

Anatomy and function of the penis:

The human penis is composed of spongy erectile tissue and is designed to be inserted into the vaginal canal and deposit sperm into the female reproductive tract during sexual intercourse (Marieb, Mallatt, & Wilhelm, 2005). The intact (uncircumcised) penis is structured as shown in *figure 1*. The external anatomy of the penis includes the shaft, foreskin (prepuce), the glans, frenulum, and the meatus (urethral opening). Naturally, the penis has an innervated sheath (called the foreskin) which covers the glans to moisturize and lubricate it (Taylor, Lockwood, & A.J., 2005). The foreskin also serves to reduce friction and chafing during sexual intercourse and to aid in penetration into the female partner (which Dr. Taylor refers to as “The gliding mechanism”) (Taylor, Lockwood, & A.J., 2005). Dr. Taylor of the University Of Manitoba Department Of Pathology Health Sciences Centre believes that the foreskin serves as an integral part in sexual pleasure and he opposes circumcision because it takes away the necessary sensitivity of the shaft which produces sexual pleasure.

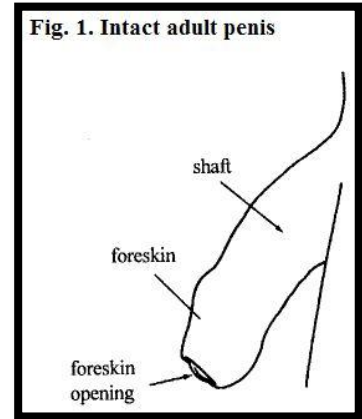


Fig. 1. Intact adult penis
Taken from “CIRP: Anatomy of the penis, mechanics of intercourse” by Dr. John Taylor.

An erection starts with penile stimulation. Both the head of the penis (glans) and the foreskin contain nerve endings which make them both very sensitive to touch. When these two are physically stimulated, blood rushes into the penis engorging it. The blood swells up the corpora cavernosa causing the penis to become erect. The increased volume of blood in the penis seals off the veins that drain blood from the penis (Marieb, Mallatt, & Wilhelm, 2005). This closure keeps the penis engorged and maintains the erection.

There are many colloquial terms for an erection. One, in particular, though, is actually a misnomer. Many men may refer to an erection as a “boner.” This term is not anatomically sound, however, because there is no bone in the penis (Sharma, 2005). It is erect solely because of the volume and pressure of blood contained in it. While most erections are a direct result of physical stimulation, Dr. Taylor also mentions that many erections are a result of emotional stimuli as well. Most of the time, an erection will be caused by both physical and emotional stimuli (Taylor, Lockwood, & A.J., 2005).

Researchers, such as Bailey, Egesah, and Rosenberg conducted a study in Kenya in which 1007 males between the ages of 5 and 21 were circumcised and observed over a 3 month period of time. The study was to show correlation between circumcision and the possible benefits it might have in the evasion of contracting HIV in Sub-Saharan Africa. While many discomforts and other side effects did occur (e.g., erectile dysfunction), the incidence of the acquisition of HIV was reduced by approximately 60%. While other factors may have played into the study, Bailey, Egesah, and Rosenberg conclude that circumcision aids in evading HIV contraction by removing the pocket in the flesh at the head of the penis which would otherwise serve as host for festering infections (Bailey, Egesah, & Rosenberg, 2008).

The act of removing the foreskin of the penis (circumcision) is a highly controversial issue. Proponents of hygiene and evasion of STI’s (sexually transmitted infections) support the practice as a way to avoid trapping matter between the foreskin and sulcus of the penis which may cause infection (Bailey, Egesah, & Rosenberg, 2008). Proper washing of the penis with the foreskin pulled back, however, can help in avoiding infection. Those who oppose circumcision focus on the aspect of

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sexual pleasure. Opposers of the practice note that there are many nerve endings in the foreskin which lead to heightened arousal and pleasure during stimulation, penetration, and orgasm. When the foreskin is removed, however, this pleasure is reduced (Taylor, Lockwood, & A.J., 2005). Opposers argue that it is not the right of any human to take away that pleasure from another; all should be allowed to experience sexual pleasure.

Spermatogenesis:

Sperm production starts in the testes. It takes about 60 days for each spermatozoa to fully mature. Testosterone levels affect the production of sperm and the development of the human male (Marieb, Mallatt, & Wilhelm, 2005). Sperm form in the seminiferous tubules, which are coiled tubes that make up the testes. Leydig cells hold the seminiferous tubules in place. These Leydig cells are connective tissues that produce hormones. After production in the seminiferous tubules, sperm travel to the epididymis to gain the functionality of serpentine mobility. The epididymis is about twenty feet long (Marieb, Mallatt, & Wilhelm, 2005), and provides sperm plenty of length to travel back and forth to “practice swimming” (Fisch, 2009).

During ejaculation, approximately 300,000,000 sperm are squeezed through the vas deferens in a peristaltic fashion (Marieb, Mallatt, & Wilhelm, 2005). The sperm then travel through the vas deferens from the epididymis, and around the pelvic bone behind the dorsal side of the bladder. Along this path, the seminal vesicles secrete mucus and fructose to provide volume and nutrients to the sperm. The vas deferens passes through the prostate gland which secretes a thin, milky fluid into the urethra. The urethra runs through the underside of the penis. It serves two purposes: first, to facilitate the expulsion of urine from the bladder to the outside environment (called micturition); second, to serve as a canal down which sperm travel during ejaculation (Marieb, Mallatt, & Wilhelm, 2005). Finally, the bulbourethral glands, which are between the prostate and the penis, secrete clear mucus to neutralize acid in the urethra. The final solution at ejaculation is called semen. It is a combination of sperm and many glandular secretions. The secretion from the bulbourethral glands is especially necessary to titrate the acid in the urethra; without it, the sperm would be subjected to high amounts of acid which would cause a large reduction in their number. When there is a reduced number of sperm, there is a correlation in the increased incidence of birth defects (Fisch, 2009).

In a study on geriatrics, Dr. Fisch, a professor of Clinical Urology at Columbia University, found that the incidence of birth defects in children whose fathers were older than 35 was higher than that of younger fathers. Dr. Fisch observed that testosterone levels drop during this stage in a man’s life, which can affect sperm account. He proposes that such birth defects as schizophrenia and Down syndrome are to blame on the decreased sperm count which gives rise to less-fit spermatozoa at ejaculation (Fisch, 2009).

The penis and testicles are a very fascinating and necessary system in the human body. It is truly awe-inspiring to know that as many as 300,000,000 sperm will be present at ejaculation; that around 200 will make it even close to the egg, but that only one will penetrate the egg, fertilizing it, and creating a new life. The very structure of the penis is perfect for the insertion into the vagina because it complements it in shape. The penis also serves as a vehicle through which sperm can travel safely from one body to another without being exposed to the outside environment.

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