

# *Male anatomy and physiology impact on reproductive health.*



BY

DR. BENITA RUMANZI

PRINCIPAL, AFRICA POPULATION INSTITUTE

Email: [info@africapopulation.net](mailto:info@africapopulation.net) , Website: [www.africapopulation.net](http://www.africapopulation.net)

Tel: +256-772-836998, +211-955-052841, +254-707-484830

CO- AUTHORED BY

STELLA ACHEN

LECTURER, MAKERERE UNIVERSITY

DEPARTMENT OF ADULT AND COMMUNITY EDUCATION

Kampala - Uganda

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*Email: [uaps@uaps-uepa.org](mailto:uaps@uaps-uepa.org)*

*Website: [www.uaps-uepa.org](http://www.uaps-uepa.org)*

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## **Executive Summary**

This research had a practical element to investigate questions raised by men; It primarily targeted the 300 men across the sub Saharan Africa as well as document review and literature. Sexual health is a source of concern for many men, yet some men were not comfortable talking to their doctors about sex. Problems like getting an erection, keeping an erection and less interest in sex keep someone from enjoying sex. This study investigated more on Male infertility, Sexual problems and Physiology as well as pertinent issues like Sexuality in Later Life , Aging Changes in the Male Reproductive System and Men's Sexual Health, Erectile Dysfunction, The Myth or Reality of Male Menopause and Penis-Enlargement. There is evidence based need for the development of guidelines for enhancing male's sexual life by eliminating the myth and affirming the realities to properly understand and appreciate the normal anatomy and physiology of male reproduction.

## **Reasons and purposes for undertaking this project**

This programme of study continues personal research and professional practice in the field of Health Sciences, particularly within the area of Male Reproductive Health, there is evidence of constant innovation and changing approaches to determination of reproductive health behavior; however, the wide ranging and long term issues of male health has clearly become a secondary consideration. This research underpins the impact of male anatomy and physiology on a man's sexual life in particular and reproductive health in general. Many people want and need to be close to others as they grow older.

This includes the desire to continue an active, satisfying sex life as they grow older. But, with aging, there may be changes that can cause problems.

### **Research Aims**

Men's sexual health is an important aspect of men's health, whether you're trying to prevent pregnancy and sexually transmitted infections or you're worried about erectile dysfunction or other men's sexual health problems. For some men, worries about penis size top the list of their sexual health concerns. However, they can be probably more normal than they think. The research aims at the reflection that— penis-enlargement products and procedures aren't likely to be effective. As someone gets older, understanding common changes in men's sexual health is a key — and how to maintain a healthy and enjoyable sex life at any age.

### **Methodology**

As envisaged the research included a practical element to investigate questions raised in the study, primarily targeted the 300 men across the sub Saharan Africa region. The study also employed a document review where by a number of literature has been gathered and summarized to come up with a concerted knowledge about males sexual health that is worth sharing in the attempt to answer most of the questions raised as sexual fears among men.

### ***Core Issues for investigation included:***

Sexual health is a source of concern for many men, yet some men were not comfortable talking to their doctors about sex. Others wrongly think that sexual problems are a normal part of aging. But treatment can help with many sexual health issues. No matter what age, talking about the major problems is a key especially if someone has: Problems getting an erection, Problems keeping an erection, Less interest in sex and Other problems that keep someone from enjoying sex. This study investigated more on Male infertility, Prostate health, Sexual problems and Male Physiology. It also explored other

pertinent issues to do with Sexuality in Later Life , Aging Changes in the Male Reproductive System, Diabetes and Men's Sexual Health, Effects of Cancer Treatment on Male Sexuality, Erectile Dysfunction, The Myth or Reality of Male Menopause, Penis-Enlargement Scams, Testicular Self-examination and Testosterone.

***Research methods include:***

Use of questionnaires based on a standard format (e.g. *Likert* scale model) to obtain mainly qualitative responses from doctors and specialists in this field as key informants, complemented by the available literature. Transaction logs were inspected to see how a males sexual health can be attributed to their physiology. As far as possible validated quantitative questionnaires were used on approximately 300 individual males from sub-Saharan Africa who were interviewed and examined in to regard to their sexual life. The survey tool developed was piloted before using in the main phase of the study.

***Analysis and Evaluative methods include:***

Standard statistical packages (SPSS) was used to examine any cross-tabulation, or associations, or grouping which emerged through factor analysis. For the qualitative data, a qualitative data analysis software package was used to assist coding, and derivation of themes, from the data. A logistic regression model was fit at the multi variete level of analysis.

