Simple Semen Evaluation Techniques

Semen acid-base balance(pH)

The pH of semen is measured using a specially treated paper blot that changes color according to the pH of the specimen that it is exposed to. The pH of normal semen is slightly alkaline ranging from 7.2 to 7.8 Prostatic secretions are acidic while the secretions of the seminal vesicles are alkaline. Therefore, alterations in pH may reflect a dysfunction of one or both of these accessory glands. The pH or semen has not been generally found to have a major influence on a man's fertility potential.

Color and Turbidity

Semen is normally translucent or whitish-gray opalescent in color. Blood found in semen (hematospermia) can color the semen pink to bright red to brownish red. The presence of blood in semen is abnormal and should be reported. The presence of particles, nonliquified streaks of mucus or debris requires further evaluation.

Liquefaction

Semen is normally produced as a coagulum. The specimen will usually liquefy within 30 minutes. The failure to liquefy within one hour is abnormal. Excellent methods for correcting this problem in the laboratory are available.

Viscosity

Nonliquefaction and excessive viscosity are two separate conditions. Viscosity is measured after complete liquefaction has occurred. Viscosity is considered "normal" if the liquefied specimen can be poured from a graduated beaker drop by drop with no attaching agglutinin between drops. The role of hyper (excessive) viscosity is being studied, but it seems possible that this condition may interfere with the ability of sperm to travel from the site of deposition into the cervix or uterus.

Computer Assisted Semen Analysis - CASA

The use of computer assisted semen analysis has advanced the ability to study and understand sperm function as it relates to human infertility. The major advances have been in the ability to more accurately determine sperm concentration (counts) and motility (movement). Generally, sperm are "looked" at by a computerized digitizing tablet through a microscope. The computer has been "taught" by the laboratory personnel what sperm look like, and how they move. When the computer then "sees" a sperm under the microscope, it is able to draw a digitized picture of each individual sperm, including the speed and path this sperm takes while moving under the microscope. A great deal has been learned about the normal and abnormal "micro" characteristics of sperm employing this method. The method is, however, not foolproof. The computer is only as intelligent as its programmer. Small changes in the computer program can alter the sperm calculations significantly. The computers must constantly be monitored and updated. In our laboratories, all grossly abnormal CASA assays are always verified by both a repeat analysis as well as with a "hands on" human second look opinion. We feel that any abnormal sperm count must be verified by a manual counting and assessment method.