CHAPTER FOUR

The Prostate, Penis And Reproductive System

Dr. Aubrey Pilgrim

The male reproductive system is made up of the testes, the vas deferens, the seminal vesicles, the prostate and the penis. See fig. 4-1. At the onset of puberty in the male, testosterone causes the testes to start manufacturing sperm cells. In the female, estrogen causes the breasts to enlarge and the ovaries to start maturing and releasing ova cells.

The Creation of Sperm and Ova Cells

Chromosomes are strands of DNA in the nucleus of cells that carries all of the genes. All of the several hundred trillion cells in a person's body has 23 pairs of chromosomes except for the sperm cells in males and ova cells in females. The infantile sperm and ova cells start out with 23 pairs of chromosomes just like all of the other cells in the body. But they go through a special process of division, called meiosis, so that each sperm and each ovum ends up with only 23 single chromosomes.

The 23rd chromosome in the sperm cell is either an X or Y chromosome. About half the sperm will have an X chromosome, the other half will have a Y. The female ova all have an X chromosome. The X and Y chromosomes from the male determines sex. If a lucky little sperm cell with an X chromosome fertilizes an egg it combines with the X chromosome of the ova to produce a female. If a lucky little sperm cell with a Y chromosome enters an egg it will produce a male.

Incidentally, a female is born with all of the egg cells she will ever have, about 400,000. Most women have a fertile period of about 30 years. After puberty, normally one egg per month ripens and drops. So most women will only drop from 360 to 400 eggs in their lifetime. Nowadays, most women only have two or three children in their lifetime so most of the eggs that do mature and drop are flushed away.

A young normal male produces about 250 million sperm for each ejaculation. A young horny male may be able to ejaculate three times or more in a single day.

The Vas Deferens

After the sperm cells go through meiosis, they move into the epididymis area of the testes to finish maturation. The vas deferens are two tubes that connects the epididymis and the seminal vesicles. During ejaculation, the tubular musculature of the vas deferens constricts and forces the sperm up into the prostate. The prostate and seminal vesicles add the milky gelatinous substance to the sperm cells, then the prostate squeezes down and forces the ejaculate out through the

urethra. The ejaculatory ducts enter the prostate from the back at a 45 degree angle and empty into the urethra.

Of course, several other organs, nerves and muscles, also contribute to an orgasm and ejaculation.

The vas deferens tubes lie very close to the surface just below the penis. When a vasectomy is done, they make a small slit in the skin between the penis and the testicles and lift the vas deferens out. The two tubes are then tied off, or ligated, in two places. The tubes are then severed between the ligations. It is a very simple operation and fairly painless.

Vasectomy And Prostate Cancer

A February 17, 1993 issue of the Journal of the American Medical Association (JAMA) had two studies of the effects of vasectomies on men and risk of prostate cancer. According to the authors of this study, the risk varied from 56 percent greater to as much 89 percent for men who had a vasectomy 20 years or more earlier.

In the same issue there was an editorial that questioned the study and the vasectomy-prostate cancer link. They cited other studies that did not show such a link. The editors suggested that there was little reason for alarm. But they did suggest that men who have had vasectomies should get an annual DRE and PSA test. Vasectomy or not, that is good advice for all men over 50. That is the same advice that the American Urologic Association (AUA) and the American Cancer Society (ACS) has preached for some time.

Most urologists believe that the study was severely flawed and that a man who has a vasectomy has no greater risk of prostate cancer than any other man. It did appear that men who had undergone a vasectomy were diagnosed with prostate cancer more often than men who had not had a vasectomy. It is believed that the reason may be that a man who has had a vasectomy is usually more concerned about his health and therefore may have checkups more often.

If you are considering having a vasectomy, or treatments for prostate cancer, and you think that you may want to father children later, then maybe you should have some of your sperm frozen. Frozen sperm can last for many years.

One other advantage of having a vasectomy is that it can make a great conversation subject. My wife and I went to many parties in our younger days. I would often find a pretty girl and when we ran out of something to talk about, I would offer to show her my vasectomy scars. But my wife was usually hovering nearby, so I never got the chance.

The Difference in Prostrate and Prostate

You won't hear anyone who has had prostate cancer make the mistake, but some people confuse the word prostrate and prostate. The word prostrate is from the Latin prostratus which means to cast down. It usually means to lie face down. The word prostate is from the Greek prostates, which means one who stands before. I have no idea why they called it that. It may be because if you start at the end of the penis and go up the urethra, it stands before you get to the bladder.

Growth and Development of the Prostate
In a young male baby, the prostate is about the size of a green pea. It gradually increases in size until puberty, then there is a rapid growth until the person is about 30 years old. The normal prostate of a 30 year old man weighs about 20 grams or ¾ of an ounce and is about the size of a chestnut. It fact, it is shaped a bit like a chestnut.

It normally stays about 20 grams until the man reaches about 45 years old, then quite often, it begins to increase in size. Some have suggested that this spurt of growth may be associated with a "male menopause". No one knows for sure the reason for the extra growth.