**Outcomes**

The general outcomes of the research were:

- Evidence that there is need for the development of guidelines to Male anatomy and physiological significance on their sexual life
- Need for guidelines for enhancing male's sexual life by eliminating the myth and affirming the realities

- In order to properly understand the causes and treatment of male infertility it is essential to appreciate the normal anatomy and physiology of male reproduction.

### **Some Relevant Literature**

The human male reproductive system includes the hypothalamic-pituitary-gonadals axis, the epididymis, vas deferens, seminal vesicles, prostate and the urethra. Production of spermatozoa requires approximately 3 months from the initial mitotic division. The testis is composed primarily of seminiferous tubules packed closely together (95% of testicular volume), and interstitial cells. Each tubule is 30-70 cm long and 200-300 microns in diameter. There are approximately 500 tubules per testis. The cells within the seminiferous tubules are germ cells that mature into spermatozoa, and Sertoli cells that serve as supporting cells for developing germ cells. Sertoli cells create a blood-testis barrier, and separate the germinal epithelium into basal and adluminal compartments.

The major cell in the interstitial space outside the seminiferous tubule is the Leydig cell, which produces testosterone, a necessary component for germ cell maturation. Male fertility requires the production by the testes of large numbers of normal spermatozoa through a complex process of **spermatogenesis**. This process is divided into three major parts: 1. Mitosis-the multiplication of spermatogonia 2. Meiosis-reduction of chromosome number from diploid to haploid. Type B spermatogonia is converted into primary spermatocyte which divides to secondary spermatocyte and divide again to form round spermatids.3. Spermiogenesis-transformation of round spermatid into the spermatozoon.

The mature spermatozoon is released into the tubule lumen. It is approximately 60 microns in length. The head consists of the condensed nucleus, the acrosome, membrane-bound organelle that contains the enzymes required for penetration of the egg prior to fertilization. The tail consists of a

middle piece containing mitochondria, the principal piece, and an end piece. Sperm from the seminiferous tubule enter the 6-8 efferent ducts connecting the testis to the caput epididymis. The epididymis is a single convoluted duct 3-4 meters in length, and is divided anatomically into caput (head), corpus (body), and cauda (tail). Epididymis serves as sperm conduit and sperm reservoir where sperm acquire motility and fertilizing capacity.

The vas deferens is approximately 35 cm tubular structure with distinct muscular layer. It is divided into convoluted, straight and ampullary portions. According to anatomical location the vas deferens is divided into scrotal, inguinal and reoperitoneal portions. Vas deferens is an androgen-dependent organ and transports sperm into the pelvis, where it joins the seminal vesicles to form the ejaculatory ducts, the largely collagenous tubes, which enter the prostatic urethra. Just prior to ejaculation, the testes are brought close to the abdomen and fluid is rapidly transported through the vas deferens to the ejaculatory duct and subsequently into the prostatic urethra.

Transport of spermatozoa through the female reproductive tract is very rapid: it takes about 15 minutes to reach abdominal cavity and about 1 hour to reach mature egg. Before fertilization occurs, spermatozoa undergo certain modifications including 3 major steps: capacitation, hyperactivation and acrosome reaction.

Capacitation takes about 5-6 hours. It is a calcium dependent process involving activation of ATPase, redistribution of mannose receptors, glycoproteins and glycolipids on the sperm surface. Angiotensin converting enzyme (ACE) is released during capacitation and assumed to participate in the acrosome reaction. Hyperactivation. Hyperactivated motility results in enhanced lateral head displacement, reduced linearity, beat frequency and flagellar curvature.

Acrosome reaction. The spermatozoon initially binds to zona pellucida, a semipermeable membrane for the molecules up to 170 kDa. The acrosome

reaction involves fusion of outer and inner acrosomal membranes. It involves changes in membrane potentials, modification of pH, swelling and release of acrosomal enzymes. This reaction is accompanied by modifications in the sperm plasma membrane. Acrosome reacted spermatozoon may pass through zona pellucida into the perivitelline space (this process may take about 1 hour). The fusion occurs between sperm plasma membrane and oolemma. Actual molecular signalling mechanism for the sperm acrosome reaction is very poorly understood.

