



American
Urological
Association, Inc.®



A BASIC GUIDE TO MALE

INFERTILITY



How to Find Out What's Wrong

A doctor's guide for patients developed by
the American Urological Association, Inc.®

Based on the AUA Best Practice Policy and
ASRM Practice Committee Report

Key Facts on Male Infertility



Approximately 15% of couples are unable to conceive a child after 1 year of regular, unprotected intercourse.

A male factor for infertility may be involved in as many as half of all infertile couples.

Infertility affects about 6 million people in the U.S.

Approximately 10-15% of male infertility is due to azoospermia (the complete absence of sperm from the semen).

Azoospermia is present in about 1% of all men.

Varicoceles (enlarged veins within the scrotum) are found in about 40% of men with infertility.

What Is Male Infertility and How Often Does It Occur?

Infertility is a common problem among young adults. About 15% of all couples are unable to conceive a child after 1 year of regular, unprotected intercourse.

Infertility is one of the most difficult experiences that a couple may face together. The couple may have a sense of loss and a feeling of uncertainty. It is a time, however, when the couple must make certain key decisions. It is important that they work together as a team and avoid placing blame on one another.

Infertility often results from reproductive problems in both partners. Doctors now know that a male factor for infertility may be involved in roughly one half of all infertile couples:

- In 30-40% of these couples, the infertility involves both male and female factors.
- In about 20% of infertile couples, the inability to conceive is due entirely to a male factor.

- In about 30-40% of infertile couples, the infertility is due to a female factor alone.
- In about 10% of couples, neither partner has a detectable abnormality.

Infertility may be due to problems in one or both of the partners. An evaluation of both partners of an infertile couple should be performed at the same time.

This booklet is designed to answer some basic questions on obtaining a thorough evaluation of male infertility. The information provided may help you and your partner, along with your physician, make informed decisions about treatment options.

Overview of the Male Reproductive System: How Are Sperm Produced?

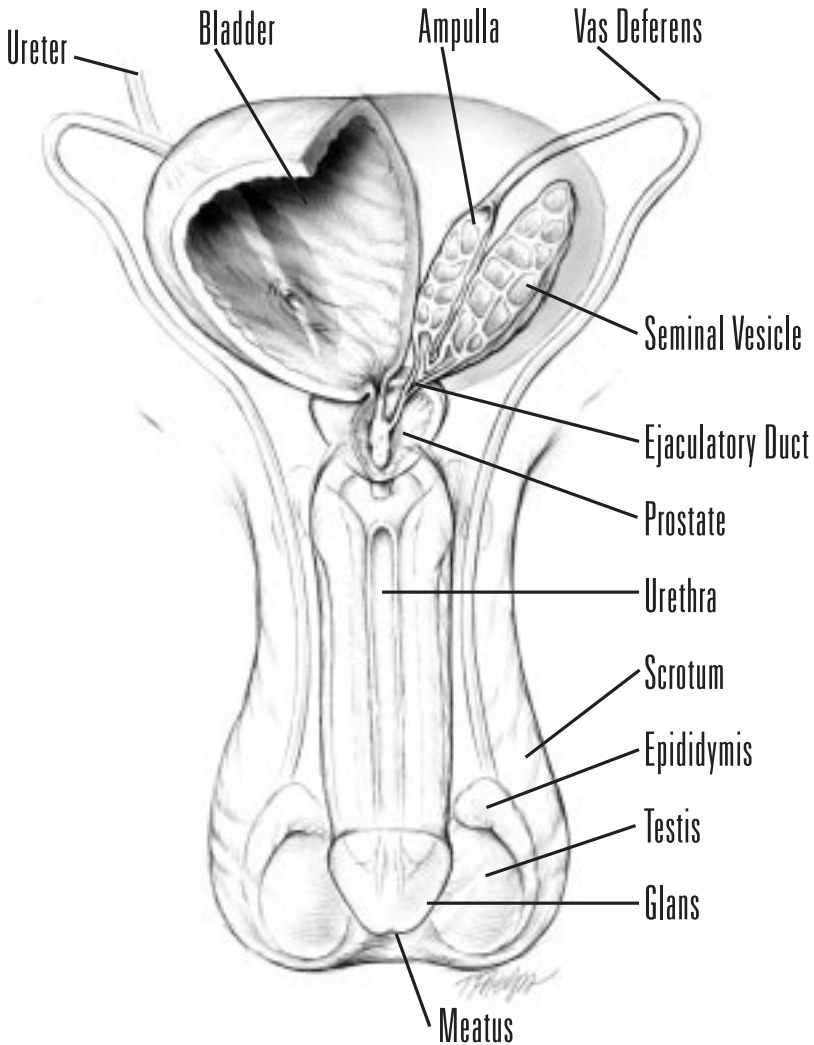
The functions of the male reproductive system are to produce sperm and store sperm. The system also transports the sperm to the outside of the body. These 3 steps occur throughout the reproductive life of a male. This process is regulated by a number of hormones. The following diagrams will help you to understand how the male reproductive system works.