Similarities of the Prostate and the Breast
Prostate cancer is the leading cancer in men, breast cancer is the leading cancer in women. The number of women who are diagnosed with breast cancer is about the same as the number of men who are diagnosed with prostate cancer. About 42,000 women die from breast cancer each year, about 30,000 to 40,000 men die from prostate cancer..

Another similarity is that both prostate and breast tissue are hormone sensitive. According to Dr. Jacob Rajfer, of UCLA, if a young boy is given testosterone before puberty, his prostate will become enlarged. His penis will also become larger and longer. If a young girl is given estrogen before puberty, her breasts will develop and become larger.

If a man is given testosterone after puberty, his prostate will become larger, but his penis will not get any bigger, no matter how much testosterone he is given. If a woman is given estrogen after puberty, her breasts will not grow any larger. But if a man is given estrogenic hormones it will cause his breasts to become enlarged. Some of the hormones used for treatment of advanced prostate cancer are similar to female hormones. One of the side effects of these treatments is gynecomastia, or breast enlargement. Some men are so embarrassed that they resort to having breast reduction surgery.

Pelvic Tissues and Structures
Though the normal prostate is a fairly small gland, it may grow quite large. This may be especially so in some older men who develop Benign Prostatic Hyperplasia (BPH). Instead of being the size of a chestnut, some may grow as large as an orange or larger. (More about BPH in the next chapter).

Besides being a cancer site, the prostate may be the site of several other problems such as prostatitis, (the suffix -itis means inflammation), prostadynia (the suffix -dynia means pain), prostatic calculi or stones, and benign prostatic hyperplasia (BPH). Prostatitis and prostadynia may be caused by bacterial infection, calcification of small stones or a number of other causes.

The prostate is very much a part of, and involved in, many of the pelvic tissues. The prostate can cause you a lot of trouble. It can even kill you. To paraphrase John Dunne, no prostate is an island entire unto itself, for it is involved in all pelvic tissues. Several organs and tissues in the pelvic region are intimately connected or related to the prostate. When the prostate is affected by disease or cancer, many of these closely related organs and tissues are also affected.

The Bladder Sphincter

The sphincter vesicae is a circular muscle around the neck of the bladder. It is the urethral valve that we use to control our urine when we void or pee. Ordinarily, this muscular valve is in a state of constriction at all times except when we urinate. When we need to urinate, a signal is sent through the nervous system from the brain down to the sphincter muscles. The sphincter opens and allows the bladder to empty. The urine passes through the urinary canal, or urethra, through the center of the prostate and out of the penis.

The circular muscular fibers of the bladder sphincter are continuous with the muscular fibers of the prostate. Since the prostate and the sphincter vesicae are so intimately connected, some of the circular muscles of the bladder sphincter are often removed or damaged during a radical prostatectomy. After the prostate is removed, the bladder is pulled down and the cut ends of the urethra are sewn to the bladder.

The Prostate

The prostate is an integral part of the male reproductive system. It is located just below the urinary bladder. It looks a bit like a small apple that is somewhat flattened. Usually we think of the base of an object being at the bottom and the apex being at the top. But the larger top portion of the prostate is called the base and the smaller bottom portion is called the apex.

The base blends into the circular muscles of the bladder sphincter or urinary valve which connects to the urethra. The apex is connected to the musculo membraneous urethra sphincter or the external striated urethral sphincter. This is the sphincter that many men have to train with Kegels after a prostatectomy.

The front or anterior portion of the prostate is directly behind the pubic bone. The back portion or peripheral zone contacts the outer layer of the rectal tube. When a doctor puts his gloved finger in the rectum, he can usually feel any abnormalities through the rectal wall.

In performing a DRE an experienced doctor can get a good estimate of the size of the prostate and whether it is enlarged or not. The doctor can also feel the consistency. It should be smooth, soft and uniform. Ordinarily, most cells have spaces around them that are filled with lymphatic fluid. Tumors are usually packed very tightly and close together so that they are hard and lumpy. If there are any unusual lumps or nodules or if it is hard and grainy, it will be cause for suspicion of cancer.

The front portion of the prostate is directly behind the pubic bone so it cannot be palpated. Most prostate cancers arise in the rear peripheral zone of the prostate so they can be easily palpated or felt through the rectal wall. Of course those that arise in the middle zones may not be detected by a DRE unless the tumor is very large. That is why the PSA and ultra sound are such important diagnostic tools. A DRE, ultrasound and a PSA blood test can detect most all prostate cancer.

The prostate is enveloped by a thin fibrous capsule. In prostate cancer stages T1 and T2 the cancer will be entirely within the capsule. In T3 stages, it will have broken through the capsule. It may have sent out branches that infiltrated some of the local pelvic tissues and organs. In T4 stages, it has broken through the capsule and metastasized. Cancer cells may have escaped through the blood or lymph system to distant areas of the body where new colonies have set up.

In the older Whitmore-Jewett system of staging, we used the letters A, B, C and D. The newer Tumor-Node-Metastasis (TNM) system is much more descriptive of the stages. More about diagnosis and staging systems in Chapter Six.