Eventually the whole spermatozoon is retracted into the oocyte and become immotile with subsequent decondensation of sperm head, disappearance of nuclear membrane, and decondensation of chromosomes. Usually only one spermatozoon reaches the perivitelline space and sperm-egg fusion takes place. After fusion occurs, additional spermatozoa entry is blocked by cortical reaction.

Endocrinology of male reproduction. Pulsatile hypothalamic release of GRH stimulates the secretion of FSH and LH by anterior pituitary. These hormones then act at the level of the testis. LH stimulating testosterone production by the Leydig cells, and FSH acting on the Sertoli cell to support spermatogenesis. Serum testosterone and inhibin ( Sertoli-cell product) downregulate LH and FSH secretion via negative feedback loop.

### **Male sexual anatomy**

The male reproductive system includes the following structures:

**Penis:** The external male sex organ used to copulate and ejaculate semen and to convey urine outside the body. The penis contains two chambers, the corpora cavernosa, which run the length of the organ. These are filled with spongy tissue and surrounded by a membrane called the tunica albuginea. The spongy tissue contains smooth muscles, fibrous tissues, spaces, veins, and arteries. The urethra, which is the channel for urine and ejaculate, runs along

the underside of the corpora cavernosa. The urethra emerges at the glans, the rounded tip of the penis. The penis is the counterpart of the clitoris in the female.

**Scrotum:** A pouch of skin which contains the testes, epididymides, and lower portions of the spermatic cords. The scrotum is a sac that hangs behind and below the penis, and contains the testes (testicles), the male sexual glands. The scrotum's primary function is to maintain the testes at approximately 34 C, the temperature at which the testes most effectively produce sperm.

**Testes/Testicles:** The testes (or testicles) are two olive-sized oval bodies, one on the right side and one on the left side. The testes have two main functions: to produce sperm (the male sex cell) and to produce testosterone (the male sex hormone). The epididymides and the vasa deferentia are attached to the testicles and are important in transporting sperm cells after they develop in the testes. The term testicles includes the testes as well as the surrounding structures, such as the vas deferens and the epididymis. These two names, testes and testicles, are often used interchangeably even though their definitions are slightly different. Basically they are men's sexual glands, the two testes within the scrotum produce sperm and testosterone. Within each testis is a kilometer of ducts called the *seminiferous tubules*, the organs which generate sperm. Each testicle produces nearly 150 million sperm every 24 hours.

**Vas Deferens and Seminal Vesicles:** Once sperm are produced, they travel through a collection area, called the epididymis, and then through a tube or duct, called the vas deferens, which then joins the seminal vesicles to form the ejaculatory duct. The seminal vesicles produce a fluid that provides nutrients for the sperm and lubricates the urethra. This fluid mixes with other fluids to create the semen. During ejaculation, muscles surrounding the seminal vesicles contract and push out the sperm and the fluid from the seminal vesicles, much like squeezing a tube of toothpaste. The seminal vesicles are located behind the prostate and the bladder. Basically Vas Deferens are the



ducts leading from the epididymis to the seminal vesicles. These are the ducts that are cut during the procedure known as vasectomy while Seminal Vesicles are the seminal vesicles produce *semen*, a fluid that activates and protects the sperm after it has left the penis during ejaculation

**Prostate Gland:** The prostate is a walnut-sized gland that lies below the urinary bladder and surrounds the urethra. Along with the seminal vesicles, the prostate gland produces a fluid, called prostatic fluid, that contains, protects, nourishes, and supports the sperm. The white, sticky fluid originally from the prostate forms most of the volume of the semen. The prostate has no known function other than reproduction. The prostate grows throughout life. This growth often causes a blockage in the urethra that affects voiding with such symptoms as urinary frequency, excessive voiding at night (nocturia), urgency of urination, and weakening of the urinary stream. This enlargement of the prostate, called benign prostatic hyperplasia (or BPH), can be treated with medication or various surgical procedures, such as laser or microwave therapy.

**Urethra:** The urethra is surrounded by the corpus spongiosum, one of the cylindrical spaces of soft tissue of the penis described earlier. In men, the urethra provides a dual purpose: to transport urine from the bladder and to transport the semen (sperm cells and fluid from the seminal vesicles and the prostate) out the tip of the penis. Scar tissue in this passage, called strictures, can cause urinary difficulty. Meatus: The opening at the tip of the penis to allow the passage of both urine and semen.

**Glans:** The glans is clearly visible in illustration (A) as the head of the penis. The glans is usually covered by the *prepuce* unless the penis is erect, except in circumcised men, whose foreskin has been surgically removed. The glans is highly sensitive, as is the *corona* that connects the glans to the shaft of the penis.

