

Preventive Powers of Ovulation and Progesterone

Ovulatory Disturbances

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I believe that the answer is **Yes!** And furthermore, having normal ovulation during most of our menstruating years is the missing link in preventing osteoporosis, heart disease and breast cancer.

As I discussed in the first CeMCOR newsletter in March, release of an egg (ovulation) is a carefully coordinated event that normally occurs in the middle of the menstrual cycle. However, many "threats" such as being emotionally upset, not eating enough to cover our body's energy needs, being ill or over-exercising (almost always along with inadequate caloric intake, +/- stress) can cause ovulation disturbances. By ovulation disturbances I mean two kinds of menstrual cycle variations: **1) Short luteal phase** cycles in which an egg is released but the time from ovulation until the next flow is too short; and **2) Anovulatory cycles** in which an egg isn't released and progesterone levels stay low throughout the cycle. Before I go on to describe how disturbances in ovulation and luteal phase length are diagnosed, it is useful to think about the development of ovulation after the first period (menarche).

Many of us have thought that getting regular periods means our reproductive system is working perfectly. In fact, most doctors think that too! In other words, if a period comes about once a month, and the time from one period to the next is not too variable, most women and many doctors assume that the cycle is normal. And by "normal", they mean that ovulation has occurred and the ovary has secreted the right amounts of progesterone as well as estrogen. In fact, although some cycles with anovulation are irregular or too far apart, many cycles which occur perfectly regularly can also be anovulatory.

Can I easily tell if I have ovulation disturbances?

I first learned about ovulation disturbances from a one-year study we did to try to understand about exercise and menstrual cycles. In order to participate in this study (which was called the Prospective Ovulation Cohort), each woman needed to be healthy, not taking hormonal contraceptives, non-smoking, of normal weight, between the ages of 20 and 42, and she had to have two normally ovulatory cycles in a row in order to join [\(1\)](#). Some of the 66 women were normally active, some were regular recreational runners, and some were training for and ran a marathon [\(1\)](#). At the time, everyone thought that the marathon-training women would lose

their periods, or at least develop irregular or skipped periods. That didn't happen. Almost all women continued to have periods that were 21 to 36 days apart. And most of the time, they also continued to ovulate.

You cannot easily tell if you aren't ovulating normally. Despite normal cycle lengths, four percent of the cycles in the Prospective Ovulation Cohort were anovulatory. These anovulatory cycles were not perceived by the women to be different from their ovulatory cycles.

What surprised most people was that anovulatory cycles did not occur more frequently in women who were training for a marathon than in women who regularly walked the dog or played tennis on the weekend. This study showed that, in well nourished women who started out normally ovulatory, training for and running a marathon did not cause anovulation [\(1\)](#). And women with anovulatory cycles had the same amount of estrogen as women without anovulatory cycles. In fact, if we had not carefully monitored changes in spinal cancellous bone (the honeycomb-like inner part of the vertebrae) bone, we would not have thought these few anovulatory cycles were of any great significance.

Short luteal phase cycles are cycles that are ovulatory but with too few days of high progesterone levels. ("luteal phase" refers to the second half of the menstrual cycle that comes following ovulation when progesterone is produced). These, too, are not clearly different from normally ovulatory cycles. They are often perfectly regular, and with normal amounts of flow. The only problem, although an egg has been released, is that the time from ovulation until the next period is shorter than is ideal.

The normal or ideal luteal phase length was initially based on potential for pregnancy. We have subsequently learned that a normal luteal phase length is also important to prevent bone loss [\(1\)](#). (More about bone and ovulation in a future newsletter).

If you are using a basal temperature method to document ovulation then less than 10 days is too short. If you are using a urinary LH test to assess ovulation, then less than 12 days is too short [\(2\)](#). This is because the LH surge comes before ovulation, while the temperature rise follows ovulation.

Short luteal phases were very common in the 66 regularly ovulatory, healthy women in the Prospective Ovulation Cohort. Over 25% of all cycles had short luteal phases. And these short luteal phase cycles, like anovulatory ones, were also as common in the runners than in the non-runners [\(1\)](#).

What are menstrual cycles and ovulation like in girls after their first

period?

We've already discussed that ovulation is carefully coordinated by the brain and is altered in response to things like food and stress and ill health. Therefore it would be surprising if the body learned to do this complex thing overnight. In fact it usually takes a year or more before the first ovulatory cycle following menarche (the first period) (3), and the first of a girl's ovulatory cycles commonly have short luteal phases. I think it likely that there would be far more teen pregnancies if normal ovulation kicked in at a younger age!

What is interesting is that it takes about 12 years before ovulation is at its most regular and predictable. By about age 20-25 approximately 95% of all cycles are ovulatory (3). And even after achieving ovulatory maturity, some menstrual cycles will still have short luteal phases, depending on stress and nutrition.

All of this discussion of ovulation and the length of the luteal phase is preparing for the important relationships we are learning between normal ovulation and bone, heart and breast health. In the next newsletter we will discuss how doctors may diagnose ovulation.

Reference List for "Is Ovulation (and are normal Progesterone levels) Important for the Health of Women?"

1. Prior JC, Vigna YM, Schechter MT, Burgess AE. Spinal bone loss and ovulatory disturbances. *N Engl J Med* 1990; 323: 1221-7.
2. Petit MA, Prior JC. Exercise and the hypothalamus: ovulatory adaptations. In: Warren MP, Constantini NW, editors. *Sports Endocrinology*. Totowa, New Jersey: Humana Press, Inc.; 2000. p. 133-63.
3. Vollman RF. The menstrual cycle. In: Friedman EA, editor. *Major Problems in Obstetrics and Gynecology*, Vol 7. 1 ed. Toronto: W.B. Saunders Company; 1977. p. 11-193.

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