The Male Uterus

You will find just about everything in a man that you will find in a woman and vice versa. (Only the things look much better on a woman.) The prostatic utricle is a small pouch or cul-de-sac located in the central portion of the prostatic urethra. It is called by some the uterus masculinus, or male uterus. The male uterus is about 6 millimeters long or about one fourth of an inch. The prostatic utricle is also called the Mullerian Duct.

The October 1992 issue of Urology Journal reported a case of cancer in the prostatic utricle or Mullerian Duct. He had uterine cancer.

The Female Prostate Gland

Again, both males and females have similar organs, glands and structures. In many, the organ in the opposite sex may be only rudimentary, but it is there nonetheless. My old Gray's Anatomy, published in says that the "Skene's ducts in the female urethra are regarded as the homologues of the prostatic glands".

A Taber's Cyclopedic Medical dictionary, says that Skene's glands lie "just inside of and on the posterior of the urethra in the female." This means that they are just beneath the bladder, in the same general location as the prostate gland in men. Dr. Judith Brumm, one of the few female urologists, said that she had a woman patient who had cancer in her Skene's glands. This was essentially prostate cancer.

The G spot in the vagina is in the Skene's glands. The G spot was named for Dr. Ernst Grafenberg who discovered it in 1950. It is located about an inch inside the vagina, in the top portion, behind the pubic bone. When stimulated in most women, the area swells and may become about the size of a half-dollar. It may feel a bit spongy. For many women, stimulating the G spot can cause them to have an intense orgasm.

The prostate in most men continues to grow and enlarge, especially in older men. This is benign prostatic hyperplasia (BPH). One reason for the continued growth is testosterone. Since the Skene's glands are not subjected to testosterone, they do not become enlarged with age such as the prostate does. Just as in men, these glands are subject to sexually transmitted diseases such as gonorrhea.

The Ejaculate

When a man is sexually aroused and ejaculates, sperm travels from the testicles through the two vas deferens tubes to the seminal vesicles, then through the prostate to empty into the urethra, then out of the penis. There are usually from 60 million to 250 million sperm in each ejaculation.

During ejaculation, seminal fluid is added as the sperm pass through the seminal vesicles. The seminal fluid is made up of fructose, (sugar), zinc and other minerals. As the sperm passes through the prostate, an acidic prostatic fluid is added along with PSA. Even though there may be 250 million sperm cells, they are very tiny. It would take about 600 of them, laid end to end to equal one inch.

The prostate is made up of muscles and hundreds of small glands. The glands manufacture the milky fluid that is mixed with the semen and sperm cells during ejaculation. About 95% of the bulk of the ejaculate is made up of prostatic and seminal fluid. The prostatic fluid and the semen provide nutrition and a swimming medium for the sperm cells.

The prostate normally produces a small amount of PSA which is mixed with the ejaculate. The ejaculate is a thick opalescent gel. The PSA causes the ejaculate to become liquefied which makes it easier for the sperm to swim in.

The total volume for a normal ejaculation is from 2.0 mL to 5.0 mL. (5.0 mL is equal to one teaspoon). As men get older, the volume will be less. If a man has

had a radiation treatments or seed implants, he may have a much lessened ejaculate or possibly, no ejaculate at all. If he has had a radical prostatectomy, he will not have any ejaculate at all.

The seminal vesicles are two membranous pouches behind the bladder and in front of the rectum. The seminal vesicles contribute a portion of the ejaculate. During sexual arousal, the prostate manufactures a large amount of prostatic fluid. Some of the fluid is usually forced out of the penis before ejaculation. This helps to lubricate the urethra for the passage of the ejaculate.

During ejaculation, the muscles of the prostate gland, the seminal vesicles and the vas deferens all act in unison to contract, squeeze and propel the ejaculate out of the penis. (I once heard a question asked, how far can a man ejaculate? Someone answered, about 5000 feet if he is standing on the bank of the Grand Canyon. Actually it is only a few inches, depending primarily on the age of the man.)

The contraction of the muscles of the vas deferens, the seminal vesicles and the prostate gland adds to the sensation of orgasm. After a prostatectomy, a man can still have an orgasm, but he may not have the same sensation without the contraction of the prostate gland and seminal vesicles.

Because of their intimate connection with the prostate, it is possible that the seminal vesicles could be infiltrated with cancer cells. They are nearly always removed during a prostatectomy. Besides, with the removal of the prostate, there is no way that the seminal vesicles could empty the semen and sperm into the urethra.

Erection Nerves

The prostate is richly endowed with veins, arteries and nerves. Branches of the nerves and blood vessels that supply the prostate are also the primary nerves and blood vessels that supply the penis. In the early days, when a surgeon removed the prostate, all of the nerves and blood vessels near it were also removed. The removal of these nerves and blood vessels meant that the man would be impotent for the rest of his life and would never be able to have a normal erection.

In the early 1980s, investigators identified the nerve bundles, branches and blood vessels that supplied the penis. They found that these neurovascular bundles could be peeled them away from the prostate and left intact. Main branches of these nerves and blood vessels are on both sides of the prostate.

During a radical prostatectomy, if it appears that the cancer is only on one side of the prostate, that neurovascular bundle can be widely excised. If the other side appears to be free of cancer, that side can be left undamaged. With one side of the nerves preserved the odds of remaining potent was fairly good.

