

# A Monitored Cycle

## Introduction

Most of our monitored cycles are for **intrauterine insemination (IUI)**. However, occasionally a cycle is very confusing and we will monitor it to figure it out and to allow very precise timed intercourse.

IUI is believed to double or triple **the chance of pregnancy** in a cycle over and above anything else that is being done. If you decide while you are monitoring your cycle that you would prefer to do IUI, you will not be excluded from this. You can get more information about IUI from our web page. The address is at the end of all our information sheets. The upside of doing IUI is the increased pregnancy rate but the down side is we charge you \$200.00 for the sperm washing.

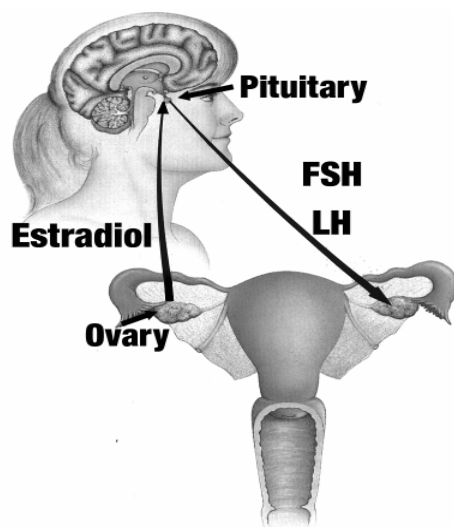


## Who Can Benefit From Monitoring the Cycle?

Monitoring the cycle can be done for anyone who would like additional information about their cycle. There is a lot of commercial information about ovulation detection kits. These are usually based on detecting the LH surge which is discussed in detail in the Timing Intercourse section of this information sheet. However, these kits can be misleading and are expensive. Monitoring the cycle gives a great deal more information about the dynamics of the cycle and involves a combination of blood tests and ultrasound.

The most common use of monitoring the cycle is when the response to ovulation induction has been confusing. Ovulation induction is monitored by luteal phase progesterone. If it is elevated it usually indicates that ovulation has occurred. If it is not elevated, it means that ovulation did not occur or occurred at a different time than expected. Many times, if the response is confusing, we will use a monitored cycle to figure it out.

## A Description of a Spontaneous or Stimulated Cycle

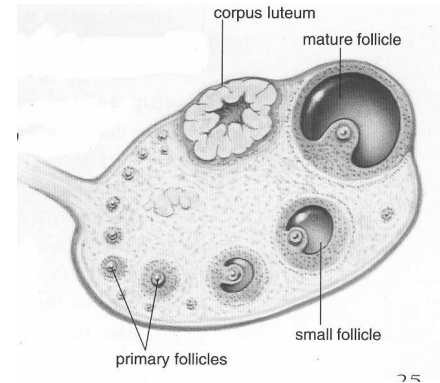


The menstrual cycle is described in terms of days. “Day one” is the first day of vaginal bleeding requiring protection as long as it occurs before midnight. At this point most of the hormones are at very low levels. The cycle begins with **follicle stimulating hormone (FSH)** being released by the pituitary and stimulating both egg-maturation and production of estrogen (estradiol). In a successful (ovulatory) cycle, the combination of FSH and estrogen facilitates a rapid release of Luteinizing Hormone (LH). This rapid, high level of LH is often referred to as the **LH Surge** and is thought to induce release of the egg (ovulation) about 34 to 36 hours after its peak.

## Timing Intercourse

The success of intercourse may depend on timing it with **ovulation or release of the egg from the ovary**. Ideally, the intercourse should be done at the exact time when the egg or eggs are being released from the ovary. Monitored cycles use **both blood tests and vaginal ultrasounds to determine when this occurs**.

The beginning of the cycle is referred to as “day 1”. “Day 1” is the first day of menstrual bleeding requiring more than a panty liner for protection. All hormone levels are very low and the ovary should contain only very small follicles. Follicles are small cystic structures which contain the eggs and produce the ovarian hormones. We can figure out how the cycle is progressing by measuring the growth of the follicle(s) and measuring the blood level of key hormones.