**Corona:** The 'crown,' a ridge of flesh demarcating where the head of the penis and the shaft join.

**Frenulum, Frenum:** A thin strip of flesh on the underside of the penis that connects the shaft to the head.

**Foreskin, Prepuce:** A roll of skin which covers the head of the penis. It is rich in nerve endings. Surgical excision (removal) of the foreskin of men is called circumcision.

**Smegma:** A substance with the texture of cheese secreted by glands on each side of the frenulum in uncircumcised men.

### **Epididymis**

The epididymis is a 'holding pen' where sperm produced by the seminiferous tubules mature. The sperm wait here until ejaculation or nocturnal emission.

### **Corpa Cavernosa**

The corpora cavernosa are the two spongy bodies of erectile tissue on either side of the penis which become engorged with blood from arteries in the penis, thus causing erection.

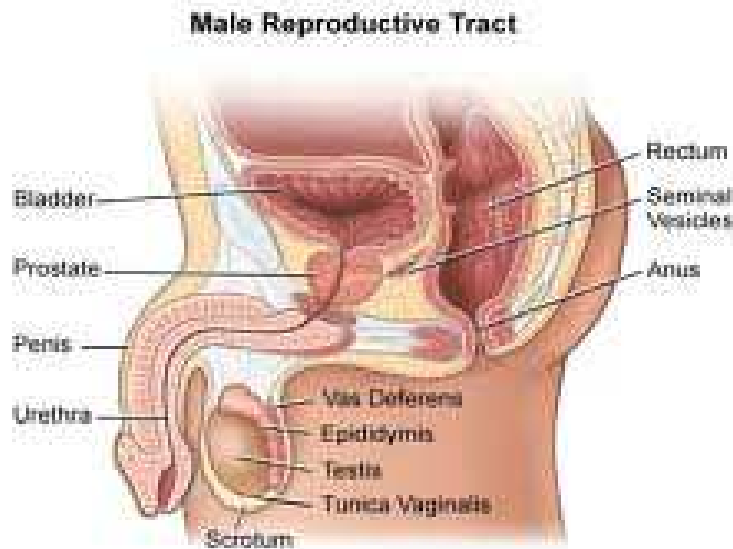
### **Ejaculatory Ducts**

The path through the seminal glands which semen travels during ejaculation.

### **Cowper's Glands**

The Cowper's glands secrete a small amount of pre-ejaculate fluid prior to orgasm. This fluid neutralizes the acidity within the urethra itself.

## Male genitalia



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## DISCUSSION OF FINDINGS

### **What's the average size of the penis? What are the extremes?**

According to the book *Mandens Krop* (which is translated from English, but does not give the original title) the average is 15cm and 90% are between 13 and 18cm. The records for a fully functional penis are 1.5cm and 30cm. Here are some of the sampled average Penis Sizes by country; South Africa 15.9cm, France 16.0cm, USA 12.9cm, India 10.1cm, Korea 9.6cm, Japan 13.0cm. The data was acquired by Dr Eduardo Gomez de Diego who runs Andromedical, a clinic specializing in non-surgical penis enlargement and on other medical studies carried out worldwide. The world average length in erection has been established at 14cm. [Health 24.com](http://Health24.com)

### **Is penis size important?**

This is probably one of the most frequently asked questions on alt.sex, and that's a shame, because it's really a pointless question. Penis size is important if and only if you think it is. If you have sex with men and you desire a large penis, then penis size is important *to you*, and only to you. If you feel your penis should be larger, then penis size is important *to you*, and only to you. Many women report that too many men are hung up on the size of their penises. The vagina is only eight to thirteen centimeters long, and even a small penis can touch every square centimeter within the vagina.

### **Can penis size be increased?**

Yes. There are two surgical procedures to increase penis size-- the Bihari Procedure, and Fat Injection. The *Bihari Procedure* consists of cutting the ligament that secures the base of the penis to the body. This gives between one-half and two inches of increased length to the penis; however, because the penis is no longer anchored to the body an erection no longer points 'up.' *Fat Injection* is the process of removing fat from the backs of the thighs and injecting it into the body of the penis to make the penis thicker. Because the body rejects a significant portion of the injection this procedure may need to be repeated several times and each operation carries with it a severe risk of infection.