Of course if there is a chance that the cancer is involved in the nerves and blood vessels on both sides, they would be excised. Depending on the age and past sexual history of the patient, up to 75% of younger patients may regain potency within a year or so. Up to 90% of patients may regain potency when helped by Viagra.

The CaverMap is an electronic device can help the surgeons identify and preserve the erectile nerves. In the radical prostatectomy procedure, there are many barriers to identifying and mapping the location of the cavernous nerves. It can be difficult to be completely confident of the location of the cavernous nerves. More about this device in Chapter Nine.

The Membranous Urethral Sphincter
Just below the prostate is another circular bundle of muscles that form the membranous urethral sphincter. This muscle is also found in women.

Normally the bladder sphincter and the membranous sphincter are closed. During micturition, (a nice word that means to pee or urinate), both sphincters relax to allow the passage of urine. At the end of urination, the bladder sphincter closes and the membranous sphincter is then used to squeeze out the last few drops.

Again, the bladder sphincter is often damaged during a radical prostatectomy. We are fortunate in that the musculo-membranous urethral sphincter below the prostate can be trained to take over the job of the primary bladder sphincter. The membranous urethral sphincter is more easily trained to perform this function in some men than in others. Some men can be dry in a matter of two or three months. It may take others up to a year or more. In some men, the membranous urethral sphincter may have been damaged along with the primary bladder sphincter. Because of this and other causes, a small percentage of men may never regain urinary control.

Cowper's Glands
If you have had a prostatectomy, you may be surprised to find that you still have a small discharge during sexual arousal. The viscous fluid that is seen is from the Cowper's glands. They are two small glands within the lower portion of the urethra. They are about the size of peas. They each have a duct that opens into the urethra. The small amount of fluid they manufacture is similar to the prostatic fluids.

Cowper's glands are very unique and puzzling. Dr. Donald Coffey has pointed out that the Cowper's glands are made up of the same type of cells and tissues as the prostate, yet there has never been a case of cancer found in these glands.

There is another puzzling aspect of the Cowper's glands. As men grow older, the prostate gland increases in size; but the similar tissues in Cowper's glands diminish in size with age.

Women have two small Bartholin glands near the vaginal opening at the base of the labia majora that are homologues of the male Cowper's glands. During sexual arousal, women may also have a small discharge from their Bartholin glands that is similar to the discharge produced by the Cowper's glands in males. Dr. Coffey didn't say so, but women probably do not get cancer in their Bartholin glands.

The Pelvis

The pelvis is made of large bones, shaped somewhat like a bowl. The two large hip bones are called ilia, which is Latin for groins or flanks. The ilia are connected to the sacrum and tail bone in the back. The femur heads, or ball sections, of the leg bones attach to the sockets of the hip bones. The lower part of the hip bones are called ischia, which is Greek for hip. The pubic bones meet and join in the front.

The bottom part of the pelvic girdle is called the pelvic floor. Several muscles and ligaments make up the floor. The rectum, the urethra and corpora cavernosa of the penis all pass through the pelvic floor. One reason it is so difficult to do a prostatectomy is that it is completely surrounded by the pelvic bones.

The Penis

The penis is composed of three cylindrical bodies of cavernous tissue. (Cavernous means that it has hollow spaces). Two of the bodies, the left corpus cavernosum and the right corpus cavernosum, lie along side each other. The third body, the corpus spongiosum houses the urethra and is located beneath the two corpora cavernosa. The cavernosus bodies, or corpora cavernosa, are the spongy bodies that fill with blood to form an erection. At the external end of the three bodies is the glans penis or the head. (Glans is Latin for acorn, which somewhat describes the shape of the head of the penis.)

The entire penis is covered by a loose skin. The head of the penis is covered by the foreskin which is removed if the person has been circumcised. (I went to a party recently. A woman asked me, "What do you call that superfluous skin around a penis?" Before I could answer she said, "A man". Some women have a twisted sense of humor. I didn't think it was funny at all).

About one third of the penis is inside the body and extends most of the way back to the anus. The bulbocavernosus muscle is wrapped around this portion of the penis. (The prefix bulb in bulbocavernosus is from Latin bulbous meaning root). It can constrict the urethra and help empty it after urination. The bulbocavernosus helps during an erection by compressing the deep dorsal vein of the penis, thus trapping the blood to help maintain the erection.

The ischiocavernosus muscles are attached to, and wrap around the penis. There are branches of the muscle on each side which extend backward and attach to the inside of the pelvis near the inner part of the hip socket. These muscles also help in achieving an erection by compression of the veins that exit the cavernosus bodies. These muscles help to anchor and tie the penis to the inside of the pelvic bones. During an ejaculation or orgasm, these muscles contract rhythmically and contribute to the pleasant sensation.

From its origin in the back near the anus, the penis curves upward and is anchored in the front of the body to the pubic bone by suspensory ligaments. See fig. 4-1. In operations for penile augmentation and lengthening, these suspensory ligaments are severed. Severing these ligaments may add up to one inch to the length of the penis.

