

## **12.2.3.1 FERTILITY TESTS**

### ***FERTILITY TESTS***

The tests which are carried out on a couple faced with a fertility problem are very dependent upon the couple's physical examination and medical history. The doctor is the best person to decide which tests should be performed and in what sequence they should be done.

This fact sheet is intended to outline what is involved in the tests and what their purposes are. It should be stressed however that every couple may not need every one of the tests as so much depends on the individual couple's problem.

### ***SEMEN ANALYSIS OR SPERM COUNT***

This is the first and most basic test carried out on the male partner. The man is asked to produce a specimen of semen by masturbating into laboratory jars. It is desirable that one specimen be produced after 3 days abstinence from sexual activities. The specimen should be protected from extremes of temperature and examined within 3 hours.

The sample produced is examined for the number of sperm present (a sperm count), the ability of the sperm to move (motility), the shape and appearance of the sperm (morphology), the total volume of the ejaculate, and the vitality of the sperm.

It is important to realise the limitations of semen analysis. Men with quite low counts can father children and men with normal values may have sperm which are unable to fertilise oocytes. The semen analysis must be considered a general guide only.

Moreover, a man's semen analysis may vary from week to week and further tests performed to obtain a better prognosis.

At this time the sperm may also be examined to see if there are any sperm antibodies coating the sperm as these may prevent the sperm from penetrating the uterus to allow conception to occur.

Sperm antibodies are proteins produced by the body's immune system. The presence of antibodies is also diagnosed by a blood test in both men and women.

### ***HORMONE ASSAY***

The ability to measure levels of progesterone, oestrogen, prolactin, testosterone, F.S.H. and L.H. is a very valuable tool for investigation of infertility problems in both male and female.

Normal hormone levels, when performed on a daily level, can indicate the most likely time of ovulation in the female.

### **12.2.3.2 FERTILITY TESTS**

They do **NOT**, however, indicate the normality of the egg (oocyte), and they do NOT confirm egg expulsion from the ovary.

The levels of hormones are measured by sophisticated laboratory equipment and these tests can be performed on one blood sample. The tests are to determine that all the levels are within normal limits and are in balance. They are also used to determine if ovulation is occurring. Sometimes several blood tests may be required.

#### ***BASAL BODY TEMPERATURE CHART***

The charting of the basal body temperature is the traditional method of indicating if and when ovulation is occurring.

On waking, a woman takes her temperature orally for 3 minutes before getting out of bed, talking, drinking or eating. She carefully records this on her temperature chart.

If ovulation occurs, a woman's temperature will normally rise by one degree Fahrenheit or 0.4 to 0.6 degree Centigrade during the second half of the menstrual cycle. However, the temperature is recorded on all days of the cycle and the resulting pattern observed.

The chart can indicate whether or not ovulation is occurring and changes in the temperature pattern provide an indication of the effectiveness of treatment. Moreover, a prolonged rise in the basal temperature will be the first clear indication that pregnancy has been achieved.

The main drawback to temperature charting is that it tends to provide data **AFTER** ovulation has taken place which does not allow accurate planning for timing of intercourse or insemination procedures. Similarly to hormone assays temperature charting provides no confirmation of oocyte quality and oocyte expulsion.

In the past, infertility patients have completed large numbers of charts recorded over many months - even years - but this can cause a high degree of stress so prolonged use is not advocated. The temperature chart is now seldom used by fertility specialists.

#### ***HYSTEOSALPINGOGRAM***

This X-Ray examination is used to check both tubal patency and the internal structure of the uterus. It's a relatively simple test which may involve some discomfort for the patient, and needs to be carried out by a specialist. In order to show up the soft tissue a radio-opaque dye is injected through the cervix. Some patients may feel a sensation of discomfort and cramping when this procedure is carried out.

A series of X-Ray pictures is then taken for later examination. Normally the dye will fill the uterine cavity and spill into both the fallopian tubes, then out at the ends where it will collect in the peritoneal cavity.

### **12.2.3.3 FERTILITY TESTS**

If the dye fails to pass in to the tube it may indicate a blockage or temporary spasm. The test enables the doctor to pin-point the site of a tubal obstruction (if any) and also allows him/her to see any uterine defects which may be present.

#### ***LAPAROSCOPY***

The determination of tubal patency does not confirm the normality of tubal function. The fallopian tubes are more than just tubes. It is possible that tubal function could be disturbed in ways that at present we cannot measure.

A laparoscopy is one of the more complex tests carried out in infertility investigation. The purpose of the test is to allow the specialist to look at the ovaries, fallopian tubes and uterus. In order to carry out a laparoscopy the woman has to be hospitalised (usually for the day only), as the procedure is done under a general anaesthetic. The laparoscope is a thin telescope-like instrument which is passed through a small incision in the abdominal wall

near the navel. The abdomen has first to be distended by blowing in carbon dioxide to ensure a certain amount of space exists between the organs. The laparoscope is then passed into the incision. It is possible to examine the size, shape and contours of the organs contained in the pelvic cavity. In this way any adhesions, scarring, endometriosis or fibroids can be detected. The patency of the tubes is tested by the injection of a dye through the cervix to see if any passes out through the tubes. The laparoscopy may avoid the need for major abdominal surgery. The after-effects of the procedure are minimal and the scar which remains is small and almost undetectable.

Dilatation and curettage or hysteroscopy may be performed at the same time as a laparoscopy, for diagnostic purposes.

#### ***ENDOMETRIAL BIOPSY OR DILATATION AND CURETTAGE***

##### ***(D & C)***

This test involves the microscopic examination of a scraping from the endometrium - the lining of the womb. This enables an assessment to be made of the influence of the hormone progesterone on the endometrium.

Progesterone causes regular and predictable changes in the structure of the lining of the womb, so microscopic evaluation is useful. Adequate levels of progesterone are essential for the critical phase of embryo implantation.

#### ***HYSTEROSCOPY***

This test is usually carried out at the same time as a laparoscopy. A small telescope is inserted through the vagina and cervix, allowing visualisation of the internal lining of the uterus and the openings of the fallopian tubes into the cavity. Distortion by fibroid, polyps, adhesions may need to be treated before permitting embryo implantation.

## **12.2.3.4 FERTILITY TESTS**

### ***POST-COITAL TEST***

This is the observation of sperm within the cervical mucus following intercourse. The test must be performed at ovulation when the mucus is clear and copious, or you may be given oestrogen tablets to help produce mucus, so that when the test is performed you should have enough mucus. Accurate timing using hormone tests (oestrogen, LH, progesterone) on blood is very important. The couple is asked to have intercourse at home 4-12 hours prior to the test.

The test is a simple one, very similar to a smear test, except some mucus is collected from the cervix and then examined microscopically to see if live sperm are penetrating the mucus, and assess the amount of movement. If the sperm are all moving well it is reasonable to say this test is normal. However, the absence of moving sperm is not an indication of disease. There are too many factors contributing to a poor post coital test, and it is usual to repeat the test before making any conclusion.

### ***INDIRECT IMMUNO-BEAD TEST (IIBT)***

Specimens of blood, sperm or mucus may be collected in the laboratory and are tested to exclude the presence of antibodies to sperm (IIBT TEST).

FOR FURTHER INFORMATION ON THESE TESTS CONTACT YOUR DOCTOR OR THE COORDINATING SISTERS AT CONCEPT FERTILITY CENTRE.