AMERICAN SOCIETY FOR REPRODUCTIVE MEDICINE
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FACT SHEET
DIAGNOSTIC TESTING FOR MALE FACTOR INFERTILITY

The evaluation of the male begins with a history, physical examination, and two semen analyses. The semen analysis and additional laboratory tests that are sometimes performed are discussed below.

1) Semen Analysis. At least two semen samples collected on separate days by masturbation are recommended. Each sample should be collected after abstaining from ejaculation for a minimum of 48 hours, but not longer than three to four days. The complete ejaculate should be collected in a sterile container provided by the clinic or laboratory and should be examined within one hour of collection. General semen examination includes determining the time required for the semen to become liquid and its volume, consistency, and pH (measure of its acidity). Microscopic evaluation of the ejaculate involves determining the sperm count, motility (percentage of moving sperm), morphology (normality of shape), agglutination ("clumping") of sperm, and the presence of elements other than sperm, such as white blood cells or bacteria. A normal ejaculate has more than 20 million sperm per ml. More than 50 percent of the sperm should be moving forward, and more than 30 percent should have normal shapes.

2) Optional Tests. Optional tests may provide more information about the fertilizing ability of sperm and can help define specific sperm abnormalities or diseases of the male reproductive system. These tests include:

A. Vital staining - determines numbers of living and dead sperm.
B. Antisperm antibodies - tests for antibodies that bind to sperm and may affect fertility.
C. Strict morphology determination - gives detailed examination of sperm shapes.
D. Peroxidase staining - differentiates white blood cells from immature sperm to assess for possible infection.
E. Semen culture - checks for bacteria that may cause genital infection.
F. Hypo-osmotic swelling test - assesses the sperm membrane for structural integrity.
G. Biochemical analysis of semen - measures various chemicals in semen such as fructose (which is absent when there are no seminal vesicles or when the ejaculatory ducts are obstructed).
H. Hormone evaluation - measures blood levels of hormones (e.g., follicle stimulating hormone and testosterone) that are involved in sperm production.
I. Post-coital/cervical mucus test - checks the compatibility of a man's sperm with the mucus of his partner's cervix (the passageway to the uterus).

3) Additional Optional Tests to evaluate sperm function include:

A. Sperm penetration assay (Hamster test) - measures sperm-egg membrane fusion, using hamster eggs and the man's sperm to test the capability of sperm to penetrate the egg during IVF.
B. Human zona pellucida binding tests - measures the ability of sperm to bind to the zona pellucida (outer covering) of the egg. They include the hemizona assay.
C. Computer-assisted semen analysis (CASA) - measures precise characteristics of sperm motion.

No semen test can fully predict the fertilizing ability of sperm because of the variability in other factors, including those in the female partner. Therefore, a complete infertility evaluation of the woman is also necessary.

2/97