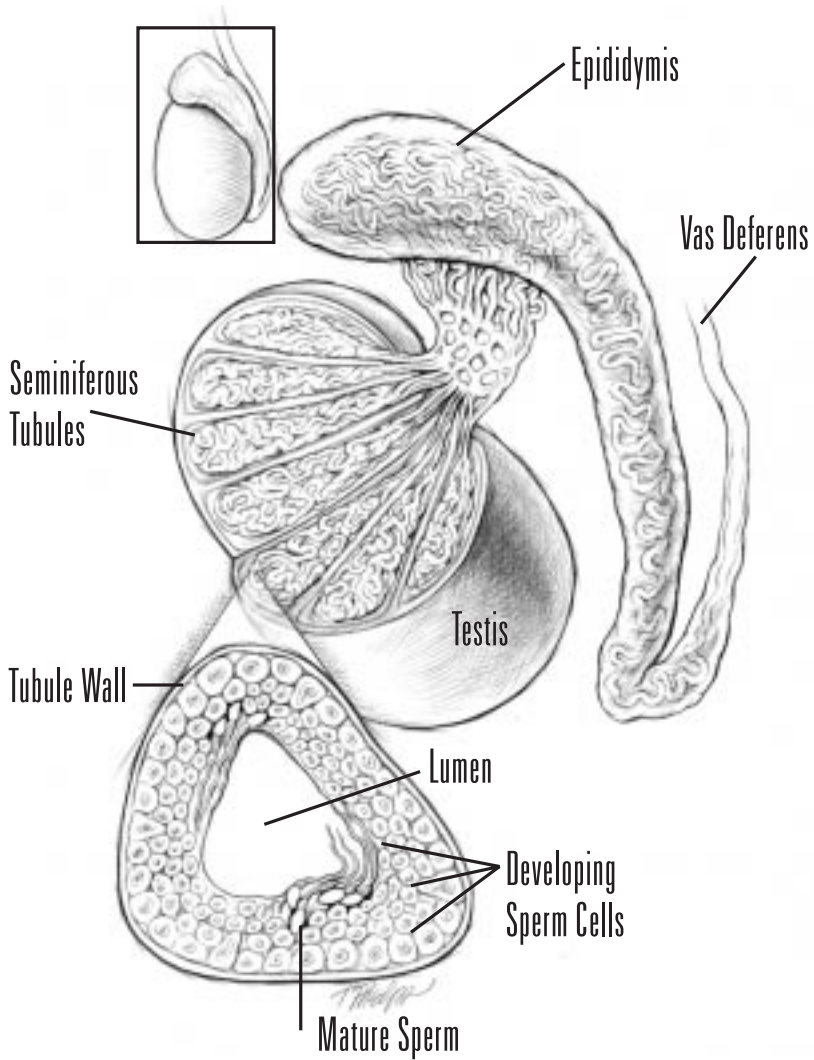
The organs that produce sperm are called the testes (testicles). There are 2 testes. They are located in the scrotum, the pouch of skin that hangs from the lower abdomen below the penis. In addition to producing sperm, the testes also produce the male hormone, testosterone.

Sperm production begins with immature sperm cells that grow and develop within the seminiferous tubules. These are very tiny tubules within the testes. In the seminiferous tubules, the sperm in the testes are not yet fully mature. As a result, they are unable to move on their own.

With the help of other accessory organs, the sperm mature and become functional. The main organ in this process is called the epididymis. The



epididymis is a coiled tubule located behind the testis. Sperm mature as they travel through the epididymis. During the climax (orgasm), the semen, the fluid that contains the sperm, is ejaculated. Semen is composed of fluid from the epididymis, vas deferens, seminal vesicles, and prostate. The sperm must travel through a series of ducts, including the epididymis, vas deferens, ampulla of the vas and ejaculatory ducts. Once the semen is ejaculated, the sperm live about 2 days in the female reproductive tract.