Control of Circulation by The Nervous System

You probably know that the arteries carry oxygen and other nutrients to the various tissues. It gives up the oxygen and nutrition, then picks up the carbon dioxide and other wastes. It moves through the capillaries into the veins and back to the heart to be circulated again.

The blood vessels are actually round muscular tubes. The body regulates its blood pressure by causing the musculature around some arteries to constrict while relaxing others. If a person has just eaten a large meal, lots of blood is needed in the abdominal area to help digest it. The arteries are relaxed in the abdomen so that more blood is available. But we have a closed system, so some of the blood vessels in other areas must be constricted and made smaller in order to force more blood into the abdominal area. This regulation is done automatically by the nervous system.

What Causes An Erection

I know a lady who is a school nurse. Part of her job is to give a lecture to the 5th and 6th grade boys about their developing bodies and puberty. In one of these classes she explained that boys may sometimes have nocturnal erections. Then she explained how the influx of blood into the penis could cause an erection. She noticed that one boy, who seemed to be a bit older than the others, wasn't paying much attention. She asked him if he could repeat to the class what caused an erection. He said, "Sure. Thinking about pretty girls."

That used to do it for me, but since I have had my prostatectomy, it just doesn't work any more. An erection requires that the brain, nerves, heart, blood vessels and hormones all work together. It may also require, especially as we get older, a bit of visual stimulation and a bit of plain old manual stimulation.

We have in our body three different types of muscles, skeletal muscles such as those of the arms and legs, smooth muscles such as those of the intestines and

blood vessels and the cardiac or heart muscle. We also have the central nerve systems which includes the brain and spinal cord and the somatic or peripheral nerve system.

The peripheral nerve system includes those that are under our direct conscious control such as those used to cause an arm or leg to move. We also have an autonomic or involuntary nerve system that causes many of our body's system to work automatically. We have no conscious control over the autonomic system.

The autonomic system has two types of nerves, the sympathetic and the parasympathetic. The two systems act to keep each other in balance. An analogy would be an automobile, which has an accelerator to make it move and a brake to stop it. The sympathetic and parasympathetic nervous systems control the blood vessels that cause erections.

Most of the tissue that forms the penis is called erectile tissue. The penis is richly endowed with blood vessels and nerves. The erectile tissue is somewhat like a sponge with lots of open spaces. The open spaces are called lacunae or sinuses. There are many small arteries which are called arterioles. These blood vessels and sinuses are made up of smooth muscle which are normally contracted.

Dr. Jacob Rajfer of UCLA found that when a man becomes sexually aroused, the parasympathetic nerves that are involved in erections cause certain chemicals such as nitric oxide to be released. The body also produces a chemical called phosphodiesterase 5 (PDE5) which acts to keep the penile blood vessels in a state of contraction. Viagra is a PDE5 inhibitor. Along with the parasympathetic nerves and nitric oxide, the blood vessels will relax and let lots of blood in.

There is a small amount of blood that flows through the penis at all times. But the rate of blood inflow is about seven times greater during the state of arousal. There are veins and venules, (small veins), in the penis which normally carry blood away. Enclosing the penis, just beneath the skin, is a tough fibrous sheath, the tunica albuginea. At the same time that the penile arteries are relaxing and filling the sinuses, the erection causes the veins to be compressed against the tunica albuginea. Since there is no way out for the arterial blood, the penis becomes erect and ready for action. The erection remains until the sympathetic nerves cause the arteries to become constricted and the nitric oxide is no longer produced. If the parasympathetic nerves are severed or damaged during a radical prostatectomy, there will be no production of nitric oxide and Viagra will have little or no effect.

There are several causes of impotence or erectile dysfunction. Urologists have found that some men who are impotent may have penile veins that do not become constricted to keep the arterial blood in the penis. This allows the blood to leak out almost as fast as it comes in. There are other cases where there may be arterial insufficiency and not enough blood can be pumped in. There may be

several different reasons for this such as an obstruction caused by atherosclerosis or hardening of the arteries. Some of these afflictions may be helped with microsurgery.

Smoking and several drugs can also interfere with the erection process. Some of the several causes of erectile dysfunction will be discussed in Chapters 18.

Studying the Penis

Scientists are now devoting more time and resources to the study of the penis. Almost every issue of the Journal of Urology has at least one article on these different studies. Some of the studies involve testing drugs such as papaverine, phentolamine, and prostaglandins. (The drug prostaglandin was first discovered in the prostate gland, thus the name.) These drugs are vasodilators. When injected into the penis they can cause erections.

If the drugs are administered in a laboratory setting, it is quite different than being in a private room and having a waiting and willing partner. So the injections may not always work in the laboratory. To try to overcome this problem, one study had the participants view an Xrated porno tape along with the drugs. They called this adjunct to the protocol visual sexual stimulation (VSS). They wanted to see if the tapes improved the effectiveness of the drugs. But many people still have a lot of Judeo-Christian feelings of guilt and sinfulness about anything as personal as the penis. Some of the men in this test were outraged over the porno tapes and withdrew from the experiment.