### **How do I measure my penis?**

First, while standing, get an erection. Okay, now gently angle your ruler, equipment down until it is parallel to the floor. Set your ruler against your pubic bone just above the base of the penis, and measure to the tip. That's how the doctors do it.

### **My penis bends down (or left, or right). Is there something wrong with it?**

One-quarter of all penises bend in some direction and some bend downward even when erect. Unless the bend is severe or causes you pain, there is nothing wrong or abnormal about your penis. It should not interfere with sexual intercourse. Some people report that a downward-bending penis is easier to fellate. In rare cases a condition called Peyrone's Syndrome can arise from childhood diseases. This condition is caused by scarring on one of the two corpora cavernosa within the penis, stunting its effectiveness during erection and causing the penis to bend almost 90 degrees in that direction. If you feel this may be the case, consult a urologist.

### **What is circumcision and why is it done?**

Male circumcision is the surgical removal of the foreskin from the penis. When performed in a hospital, it is usually done shortly after birth by a doctor or midwife. Circumcisions are also given to Jewish boys by a mohel in a ceremony eight days after birth. Some Islamic boys are circumcised when they are older, around age 12. The majority of American boys are circumcised. Common reasons for circumcision include: religious beliefs; better hygiene, "normal" or "better" appearance, and "his penis should look like his father's." Common reasons against circumcision include: it is no longer necessary for hygienic reasons; it is a painful, barbaric practice; there is a possibility of infection or surgical error; destruction of sexual tissue reduces sexual sensitivity; "normal" or "better" appearance; and "his penis should look like his father's."

### **What are blue balls?**

Blue Balls is a real condition! The "correct" term for blue balls is epididymitis, which is an inflammation of the epididymis. In simple terms blue balls occurs when the epididymis get blocked up with sperm that have left the testis but not the penis. The vas deferens are the conduit for the sperm from the testis to the urethra. When they get blocked you get pain. Why blue balls and not "swollen

balls," well maybe the connotation is that you balls have the "blues", or maybe its because with all that swelling some of the blood flow is restricted enough to cause some blueing of the area because of pooling blood.

### **Why is the prostate mentioned so often during discussions of anal sex?**

The prostate is about the size of a walnut in a normal man, and is immediately behind the rectal wall about three centimeters inside the anus. It can be felt by placing one finger within the anus and feeling along the anterior wall for a round bulb. For some men, touching or rubbing this spot is extremely pleasurable; a rare few can even orgasm through this technique. Others report that the touch is painful or makes them feel as if they need to urinate.

### **What Are Normal Changes about Sexuality in Later Life?**

Normal aging brings physical changes in both men and women. These changes sometimes affect the ability to have and enjoy sex. A woman may notice changes in her vagina. As a woman ages, her vagina can shorten and narrow. Her vaginal walls can become thinner and also a little stiffer. Most women will have less vaginal lubrication. These changes could affect sexual function and/or pleasure. Talk with your doctor about these problems.

As men get older, impotence (also called erectile dysfunction—ED) becomes more common. ED is the loss of ability to have and keep an erection for sexual intercourse. ED may cause a man to take longer to have an erection. His erection may not be as firm or as large as it used to be. The loss of erection after orgasm may happen more quickly, or it may take longer before another erection is possible. ED is not a problem if it happens every now and then, but if it occurs often, talk with your doctor.

## **What Causes Sexual Problems?**

Some illnesses, disabilities, medicines, and surgeries can affect your ability to have and enjoy sex. Problems in your relationship can also affect your ability to enjoy sex.

**Arthritis.** Joint pain due to arthritis can make sexual contact uncomfortable. Joint replacement surgery and drugs may relieve this pain. Exercise, rest, warm baths, and changing the position or timing of sexual activity can be helpful.

**Chronic pain.** Any constant pain can interfere with intimacy between older people. Chronic pain does not have to be part of growing older and can often be treated. But, some pain medicines can interfere with sexual function. You should always talk with your doctor if you have unwanted side effects from any medication.

**Dementia.** Some people with dementia show increased interest in sex and physical closeness, but they may not be able to judge what is appropriate sexual behavior. Those with severe dementia may not recognize their spouse, but still seek sexual contact. This can be a confusing problem for the spouse. A doctor, nurse, or social worker with training in dementia care may be helpful.

**Diabetes.** This is one of the illnesses that can cause ED in some men. In most cases, medical treatment can help. Less is known about how diabetes affects sexuality in older women. Women with diabetes are more likely to have vaginal yeast infections, which can cause itching and irritation and make sex uncomfortable or undesirable.