The development and transportation of mature, functional sperm depend on a specific sequence of events. There are a number of places where this process can go wrong. A proper evaluation often can help your doctor determine where your problem is located. That will help to point out the treatment options that you can use.

What Are Some Common Types of Male Infertility?

There are many possible types of male infertility. Some of the more common types include:

- **Azoospermia** – the complete absence of sperm from the semen. This occurs in 10-15% of men with infertility. It can be due to:
 - absence of, or severe reduction in, sperm production. This can be associated with chromosome or hormone abnormalities.
 - ductal obstruction (obstruction to the flow of sperm)
- **Oligospermia** – or ‘low sperm count’- is usually due to a marked reduction in sperm production. Oligospermia may be associated with a varicocele (a varicose vein in the scrotum, usually on the left side.)
- Problems with ejaculation (the sperm are produced but the semen doesn't come out)
- Problems with erections and other sexual functions
- Problems with sexual timing and/or technique

What Is the Purpose of an Evaluation for Male Infertility?



Male infertility can be due to a variety of conditions. A simple “initial” screening by your primary care physician may find some of these conditions. In some cases, the cause of male infertility is correctable. In other cases, the cause can be found but cannot be corrected. Some of these uncorrectable causes of male infertility can be treated with assisted reproductive

techniques (ART) such as intrauterine insemination (sometimes called artificial insemination) or in vitro fertilization (using sperm obtained from the infertile male). Some of the uncorrectable causes cannot be treated in any way. Then, the only alternatives for family planning are adoption or artificial insemination with sperm from a donor. The purpose of getting an evaluation is to find:

- Potentially correctable conditions – Proper treatment of conditions that are reversible may allow for conception to occur through intercourse.
- Conditions that are not reversible but have adequate sperm for ART – An evaluation could help to determine whether you may be a candidate for assisted reproductive techniques using your own sperm.
- Conditions that are not reversible and have inadequate sperm for ART – In these cases, donor insemination or adoption are possible options.
- Genetic abnormalities that may affect the health of your offspring – Genetic counseling should be provided when this type of abnormality is detected.
- Unusual underlying, life-threatening medical conditions that require immediate medical treatment.

Getting an evaluation may allow you and your partner to better understand the basis of your infertility. It is important to know as much as you can about your condition. That way, you and your partner can make informed decisions about specific treatment and management options.

When Should You Have an Evaluation?

The male partner of a couple should be evaluated for infertility if pregnancy fails to occur within 1 year of regular, unprotected intercourse. However, it is recommended that an evaluation be performed before 1 year if any of the following conditions exist:

- A known male factor, such as an undescended testicle, is present.
- Female infertility risk factors, such as age greater than 35 years, are present or suspected.
- The couple suspects that they may have a problem with their fertility potential.
- A man who does not have a current partner wants to know whether his fertility is normal.

In addition, it is important to know that most fertile men remain fertile throughout their lives. However, a history of previous fertility doesn't neces-



sarily guarantee that a man will always be fertile. Men with newly acquired infertility should be evaluated in the same way as men who have never initiated a pregnancy.

Where Should You Start? Getting an Initial Evaluation.

The initial screening evaluation of the male partner of an infertile couple may be performed by your primary care physician or a urologist. It should include:

- **A reproductive history.** Your doctor will need to know about your medical and sexual history. The types of questions that might be asked are:
 - How often and when do you and your partner have sexual intercourse?
 - How long have you been having unprotected intercourse?
 - Have you ever initiated a pregnancy before?
 - Do you have any medical illness (such as diabetes, upper respiratory disease, etc)?
 - Are you taking any medicines?
 - Do you have problems with erections?
 - Have you ever been exposed to substances that could decrease fertility?
 - What childhood illnesses have you had?
- **Two properly performed semen analyses.** A semen analysis is the single most important laboratory test. It helps to determine how severe the male infertility factor is. This test needs to be performed at least twice to confirm a diagnosis.
 - **How is semen collected?** Your doctor should provide you with standard instructions for semen collection. In most cases, a 2-3 day period of abstinence prior to collecting the semen specimen is

recommended. Semen can be collected either at home or at the laboratory. If collected at home, the specimen should be kept at room or body temperature. It should be examined within 1 hour.

- **What is measured?** The routine semen analysis provides important information on the volume and acidity of the semen. It also shows the amount of sperm, how fast they move, and their appearance (shape). Each of these factors can have an important effect on fertility.