The first thing that happens in the cycle is that the pituitary gland produces **follicle stimulating hormone (FSH)**. This causes a follicle to grow (one in 20 spontaneous cycles has two follicles). The follicle(s) produces **estrogen** in increasing levels as it grows. In most cycles the estrogen increases each day and we measure this increase during the critical time of the cycle. Another hormone, luteinizing hormone (LH) stays low during the first part of the cycle. However, once the estrogen reaches a certain level or a follicle becomes a certain size; a **LH surge** occurs (a doubling or tripling of the level). The LH surge is then used to time the insemination. In spontaneous cycles the LH surge usually occurs on day 12 or 13. Once the LH surge has occurred the estradiol level usually drops. In fact, with our monitoring, we can determine if we are at the beginning or end of the LH surge by the estradiol level. If it is still rising, we are at the beginning of the LH surge; if it has dropped from the previous day, we are at the end. The peak of the LH surge occurs **34 to 36 hours before the release of the eggs**.

Cycle Day	Estradiol E <sub>2</sub>	LH	Follicle Size (mm)
Day 1	50	4	2
Day 3	100	3	5
Day 6	200	4	8
Day 8	250	3	11
Day 10	320	4	14
Day 11	400	3	15
Day 12	550	6	17
Day 13	600	<b>42</b>	19
Day 14	300	25	21

If a spontaneous LH surge is used to time your insemination, insemination will be done the day after the surge is detected (therefore about 10 hours, if it was the peak of the surge, before egg release). However, if your cycle requires an HCG injection to release the eggs, the injection should be given about 10 pm the night and the insemination will be the day after next (about 36 hours after the injection, therefore just about when the egg(s) are being released).

The dynamics of a spontaneous cycle is presented in this table. **This table is an example only and individual cycles may vary widely.**

Usually, blood tests (estradiol and LH) are performed daily from day 11 of the cycle. In the cycle, the estradiol should increase slowly and the LH should stay consistently low until one day it rises dramatically. The **“LH surge”** refers to a rapid release of luteinizing hormone from the pituitary gland before ovulation occurs and is reflected in the LH blood test by a doubling or tripling of the baseline level. Intercourse should be the day after the “LH

surge”. If the follicle(s) have grown to a good size (16 mm and over) or you get to day 16 of the cycle and a LH surge has not occurred, we will suggest **an HCG injection (Profasi-HP, Pregnyl)**. An HCG injection is an artificial LH surge. By using HCG we prevent extended monitoring of your cycle and cycles in which an egg or eggs are produced but not released. A LH surge does not always occur in cycles being monitored. This can happen even if there is normal egg development. In natural cycles this has been named “luteinized, unruptured follicle syndrome” and is thought by some to contribute to some infertility.

Unfortunately, the results of **the blood test required for this monitoring have to be available the same day**. This usually requires them to be done at S.O.F.T. We have been able to arrange same-day blood testing in some cities (IE Windsor, Kitchener and Sarnia). This can only be done on weekdays and on days that you don’t have to have an ultrasound. If you are interested in doing some of your blood testing in these labs, you should speak to the nurse about it on your first day of monitoring. This is usually reliable, but S.O.F.T. cannot take responsibility for the result being sent to us the same day. This can make doing an IUI cycle very stressful and fatiguing. We try to make this less stressful by performing the monitoring blood tests at the clinic (one stop shopping!). Also, instead of rigidly having to do the tests first thing in the morning, they can be done as late as 1 pm on most weekdays.

**Blood testing, ultrasounds and inseminations may need to be performed 7 days a week at the clinic. For this purpose, S.O.F.T. is open from 7:30 am to 1 pm weekdays and 8:30 am to 10 am on weekends. On weekends and holidays only the back door of the building will be open.**

**Vaginal ultrasound monitoring** of monitored cycles is also be important. It is employed in spontaneous cycles on day 11 to determine how many potential eggs are developing and to ensure that the endometrium is of adequate thickness. (Vaginal estrogen may be prescribed if the lining is too thin.) Follicles that may go on to ovulate



**Ultrasound of a uterus, which demonstrates a triple layer endometrium of adequate**

are usually 11 mm or more in diameter by your first monitoring day. If all follicles are smaller than this it may mean that you will not

ovulate in this cycle or will have an unusually long cycle. If the follicles are very large, it may mean that they are left over from the last clomiphene cycle



