



Patient Education

Male Infertility

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Male Infertility

Austin Regional Clinic is here to help you get the most out of life. **Educating** you is one of the ways we can help. This handout contains information about the causes of and possible solutions for male infertility.

The production of sperm results from a complex interaction between the reproductive system, the endocrine and the urogenital systems. This interaction regulates the maintenance of reproductive function and an appropriate hormonal environment in men.

Decreased sperm production is a symptom of a problem existing somewhere in the three systems; reproductive, urogenital, or endocrine. Many disorders can result in reduced sperm numbers.

We can use headaches as an analogy. Headaches can be caused by stress, neck strain, eye fatigue, vascular disease, brain tumors, or other problems. The nature of the headache may not reveal its cause, which may be in any of the systems involved: vision, vascular, brain, etc.

With decreased sperm counts, as with the headaches, the **decreased count** is not specific to a particular problem in the body. It may be the end result of a disease in one of many different organs. To understand the **causes for male infertility** we must review what regulates sperm production. The most obvious area for sperm production is the testicle, which contains cells that produce sperm and testosterone. Sperm production is controlled by testosterone, which is controlled by the pituitary gland. The pituitary relays hormone signals to the testicle to produce sperm, and the hormones testosterone and estrogen.

Specific Conditions Which May Be Responsible for Low Sperm Counts

Signs at Birth

Several problems may be apparent at birth. The testicle may be malformed. One or both testicles may not have descended correctly before birth. An undescended testicle is called cryptorchidism, and this can lead to decreased sperm counts in the adult male. Some men who have had undescended testicles may experience other testicular problems including testicular cancers.

Hormones

The testicles are regulated primarily by **two hormones**: FSH (Follicle Stimulating Hormone), produced in a cyclic fashion by the pituitary gland, and LH (Luteinizing Hormone). Malfunction of either of these hormones can result in infertility.

The testicles may fail to function for a variety of other reasons. The most serious one is lack of sperm producing cells (spermatogonia). This will often result in a zero sperm count. This is a very rare disorder. A lower number of spermatogonia may be caused by testicular toxins—alcohol and marijuana are common examples.

“Male menopause” is a condition characterized by high FSH levels. Just like female menopause, sex hormones decrease in amount. In this condition, the testicle is unable to respond to the signals by the pituitary to further stimulate the testicle.

Conversely, an elevation in LH is seen more often in men who do not produce adequate amounts of testosterone which, in turn can also lead to subnormal sperm production and low testosterone levels.

Pituitary Gland

Disturbances in the pituitary can result in **testicular disturbances**, and thus a low testosterone or a low sperm count. The release of the pituitary hormones FSH and LH are controlled by a center in the brain called the hypothalamus. The **hypothalamus** produces a hormone called GnRH, which is released in a pulsatile fashion. This pulsating release of GnRH ultimately regulates testicular function. Disturbances of the release of GnRH in the pituitary itself may result in inadequate or inappropriate production of FSH and LH, resulting in abnormal testicular function.

Laboratory findings can show low FSH and LH levels. These are clues that a problem exists in the higher regulatory centers. **Causes** for such abnormalities include certain drugs, anorexia nervosa, tumors, head injuries or genetic disorders.

Another pituitary hormone, prolactin, if present in high amounts, can interfere with testicular function. This may be caused by pituitary tumors or various medications. Pituitary tumors are actually very common.

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Pituitary Gland, Continued...

The nature of the particular disorder dictates **specific evaluation and appropriate therapy**. In cases of prolactin-secreting tumors, medical therapy is often effective in reducing the prolactin levels and sometimes shrinking the tumor if present. In some cases however, surgery may be considered. In some patients with normal prolactin levels, excess amounts of prolactin may be released in response to stress or to drugs.

The Adrenal Glands

The adrenal glands may influence testicular function through the production of male hormones. In some patients the amount of male hormones produced by the adrenal glands is excessive. This may be due to a tumor in the pituitary gland, a tumor in the adrenal gland itself or a metabolic disorder. The cause of this condition is not always clear, but is most likely a genetic problem that might have been present for years.

Excessive male hormones may produce a variety of symptoms such as oily skin, acne, or increased body hair growth. This condition can be treated by androgen suppression therapy under the careful watch of an endocrinologist trained in treating this type of disorder.

Thyroid Gland

Both under and over activity of the thyroid gland can lead to low sperm counts. Thyroid hormone levels can affect the metabolisms of male hormones and interfere with the regulation of testicular function. Thyroid disorders can be properly evaluated by the use of specific laboratory tests. The most reliable test of the thyroid function is the ultrasensitive TSH assay, which tests the pituitary gland's response to the circulating levels of the thyroid hormone.

Summary

The regulation of testicular function is complex. **Low sperm counts** can suggest other underlying diseases. An attempt to improve sperm counts must be preceded by an evaluation for the causes of low sperm counts. Donor insemination is an option for some couples. An appropriate evaluation of these problems requires a specialist in Endocrine Disorders.

Your Doctor is Nearby:

Reproductive Medicine & Endocrinology

ARC Seton Northwest

11111 Research Blvd
Suite 475
Austin, TX 78759
512-338-8181

Located in the Seton Northwest Health Plaza, to the right at the main entrance.

Maya B. Bledsoe, MD, FACE

Dr. Bledsoe is board certified in Endocrinology and graduated from Texas A&M University in 1987. She joined ARC in 1992.

For more information on Male Infertility, follow the directions below:

- Go to AustinRegionalClinic.com
- Click on **Specialties**
- Click on **Endocrinology** or **Reproductive Medicine**

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