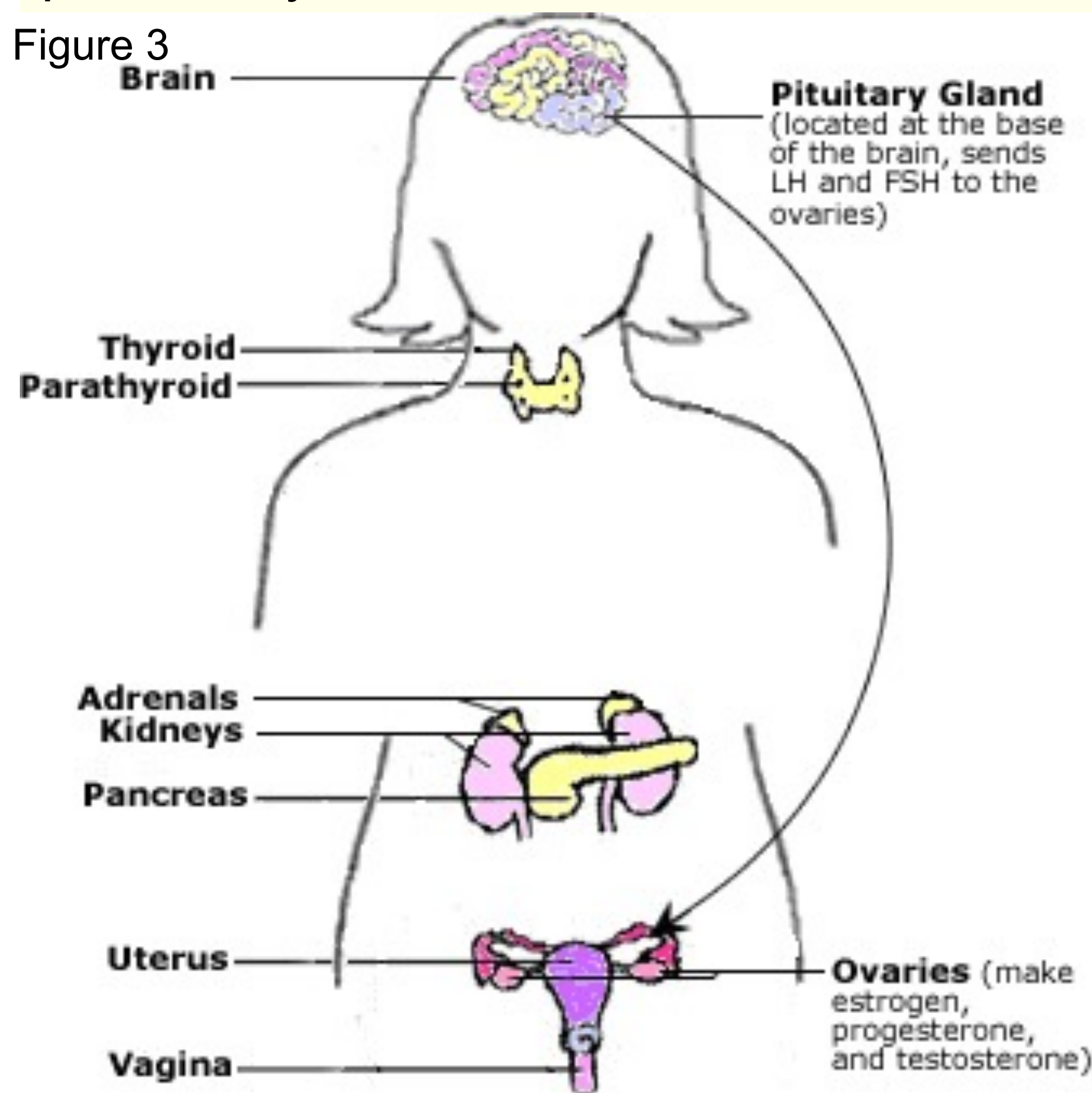


Abstract:

Alcohol has many adverse effects on the human body, including the reproductive system. Impotence is a common result of acute alcoholism, and testicular atrophy, infertility and decreased libido are associated with alcoholism 70-80% of the time⁴. Lower hormone levels caused by alcohol consumption will decrease plasma testosterone levels in males and inhibit ovulation in females⁴. 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 hormones⁵ 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 tail⁴. These deformations can cause DNA damage in the sperm⁴, which leads to infertility and possibly infertility in offspring³.