**Ultrasound of an ovary with many small follicles but one central follicle, which has**

or that you are going to ovulate earlier than usual in this cycle. Ultrasound is also important in cycles were a spontaneous LH surge does not occur and helps to determine when HCG should be given. In spontaneous cycles were a spontaneous LH surge does not occur by day 16 or sometimes earlier if the follicles are large, HCG can be given to create an artificial LH surge. Follicles that are 16 mm or greater in diameter probably contain a mature egg. It used to be thought that if follicles got to large, they may not be good. However, we now know that even large follicles 30 to 34 mm can produce a pregnancy. When we decide exactly when to

give HCG, the size of the follicles, the day of the cycle and the estradiol level are all taken into account. If you have a spontaneous LH surge, “Mother Nature” makes the decision for us.

### **The Success Rate**

The exact success rate of monitoring a cycle is not available. Mostly it is used for sorting out confusing cycles. However, my experience is that occasionally there are remarkable successes.

### **Cost**

All blood tests and ultrasounds are covered by OHIP.

### **Sexual Intercourse during Your Cycle**

Release of the egg(s) usually occurs 36 hours after the peak of the LH surge. This is day 14 of a 28 day cycle but day 10 of a 24 day cycle and day 20 of a 34 day cycle.

Intercourse should occur **whenever you feel like it**. However, frequent intercourse centered around 36 hours after the LH surge may be very beneficial.

### **Default Instructions:**

Our clinic is run very efficiently but with a very small staff. We will do everything possible to facilitate your treatment and answer any of your questions. However, to make things run smoothly, we have developed “default instructions”. This means that **unless we call you and tell you differently, the usual order of instructions should be followed**.

Below is a day-to-day description of a spontaneous IUI cycle with the default instructions. Remember, this is the default. Your cycle may be very different and yet perfectly normal. For example, some patients will have large follicles on the first day of monitoring. Sometimes in this situation we will just suggest HCG the next day if a surge does not occur. Sometimes, the follicles will be very small on the first day of monitoring and we will advise you to take one or two days off before continuing the monitoring.

**The day-to-day instructions will remain the same unless S.O.F.T. calls you with a change.**

The table indicates the default instructions. If an extra ultrasound is indicated, HCG should be given, a spontaneous LH surge has occurred or we want you to cancel your cycle, this will be discussed at your visit or we will telephone you. **If you do not get a telephone call or have not been instructed differently in the clinic, follow the table.**

For example, if you came for blood and ultrasound on day 12 and the largest follicle was only 12 mm, we would tell you to take a day off from monitoring because for an LH surge to occur you need a 16 mm or greater follicle. In contrast, if you came on day 12 and your follicles were all large (16 to 25 mm), we might ask for only blood work the next day and give you HCG if you didn't have the LH surge.

### **Cycle Monitoring – Day By Day**

<b>Cycle Day</b>	<b>Instructions</b>	<b>Patient Notes</b>
Day 1-3	Call S.O.F.T. (519-685-5559) and inform us that	

	your cycle has started	
Day 3 (2-4)	Baseline blood and/or vaginal ultrasound (Only if necessary – the default is none)	
Day 11	Blood and ultrasound	
Day 12-14	Daily blood testing until LH surge	
Day 15	Blood and ultrasound if no LH surge. If no LH surge and good size follicle(s), inject HCG or continue to monitor (will be discussed at ultrasound)	
Day after LH surge 2 <sup>nd</sup> day after HCG	Timed intercourse the day after LH surge or 2 days after HCG injection Male needs to produce sample	
14 Days after insemination	If no menses, serum <i>B</i> HCG	
40 days after insemination	If pregnancy test positive, an early pregnancy vaginal ultrasound	

### **Monitored Cycles with Medication**

A monitor cycle can be used at any time during your treatment. For instant occasionally your response to clomiphene citrate or letrozole will be confusing. We may suggest that you use the same does of the medicine but monitor your cycle so that we can figure this out. Also, occasionally when we are having difficulty establishing ovulation, we will monitor the cycle to get more information about what changes may have to be made.

James Martin ©

S.O.F.T.

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**Check out our web page at [www.soft-infertility.com](http://www.soft-infertility.com)**