**Heart disease.** Narrowing and hardening of the arteries can change blood vessels so that blood does not flow freely. As a result, men and women may have problems with orgasms, and men may have trouble with erections. People who have had a heart attack, or their partners, may be afraid that having sex

will cause another attack. Sexual activity is often safe. Always follow your doctor's advice.

**Incontinence.** Loss of bladder control or leaking of urine is more common as we grow older, especially in women. Extra pressure on the belly during sex can cause loss of urine, which may result in some people avoiding sex. This can be helped by a change in positions. The good news is that incontinence can usually be treated.

**Stroke.** The ability to have sex is sometimes affected by a stroke. A change in positions or medical devices may help people with ongoing weakness or paralysis to have sex. Some people with paralysis from the waist down are still able to experience orgasm and pleasure.

**Surgery.** Prostatectomy is surgery that removes all or part of a man's prostate because of cancer or an enlarged prostate. It may cause urinary incontinence or ED. If removal of the prostate gland (radical prostatectomy) is needed, talk to your doctor before surgery about your concerns.

**Medications.** Some drugs can cause sexual problems. These include some blood pressure medicines, antihistamines, antidepressants, tranquilizers, appetite suppressants, drugs for mental problems, and ulcer drugs. Some can lead to ED or make it hard for men to ejaculate. Some drugs can reduce a woman's sexual desire or cause vaginal dryness or difficulty with arousal and orgasm. Check with your doctor. She or he may prescribe a different drug without this side effect.

**Alcohol.** Too much alcohol can cause erection problems in men and delay orgasm in many cases.

### **Am I Too Old To Worry About Safe Sex?**

Age does not protect you from sexually transmitted diseases. Older people who are sexually active may be at risk for diseases such as syphilis, gonorrhea,



chlamydial infection, genital herpes, hepatitis B, genital warts, and trichomoniasis.

Almost anyone who is sexually active is also at risk of being infected with HIV, the virus that causes AIDS. The number of older people with HIV/AIDS is growing. To protect yourself, always use a condom during sex. You are at risk for HIV/AIDS if you or your partner has more than one sexual partner or if you are having unprotected sex.

For women with vaginal dryness, lubricated condoms or a water-based lubricating jelly with condoms may be more comfortable. A man needs to have a full erection before putting on a condom. Talk with your doctor about ways to protect yourself from all sexually transmitted diseases. Go for regular check-ups and testing. Talk with your partner. You are never too old to be at risk.

### **Can Emotions Play a Part?**

Sexuality is often a delicate balance of emotional and physical issues. How you feel may affect what you are able to do. Many older couples find greater satisfaction in their sex life than they did when they were younger. They have fewer distractions, more time and privacy, no worries about getting pregnant, and intimacy with a lifelong partner.

Some older people are concerned about sex as they age. A woman who is unhappy about how her looks are changing as she ages may think her partner will no longer find her attractive. This focus on youthful physical beauty may get in the way of her enjoyment of sex. Men may fear that ED will become a more common problem as they age. Most men have a problem with ED once in awhile. But, if you worry too much about that happening, you can cause enough stress to trigger ED.

Older couples face the same daily stresses that affect people of any age. They may also have the added concerns of age, illness, retirement, and other lifestyle changes, all of which may lead to sexual difficulties. Try not to blame yourself

or your partner. You may find it helpful to talk to a therapist. Some therapists have special training in helping with sexual problems. If your male partner is troubled by ED or your female partner seems less interested in sex, don't assume he or she is no longer interested in you or in sex. Many of the things that cause these problems can be helped.

### **What Can I Do?**

There are things you can do on your own for an active sexual life. Make your partner a high priority. Take time to enjoy each other and to understand the changes you both are facing. Try different positions and new times, like having sex in the morning when you both may be well rested. Don't hurry—you or your partner may need to spend more time touching to become fully aroused. Masturbation is a sexual activity that many older people, with and without a partner, find satisfying.

Some older people, especially women, may have trouble finding a romantic or sexual partner. That's because women tend to live longer than men. To meet new people, try activities that other seniors enjoy. Some ideas include mall walking, volunteer jobs, adult education classes at a community college, or day trips sponsored by your city or county recreation department.