Even those men who have no religious beliefs may be uncomfortable with some of the needed experiments and tests. Some tests may require that several experimenters observe and perform measurements while the man tries to get an erection. Not many men can perform under these circumstances. Usually it is a male doctor of urology or an andrologist who does the testing on men. (Andro is a prefix for man; gyne means woman, so an andrologist for men is somewhat comparable to a gynecologist for women.)

A friend was is in a clinical trial for testing the penile injections. He had a pretty nurse who observed and measured his penis for length and girth. She checked him frequently for tumescence or hardness by squeezing his penis while testing the drug. This was definitely better than the VSS protocol. One of the goals of clinical trials is to test the efficacy of the drugs on a person who is truly impotent. If a man does not get an erection while a pretty woman manipulates his penis, then he is probably impotent.

One test often used in the trials is to have the man stand, then the doctor or nurse uses a compass to measure the degree of the angle of the penis at various times. Before my operation, I had no trouble attaining a 45 degree upward angle. Even with the injection to cause an erection, the best I can do now is about five

degrees downward. This may have been a side effect of my radical prostatectomy.

Another test is to use a gauge that is pressed against the head of the penis. This measures the rigidity of the erect penis. The gauge can measure how much pressure can be applied before the penis buckles or bends. There are other sophisticated gauges such as the rigiscan that can measure the rigidity of the penis.

Because of laboratory limitations, many scientists use rats, rabbits, dogs and other animals for experimentation. They can perform experiments on these animals that would be impossible on a human being. They often test drugs by injecting them into the penis of a mouse. Can you imagine the difficulty in relating tests done on the penis of a mouse to the penis of a man? Can you imagine injecting the penis of a mouse to cause him to get an erection?

Dogs are often used in penile studies because they have a larger penis. They also have a prostate. One study that was reported in a Urology Journal involved the problem of retrograde ejaculation. This often happens to a man after undergoing a transurethral prostatectomy (TURP) for an enlarged prostate. The primary bladder sphincter valve is often damaged so that it does not close completely during ejaculation. So at ejaculation, the sperm will take the shorter path and go into the bladder.

A prostate operation similar to a TURP was performed on the dogs. After the dogs had healed they masturbated the dogs to check for retrograde ejaculation. They were able to study the dogs in ways that would never be possible with a man.

Penile Augmentation

In the Declaration of Independence, Thomas Jefferson wrote...”We hold these truths to be self evident, that all men are created equal...” You were wrong Mr. Jefferson. Not all men or all women are created equal. Some are born beautiful, with all of the luxuries that life can possibly afford. Many more are born poor, homely, obese, diseased and destined to endure humiliation and suffering all of their lives.

Even if they don’t have these adverse afflictions, many men and women are unhappy with their bodies. They are usually too fat, too short or too tall or bald. Many women are usually unhappy with the size of their breasts; the men with the size of their penises.

Women can have breast implants that can instantly give them any endowment they desire. Many comedians made a career of telling jokes about breasts. I even got on the bandwagon myself back in 1960s with this line:

Not A Laughing Matter
Mammoplastic augmentation
Is no cause for titillation.

Psychologists and common sense tell us that the size of the breasts should not make any difference in the enjoyment of sex. (As far as I know, man is the only mammal who considers the mammary glands to be linked to sex. To other mammals, the size and shape of the mammary glands has nothing to do with sex.) But our ideals of what is beautiful and desirable goes back a long way. Look at some of the ancient sculptures and paintings. So who can blame a woman for wanting to look her best and most desirable if that is what men want.

“Its too big” are three little words that most men will never hear from a woman. The average length of the adult male erect penis is about five inches. If you have seen X-rated movies, you know that there are a few men who may have been born with endowment that is a lot more than average. There are probably many more men who are unhappy with the size of their penis than women with the size of their breasts.

I attended a presentation on impotence treatments using injections at a recent AUA Convention. A doctor stated that a long penis was subject to buckling and being rather limp. The doctor said that a short penis responded much better to injections and usually resulted in an erection that was much more rigid and firm. That may be true, but there probably isn’t a man alive, with the possible exception of the Pope, who would not like to be longer.

A lot of men are so concerned about penis size that they have had penile augmentation. Most of them could have saved the money because they were probably normal to begin with. What's "Normal"? Well, it may depend on who's doing the measuring. Dr. Dean Edell has a very interesting free newsletter at www.healthcentral.com. He recently had an article about penile sizes and measurements.

> "What's normal seems like a simple question. But when you look into the subject, you find that observations differ, depending on who's doing the measuring.
>
> It should come as no surprise that a recent study from the University of California School of Medicine with the following data about penis sizes found that "average" was considerably less than a group of men self-reporting their penile sizes on a Web site.
>
> **Physicians' Findings**
> Physicians studied a group of 80 men to measure penis size when flaccid, stretched, and erect to establish guidelines for augmentation. The

result? Only one man out of 80 was "even close" to the standard researchers defined as "subnormal."