A male infertility factor is almost always found by an abnormal semen analysis. In some cases, the semen analysis is normal and other male factors play a role. The results of the initial evaluation might indicate to your doctor that further tests should be performed to find the cause of your infertility.

Who Should Consider a Further Evaluation?

A more detailed evaluation should be performed by a urologist or other specialist in male reproduction if the initial evaluation reveals an abnormal reproductive history or an abnormal semen analysis. Further evaluation of the male partner should also be considered in couples in whom there is a treated female factor and persistent infertility. Couples with unexplained infertility need further evaluation as well. Unexplained infertility is when both partners have been evaluated, nothing is noted to be abnormal, yet pregnancy does not occur.



Although there are many tests available to measure different factors, not all patients will need all tests. A specialist will be able to determine which tests are best suited for you.

What Does a Full Evaluation Involve?

After the initial evaluation is performed, a full evaluation for male infertility should include:

- A complete medical and reproductive history. This is similar to, but more detailed than, the initial screening evaluation. The doctor may ask you more about past illnesses or surgeries, medicines that you are taking, allergies, family reproductive history, and any past infections (such as sexually transmitted diseases).

- A physical exam by a urologist or other specialist in male reproduction. In addition to a general physical exam, the specialist will focus on the penis, epididymis, vas deferens and testicles. The doctor should also examine your body for other secondary sexual characteristics, such as body hair distribution.

In addition, many specialists routinely suggest that a hormonal evaluation be performed. This blood test measures the levels of testosterone and follicle stimulating hormone in the serum. Other procedures and tests may be suggested based on the results of the full evaluation, including:

- Post-ejaculatory urinalysis (to diagnose possible retrograde ejaculation),
- Transrectal ultrasonography (used to diagnose ejaculatory duct obstruction in men with low ejaculate volume),
- Specialized tests on sperm (can determine viability or sperm function),
- Testicular biopsy (can confirm the presence of reproductive tract obstruction),
- Vasography (used in the evaluation of obstruction),
- Genetic testing (to determine if there is a genetic abnormality affecting sperm production).

What to Do Next?

The goal of getting an evaluation is to find the factor(s) causing your infertility. If the cause of your infertility has been found after an evaluation, you and your partner can discuss treatment options with your doctor.

Sometimes, the specific cause of an abnormal semen analysis cannot be found. In about 20-30% of men who have had a complete work-up, the cause of their infertility remains unknown. For these couples, assisted reproductive techniques such as intrauterine insemination or in vitro fertilization may be suggested. Some couples may learn that there is a genetic basis for the male infertility. They need to be informed about the potential to transmit an abnormality to their children. It is important to know as much information as you can so that you can make the best choices for your future.

For More Information...

The following list of organizations is intended as a resource for couples who would like more information. If you still have unanswered questions, need help finding a specialist, or need some emotional support, there are groups you can contact. Remember, there are many couples experiencing similar difficulties. Getting the support and education you need can save you both time and frustration. The more you know, the better decision you can make.

American Society for Reproductive Medicine

1209 Montgomery Highway
Birmingham, Alabama 35216-2809
Phone: (205) 978-5000
Web: <http://www.asrm.org>

Reproductive Health Council

c/o American Foundation for Urologic Disease
1128 North Charles Street
Baltimore, MD 21201
Phone: (410) 468-1800
Fax: (410) 468-1808
Web: www.afud.org

RESOLVE

1310 Broadway
Somerville, MA 02144-1779
National HelpLine: (617) 623-0744
Business Office: (617) 623-1156
Web: www.resolve.org

Society for the Study of Male Reproduction

Executive Director: Wendy J. Weiser
1111 N. Plaza Dr. Suite 550
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Fax: (847) 517-7229
Web: <http://www.ssmr.org/>

This doctor's guide for patients is intended to stimulate and facilitate discussion between the patient and doctor regarding the types of evaluation and treatment described in summary fashion in this brochure. The brochure was developed by the Male Infertility Best Practice Policy Committee of the American Urological Association. It is based on the *Report on Optimal Evaluation of the Infertile Male* and the *Report on Evaluation of the Azoospermic Male*, documents jointly developed by the American Urological Association and the American Society for Reproductive Medicine.

Other Doctor Guides for Patients in this series include: *A Basic Guide to Male Infertility: Getting Help for Obstructive Azoospermia* and *A Basic Guide to Male Infertility: Answers to Your Questions About Varicoceles*.

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