Don't be afraid to talk with your doctor if you have a problem that affects your sex life. He or she may be able to suggest a treatment. For example, the most common sexual difficulty of older women is painful intercourse caused by vaginal dryness. Your doctor or a pharmacist can suggest over-the-counter vaginal lubricants or moisturizers to use. Water-based lubricants are helpful when needed to make sex more comfortable. Moisturizers are used on a regular basis, every 2 or 3 days. Or, your doctor might suggest a form of vaginal estrogen.

If ED is the problem, it can often be managed and perhaps even reversed. There are pills that can help. They should not be used by men taking

medicines containing nitrates, such as nitroglycerin. The pills do have possible side effects. Other available treatments include vacuum devices, self-injection of a drug, or penile implants.

Physical problems can change your sex life as you get older. But, you and your partner may discover you have a new closeness. Talk to your partner about your needs. You may find that affection—hugging, kissing, touching, and spending time together—can make a good beginning.

### **What are the Aging changes in the male reproductive system?**

Aging changes in the male reproductive system may include changes in testicular tissue, sperm production, and erectile function. These changes usually occur gradually.

Unlike women, men do not experience a major, rapid (over several months) change in fertility as they age (like menopause). Instead, changes occur gradually during a process that some people call andropause.

Aging changes in the male reproductive system occur primarily in the testes. Testicular tissue mass decreases and the level of the male sex hormone testosterone stays the same or decreases very slightly. There may be problems with erectile function. However, this is a general slowing, rather than a complete lack of function.

**Fertility:** The tubes that carry sperm may become less elastic (a process called sclerosis). The testes continue to produce sperm, but the rate of sperm cell production slows. The epididymis, seminal vesicles, and prostate gland lose some of their surface cells but continue to produce the fluid that helps carry sperm.

**Urinary function:** The prostate gland enlarges with age as some of the prostate tissue is replaced with a scarlike tissue. This condition, called benign prostatic

hypertrophy (BPH), affects about 50% of men. This may cause problems with slowed urination, as well as with ejaculation.

In both men and women, reproductive system changes are closely related to changes in the urinary system.

### **What is the effect of such changes?**

Fertility varies from man to man, and age is not a good predictor of male fertility. Prostate function is not closely related to fertility, and a man can father children even if his prostate gland has been removed. Some fairly old men can (and do) father children.

The volume of fluid ejaculated usually remains the same, but there are fewer living sperm in the fluid.

Decreases in the sex drive (libido) may occur in some men. Sexual responses may become slower and less intense. This may be related to decreased testosterone level, but it may also result from psychological or social changes related to aging (such as the lack of a willing partner), illness, chronic conditions, or medications.

Aging by itself does not prevent a man from being able to enjoy sexual relationships.

### **What are the common problems?**

Erectile dysfunction (ED) may be a concern for aging men. It is normal for erections to occur less frequently than when a man was younger, and aging men often have less ability to experience repeated ejaculation. However, ED is most often the result of a medical or psychological problem rather than simple aging, and 90% of ED is believed to be of medical rather than psychological origin.

Medications (especially those used to treat hypertension and certain other conditions) can cause some men to be unable to develop or maintain enough of an erection for intercourse. Disorders such as diabetes can also cause ED.

Erectile dysfunction that is caused by medications or illness is often successfully treated. Talk to your primary health care provider or a urologist if you are concerned about this condition.

BPH may eventually interfere with urination. The enlarged prostate partially blocks the tube that drains the urinary bladder (urethra). Changes in the prostate gland make elderly men more likely to have urinary tract infections.

Backup of urine into the kidneys (vesicoureteral reflux) may develop if the bladder is not fully drained. If this is not treated, it can eventually lead to kidney failure.

Prostate gland infections or inflammation (prostatitis) may also occur. Prostate cancer becomes more common as men age. It is one of the most frequent causes of cancer death in men. Bladder cancer also becomes more common with age. Testicular cancers are possible, but these occur more often in younger men.

### **How can this be prevented?**

Many physical age-related changes, such as prostate enlargement or testicular atrophy, are not preventable. Getting treatment for health disorders (such as high blood pressure and diabetes) that lead to changes in urinary and sexual health may prevent later problems with urinary and sexual function.

Changes in sexual response are most often related to factors other than simple aging. Older men are more likely to have good sex if they have continued to have sexual activity during middle age.

## **Male menopause: Myth or reality?**

Aging-related hormone changes in men — sometimes called male menopause — are different from those in women. Understand signs, symptoms and treatment options.