Average Lengths
Flaccid -3.5 inch
Stretched - 4.9 inch
Erect - 5.1 inch

Average Circumference
Flaccid- 3.9 inches
Erect- 4.9 inches

Below Average
Erect Length - 2.8 inches
Circumference 3.5 inches

Internet Self-Reports Findings
Meanwhile, data from an Internet site entitled "The Definitive Penis Size Survey, Sixth Edition" at http://www.connection.com/~dickie/result.html claims to have collected data from 3,100 site visitors . The site says its data is the "most exhaustive penis size survey to be conducted to date". The site's author says he has thrown out obvious cases of fraudulent responses such as respondents who claimed "American Zulu warrior" ancestry, for instance, from its reported results. They have a whole lot of data and charts at the site. One chart shows the percentage of men who are contented, or discontented with their size. About 75% of the below average or modestly endowed group were unhappy. About 20% of the average group were unhappy, and less than 10% of the well endowed group were unhappy.

There is an area at the site where you can send your measurements or make comments.

Here are some of the self-report findings at the web site.

Erect Length
Modest - 5.6 inches
Average - 6.4 inches
Endowed - 7.1 inches

Erect Circumference
Modest- 4.6 in
Average- 5.0 in
Endowed - 5.4 in

As you can see, the self-reported findings seem to find men who have penis sizes more than 1.5 inches longer than when physicians do the measuring!

Here are measuring guidelines that are used by physicians:
First, you need a tape measure. You'll want to measure the exact length of the penis from the meatus (that's the opening of the urethra) to the fat pad. The physicians from UCSF were careful to really push the fat pad down, and you should be, too. For the best results, take measurements of the penis in flaccid, stretched, and erect states. You'll get more reliable numbers. Some inconsistencies will inevitably result. Flaccid measurements are less accurate than erect measurements. Cold or warm weather can also affect the findings.

Obesity can also affect the results. The team of UCSF researchers noted in their findings that, "The depth of the fat pad may significantly alter the perception of penile length. An increase in fat pad depth will decrease the visible pendulous length of the penis. Many men complain of a retractile penis, and obesity contributes to this phenomenon."

The researchers further stated that knowing the truth could reduce anxiety. "Knowledge of functional penile length," they wrote, "including that buried by the fat pad, may decrease anxiety concerning erect size in certain men."

They suggest that for men whose obesity is creating a perception of smaller penis size, weight loss or liposuction may represent less drastic steps to enhance a man's self-image about his penis size - i.e. fat is the real culprit.

Source: "Penile Length in the Flaccid and Erect States: Guidelines for Penile Augmentation," Journal of Urology, Vol. 195, 995-997, 1996

It is so true that obesity and the fat pad around the base of the penis can rob you of some length.

I heard a story of two golfers who were taking a shower after the game. One of the men was very obese. The thin guy said, "Good God man, when is the last time you saw your penis? Why don't you diet?" The fat guy said, "Dye it? Hell, I don't even know what color it is now".

Surgical Augmentation
It is not as easy for a man to have penile augmentation as it is for a woman to have her breasts enlarged. But there are several doctors who are doing it. The penis is one of the few organs or tissues of the body that has no fat. Several urologists are now performing a procedure for penile girth enlargement and a penile lengthening procedure.

For the girth enlargement procedure, they use a liposuction type technique to withdraw adipose, or fat cell tissue, from the man's abdomen, love handles or other fatty areas. This fat is then injected beneath the loose skin of the penis thus making it larger. The procedure requires no hospitalization. It can be done in the office in a fairly short time and is relatively painless.

They claim that they can enlarge the girth of the penis by 30 to 50 percent. Since the fat used is from the person's own body, there is no danger of rejection. But in most cases, the body will eventually absorb and remove the fat. However the procedure can be repeated as often as the patient desires. Some urologists are using strips of skin with fat attached to enlarge the girth of the penis. It costs about $3500 for the girth enlargement procedure.

It is fairly easy to make the penis larger in girth but rather difficult to make it longer. For years, many companies of questionable repute have advertised in men's magazines with claims that they can lengthen the penis. They usually advertise a vacuum erection device similar to the device that I bought as an aid for my erections.

About one third of the penis is inside the body. It can be felt in the perineal area between the testicles and anus. In the front, the penis arches upward and is anchored to the pubic bone by suspensory ligaments. See fig. 4-1. On some men the penis can be lengthened up to one inch or more by cutting the suspensory ligaments.

Once the suspensory ligaments have been cut, the penis may flop from side to side and be rather unwieldy, but there will be more in front than before. There are several urologists in the Los Angeles area who have penile enlargement ads in the sport pages every day. Some of them also advertise in the Penthouse and other men's magazines. One doctor has been doing as many as 150 operations every month. Several of these doctors have become multi-millionaires.

But not every man has been satisfied with the treatments. Some have claimed to have a loss of feeling, lumpiness and ugly scarring in the penis. The California Medical Board has suspended the license of one doctor who was doing most of the procedures. But in defense of the doctors, there have been several thousand operations performed with only a few complaints.

This type of procedure is still fairly new and experimental. It will be some time before we know what the long term effects will be.

Most men who have seen Xrated movies are bound to be a bit envious of the endowments of the men in those movies. But most men realize that the performers in those movies are not the average man. They were chosen because of their rare and exceptional endowments. However, it is possible to have too much of a good thing. I have seen photos of a man who has a penis

that is 15 inches long. I am sure that he receives no more enjoyment from sex than any man with a small penis. Normal sex with this man would be very difficult for a woman.