Myth: Lower sperm counts are attributed to alcohol consumption.

Truth: Chronic alcohol abuse lowers sperm production in men as well as other animals⁵. Lower sperm production, which can be caused by the tissue damage that occurs with alcohol consumption⁵, also leads to a decrease in the size of the genitals, called testicular atrophy⁴.

Myth: Decreased libido is an effect of alcohol consumption.

Truth: Research shows that alcohol consumption can hinder sexual responsiveness in complex situations (high-attention demand) more so than in simple situations (lower-attention demand)⁶. Other research claims that sexual responsiveness is not affected by small amounts of alcohol⁷.

References:

1. http://training.seer.cancer.gov/module_anatomy/images/illu_repdt_female.jpg (figure 1)
2. http://training.seer.cancer.gov/module_anatomy/images/illu_repdt_male.jpg (figure 2)
3. Agarwal, A., and Tamer M. Said. "Role of Sperm Chromatin Abnormalities and DNA Damage." *Human Reproduction Update* 9 (2003): 331-345. 26 Feb. 2007 <http://humupd.oxfordjournals.org/cgi/reprint/9/4/331>
4. Hadi, H A., J A. Hill, and R A. Castillo. "Alcohol and Reproductive Function: a Review." *Obstetrical & Gynecological Survey* 42 (1987): 69-74.
5. Emanuele, Mary A., and Emanuele Nicholas. *Alcohol and the Male Reproductive System*. National Institute on Alcohol Abuse and Alcoholism. National Institute of Health. 26 Feb. 2007. <http://pubs.niaaa.nih.gov/publications/arh25-4/282-287.htm>
6. Wilson, G T., R S. Niaura, and J L. Adler. "Alcohol, Selective Attention and Sexual Arousal in Men." *Journal on Studies of Alcohol* 46 (1985): 107-115. *PubMed*. 20 Feb. 2007 <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?itool=abstractpluse&>
7. Wilson, G T., R Niaura. "Alcohol and the disinhibition of sexual responsiveness." *Journal on Studies of Alcohol* 45 (1984): 219-224. *PubMed*. 20 Feb. 2007 http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?itool=abstractplus&db=pubmed&cmd=Retrieve&dopt=abstractplus&list_uids=6748663.
8. Henriksen, T B., N H. Hiollund, T K. Jensen, J P. Bonde, A M. Andersson, H Kolstad, E Ernst, A Giwercman, N E. Skakkebaek. "Alcohol consumption at the time of conception and spontaneous abortion." *American Journal of Epidemiology* 160 (2004): 661-667. *PubMed*. 20 Feb. 2007 http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=Retrieve&dopt=AbstractPlus&list_uids=15383410&query_hi=5&itool=pubmed_DocSum.
9. Gill, Jan" The Effects of Moderate Alcohol Consumption on Female Hormone Levels and Reproductive Function." *Alcohol and Alcoholism* 35 (2000): 417-423. *Oxford Medical Journal*. 20 Feb. 2007. <http://alcalc.oxfordjournals.org/cgi/content/full/35/5/417>.
10. <http://www.youngwomenshealth.org/Images/body.jpg> (figure 3)

The Effect of Alcohol on the Reproductive System

Jenna Theis
Beloit College

Discussion:

The consumption of alcohol has negative effects on both the male and female reproductive systems. Research shows that alcohol consumption increase miscarriages and menstruation changes in females. Alcohol inhibits the development of critical reproductive hormones and cause 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.

Females

Myth: Menstruation changes and abnormalities can be caused by alcohol.