Hormone changes are a natural part of aging. Unlike the more dramatic reproductive hormone plunge that occurs in women during menopause, however, sex hormone changes in men occur gradually — over a period of many years. Here's what to expect, and what you can do about it.

### **Debunking the male menopause myth**

The term "male menopause" is sometimes used to describe decreasing testosterone levels or a reduction in the bioavailability of testosterone related to aging. Female menopause and so-called male menopause are two different situations, however. In women, ovulation ends and hormone production plummets during a relatively short period of time. In men, hormone production and testosterone bioavailability decline more gradually. The effects — such as changes in sexual function, energy level or mood — tend to be subtle and might go unnoticed for years.

So what's the best way to refer to so-called male menopause? Many doctors use the term "andropause" to describe aging-related hormone changes in men. Other terms for so-called male menopause include testosterone deficiency, androgen deficiency of the aging male and late-onset hypogonadism.

### **Understanding male hormones over time**

Testosterone levels vary greatly among men. In general, however, older men tend to have lower testosterone levels than do younger men. Testosterone levels gradually decline throughout adulthood — about 1 percent a year after age 30 on average. By about age 70, the decrease in a man's testosterone level can be as much as 50 percent.

## **Penis-enlargement products: Do they work?**

Tempted by products that claim to increase penis size? Get the facts about what to expect from male-enhancement pills, pumps, exercises and surgeries.

Penis-enlargement products and procedures aren't difficult to find. Men's magazines, radio shows and the Internet are full of ads for pumps, pills, weights, exercises and even surgeries that claim to increase the length and width of your penis.

However, there's very little scientific support for any nonsurgical methods to enlarge the penis. And no reputable medical organization endorses penis surgery for purely cosmetic reasons. Most of the techniques you see advertised are ineffective, and some can damage your penis. So think twice before trying any of them.

## **Penis size: What's normal, what's not?**

The fear that your penis looks too small or is too small to satisfy your partner during sex is a common fear. But a number of studies have shown that most men who think their penises are too small actually have normal-sized penises. Similarly, studies suggest that many men have an exaggerated idea of what constitutes "normal" penis size. Consider that:

- The average penis measures somewhere between 3 and 5 inches (or about 8 to 13 centimeters) when not erect, and between 5 and 7 inches (13 to 18 centimeters) when erect.
- A penis is considered abnormally small only if it measures less than 3 inches (or about 7 centimeters) when erect, a condition called micropenis.

## **How do partners view penis size?**

The popular media and advertisers would have you believe that your partner cares deeply about penis size. The issue of attraction is complex, but numerous

studies suggest that penis size is much lower on the list of priorities for women than such issues as a man's personality. Unfortunately, there's little research about gay men's perceptions about their partners' penis size. But keep in mind that understanding your partner's needs and desires is more likely to improve your sexual relationship than trying to change the size of your penis.

### **What are the Penis-enlargement methods?**

Most advertised penis-enlargement methods are ineffective, and some can cause permanent damage to your penis. Here are some of the most widely promoted products and techniques:

- **Pills and lotions.** These usually contain vitamins, minerals, herbs or hormones that claim to enlarge the penis. None of these products has been proved to work, and some may be harmful.
- **Vacuum pumps.** Because pumps draw blood into the penis and make it swell, they're sometimes used in the treatment of erectile dysfunction. Using a penis pump more often and for longer than typically used for erectile dysfunction can damage elastic tissue in the penis, leading to less-firm erections. Using a vacuum pump can create an illusion of a larger penis, but results are not permanent.
- **Exercises.** Sometimes called jelqing, these exercises use a hand-over-hand motion to push blood from the base to the head of your penis. Although this technique appears safer than other methods, it can lead to scar formation, pain and disfigurement. There are no scientific studies that indicate this technique is effective at increasing penis size.
- **Stretching.** Stretching consists of attaching a stretcher or extender device to the penis. These devices exert traction on the penis. A few small studies have reported increases of half an inch to almost an inch (about 1 to 2 cm) in length with these devices. However, the studies are not of high quality and more rigorous research is needed before this technique can be considered safe and effective.




## **What are health issues that only affect men?**

There is much we can do to protect our health. Routine visits with a health care provider can help prevent serious illness. They can also diagnose and treat the common conditions that affect men. Whether you see your health care provider regularly, or if you have not yet made your first appointment, you may have many questions about men's health.

The goal is to give you up-to-date, clear information that helps you better understand your sexual and reproductive health. We hope these pages give you the facts and tools you need to protect your health and to protect the health of men you care about.

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