A physically small body size does not necessarily mean that a man will have a small penis. Most short men have an average size penis. But Napoleon seemed to have been short changed in both departments. When Napoleon died they cut off his penis and preserved it in a jar of alcohol. It was about two inches long. It is possible that because Napoleon was small in stature and penis size, that he compensated for it by trying to become the most powerful man on earth.

To most women size doesn't make that much difference. I am sure that Napoleon pleased Josephine. The vagina can conform to accommodate just about any size penis, or even to the passage of an eight pound baby. According to Gray's Anatomy, the length of the anterior wall of the vagina is 6 to 7.5 centimeters (cm) long and the length of the posterior wall is 9 cm long. One inch is equal to 2.54 centimeters, so if a woman is lying on her back, the upper wall of the vagina is 2.4 to 2.8 inches long and the rear wall is about 3.6 inches long.

This may seem strange, because very few men are able to ever "hit bottom". The reason is that the vagina is somewhat like the penis. During sexual arousal, the uterus is drawn upward and the vagina becomes longer and deeper. Masters and Johnson called it "tenting". So not only can it accommodate the girth of the largest penis, it can usually accommodate a very long penis.

Many women have found that by doing Kegel exercises they can strengthen the vaginal muscles so that they can squeeze down on even a very small penis. (More about Kegel exercises in Chapter 17).

Many men are ashamed of what they have. If you look at the men in a public rest room, most of them will go out of their way to try to hide it. They will practically climb into a urinal so the guy next to them won't be able to see. Many men even go into a stall and close the door so that no one can see them. But there are a few men who are showoffs. These are the ones who are well endowed and they want the whole world to know it. I once stood next to a very short and very homely man in a public rest room. But it seems that God must have compensated him in other ways. His endowment would have made a stud horse envious. The little guy shook it and flopped it around so that everyone in the rest room could see how lucky he was.

Successful reproduction does not depend on the length of the penis. If the only men who could father children were those with a long penis, then the male children would have inherited the genes for a long penis. Over the last few million years, evolution would have eliminated most of the men with short penises.

Most of the sensory nerves in the vagina are near the entrance. We mentioned the woman's "G" spot earlier. It is about one inch inside on the upper front part of the vagina. Stimulation of this area brings many women to orgasm. So most women only need about two or three inches for satisfaction. In fact many women don't even need penetration to have an orgasm. The clitoris is a rudimentary penis and can be stimulated much like a penis. Most women can have a stronger orgasm from oral and manual manipulation of the clitoris than from vaginal thrusting.

Of course there are some women who are turned on by a large penis and still think they need one. I heard a story once about a man who picked up a woman and took her to his room. When he got undressed, the woman laughed and said, "Who do you expect to make happy with that little thing?" The man replied, "Me".

So the length of the penis is not all that critical for enjoyment or for reproduction. Many women have become pregnant even when the sperm was deposited outside the vagina during a withdrawal method of birth control. When given a chance to find an egg, those little sperm are very determined.

There are some women who also may not be happy with their sex organs. I once visited the Steinhart aquarium in San Francisco with a lady friend. They had a large photo of a couple of whales in the act of mating. I said, "I have read that the lucky whale may have a penis as long as six feet". My lady friend said, "Yeah, well the unlucky female probably has a vagina that is ten feet deep". Such is life.

URLs FOR Enlarging And Lengthening

If you use a search engine such as www.yahoo.com, www.altavista.com, www.excite.com or any of the others and search for penis AND length you will find several sites such as these:
http://www.newoptimal.com/System/Central.html

Here is just a bit of what you will find at this site:
You want to have a bigger penis, and you want to know how the different methods and techniques of penis enlargement may help you to achieve your goal.

Another company is http://www.thegrip.com/
The Ultimate in Penis Lengthening Development
The GRIP System is a complete and perfect method in penis enlargement designed to fit every man's life style. It is the first system on the market to use vacuum to hold weight to the penis.

.

Here are a couple of sites who use weights for penile lengthening:
http://www.jes-extender.dk/

http://www.webworld.co.uk/x/powerstretch/

These companies use weights from two to twenty pounds attached to the penis to stretch it. If a man is really determined to augment it, the non-surgical weights and stretching appears to be less costly but may take more time to achieve any noticeable difference.

These sites usually have diagrams and photos of their products. Also they usually have lots of testimonials.

Other Erectile Tissues

The woman's clitoris is a rudimentary penis. It has a head, or glans, and rudimentary corpora cavernosa similar to the male penis. When a woman is sexually aroused, the spongy tissues of the corpora cavernosa become engorged with blood and the clitoris becomes hard and erect just like the penis. The urethra in both men and women are composed of erectile tissue. The urethral cells become engorged with blood and expand along with the other penile and clitoral tissues.

The nipples of the breast in both men and women are erectile tissue and may become erect during sexual arousal.

The tongue is actually a special muscle, but some who engage in oral sex say that it can be as erectile as any penile erection. And can be almost as much fun.