

TECHNICAL BULLETIN: VISCOUS AND NON-LIQUEFIED SAMPLES TREATMENT WITH CHYMOTRYPSIN

Wednesday, November 06, 2013

BACKGROUND:

A semen sample that presents with delayed liquefaction or high viscosity should be reported during the testing process. These are abnormal parameters and are clinically significant because they may indicate a male accessory gland malfunction (Please see two abstracts below).

Nevertheless, delayed liquefaction does not necessarily indicate infertility. A post-coital test (PCT) can answer this question (Please see below). There is no direct evidence that the female tract contains enzymes that promote semen liquefaction, but in some cases, motile sperm in non-liquefied specimens can be found when examining cervical mucus after sexual intercourse (Please see below).

OVERVIEW: LIQUEFACTION

What Is It? When semen is ejaculated, it is thick and gelatinous. This is to help it adhere to the cervix. The semen eventually liquefies to enable the sperm to swim better.

What Is Considered Normal? Semen should liquefy within 20 to 30 minutes of ejaculation.

What Might Be Wrong if Results Are Abnormal? Delayed liquefaction may indicate a problem with the prostate, the seminal vesicles, or the bulbourethral glands, which are also known as the male accessory glands. If delayed liquefaction occurs, your doctor may perform a post-coital test (PCT). This fertility test evaluates the woman's cervical mucus after sexual intercourse. If sperm are found and moving normally, then delayed liquefaction is not considered a problem.

Sperm Transport



The transport of sperm is dependent upon several factors. The sperm must be capable of propelling themselves through the environment of the female vagina and cervix. This environment, which is under cyclic hormonal control, must be favorable to admit the sperm without destroying them. Finally, the sperm must possess the capability of converting to a form that can penetrate the cell membrane of the egg (capacitation).

Following ejaculation, the semen forms a gel which provides protection for the sperm from the acidic environment of the vagina. The gel is liquefied within 20-30 minutes by enzymes from the prostate gland. This liquefaction is important to free the sperm so transportation may occur. The seminal plasma is left in the vagina. The protected sperm with the greatest motility travel through the layers of cervical mucus that guard the entrance to the uterus. During ovulation, this barrier becomes thinner and changes its acidity creating a friendlier environment for the sperm. The cervical mucus acts as a reservoir for extended sperm survival. Once the sperm have entered the uterus, contractions propel the sperm upward into the fallopian tubes. The first sperm enter the tubes minutes after ejaculation. The first sperm, however, are likely not the fertilizing sperm. Motile sperm can survive in the female reproductive tract for up to 5 days. <http://coe.ucsf.edu/ivf/conception.html>



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MANUFACTURER'S RECOMMENDATION:

Why we recommend chymotrypsin (QwikCheck™Liquefaction Kit) for treating viscous semen or semen samples with delayed liquefaction is based on the following:

- WHO 5th edition recommendation
- A liquefied sample has an even spread of sperm cells over the semen volume and is therefore a more representative sample providing more clinically accurate results.
- The analysis will be more technically correct due to easier sample loading, an absence of air bubbles, etc. in the SQA-V.
- PCT (post coital) test results suggest that motile spermatozoa in non-liquefied specimens can be found in the female tract cervical mucus (which acts as a reservoir for extended sperm survival after sexual intercourse).
- <http://infertility.about.com/od/infertilitytesting/a/Understanding-Semen-Analysis-Results.htm>

Lev Rabinovitch, CTO MEDICAL ELECTRONIC SYSTEMS

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