Truth: Alcohol consumption decreases the amount of reproductive hormones produced, which can inhibit ovulation⁴. Some researchers also conclude that moderate consumption of alcohol delays the onset of menopause⁹.

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 abortions⁸. The risk is 2-3 times greater when females consume alcohol and 2-5 times greater when males consume alcohol⁸.

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.

Male Reproductive System

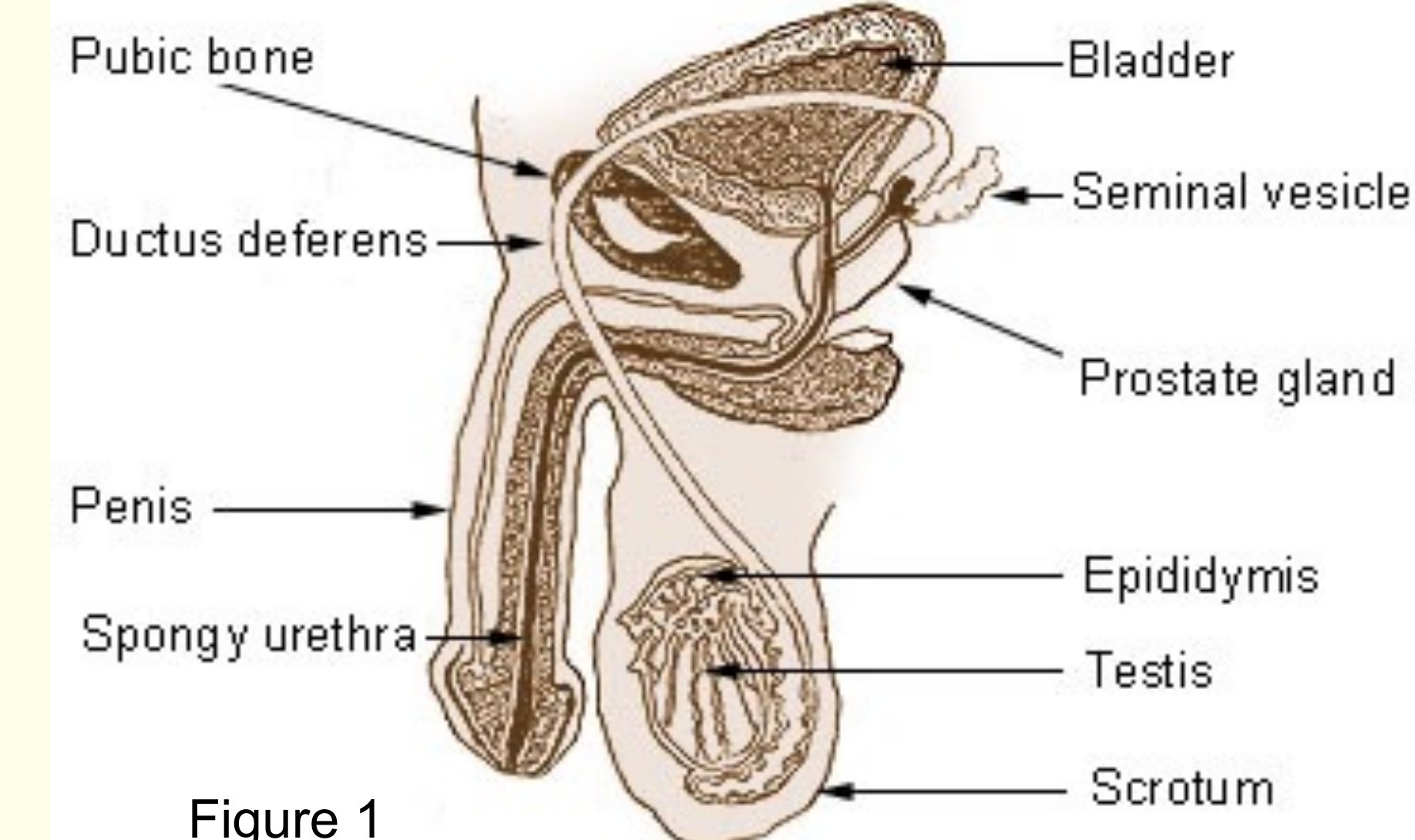


Figure 1

Organs of the Female Reproductive System

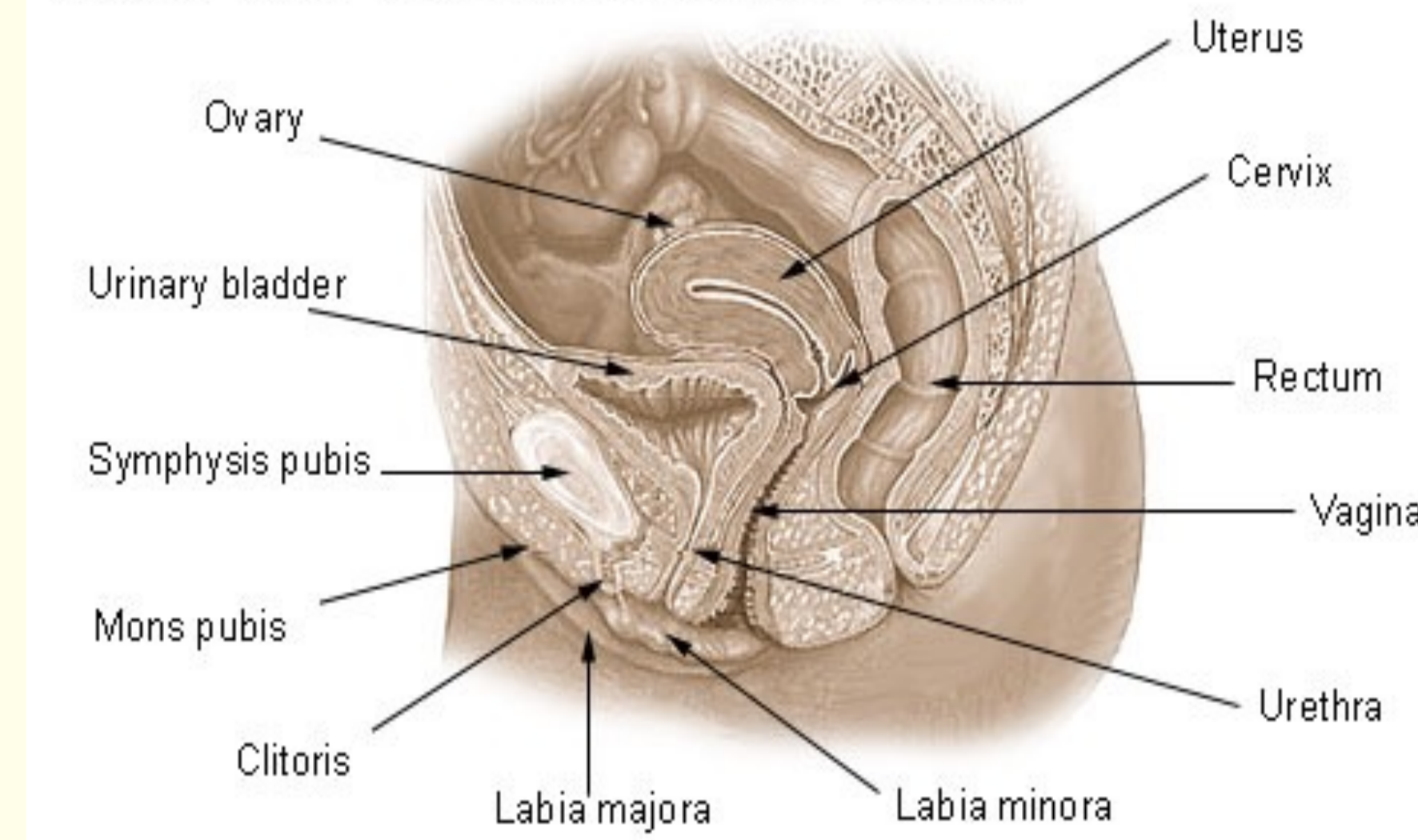


Figure 2

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.