THE FEMALE MENSTRUAL CYCLE

Adaptive Strength & Nutrition
SUCCESS DEMANDS ADAPTATION

Sorry guys, this one is just for the females – unless you want to get to know more about what goes on with your significant other during her menstrual cycle.

So, here's what you need to know.

The menstrual cycle has a huge influence on a female's metabolic state and training results.

Literally, your hormones control you. Both in and out of the gym and your menstrual cycle has a direct correlation to your gym/activity performance.

You're well aware that testosterone, the male predominant sex hormone, is responsible for making men more muscular, strong, and aggressive. But what about us women!??

As a woman, each month your body goes through a series of events known as the female menstrual cycle. What most women don't realize, however, is the influence this cycle can have on your metabolic state and training results.

Your Cycle: A Refresher

First, keep in mind this is what the normal woman goes through who is premenopausal and who isn't using oral birth control. If you are on birth control, your cycle and the effects during your cycle may be different due to the chemicals in the birth control.

Now, the start of your cycle begins immediately after you finish menstruating with the **follicular phase**, lasting from day 1 to 14. This phase is characterized by increasing estrogen, normal progesterone, and an average body temperature.

From there, you move into ovulation, which takes place around day 14. When this occurs, your estrogen level peaks and progesterone starts to increase. You'll also notice you start to feel warmer.

From day 15 to 28 of your cycle, you'll enter the luteal phase where estrogen is declining, progesterone is increasing, and your body temperature remains higher than baseline.

Menstruation then follows to start things off all over again.

Now let's talk about what you go through during each phase.

The day count for menstrual cycle begins on the first day of menstruation. The length of menstrual cycle has been assumed to be 28 days (which is the average among women). The entire duration of a Menstrual cycle can be divided into four main phases:

- Menstrual phase (From day 1 to 5)
- Follicular phase (From day 1 to 13)
- Ovulation phase (Day 14)
- Luteal phase (From day 15 to 28)

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The Follicular Phase

This phase also begins on the first day of menstruation, but it lasts till the 13th day of the menstrual cycle. What happens:

1. The pituitary gland secretes a hormone that stimulates the egg cells in the ovaries to grow.
2. One of these egg cells begins to mature in a sac-like-structure called follicle. It takes 13 days for the egg cell to reach maturity.
3. While the egg cell matures, its follicle secretes a hormone that stimulates the uterus to develop a lining of blood vessels and soft tissue called endometrium

When it comes to your workout sessions, the follicular phase, including the ovulation period, is when you should focus on progress.

This phase is characterized by a higher tolerance for pain, the highest maximum voluntary force generation capacity, as well as increasing levels of endurance. Your body will also be more prone to utilizing muscle glycogen to fuel exercise during this stage, making high-carb workout nutrition critical.

To add to this, your insulin sensitivity levels will be higher during this phase.

However, the decline in your resting metabolic rate takes place during this time. One study published in the American Journal of Clinical Nutrition noted that basal metabolic rate decreased during menstruation and then proceeded to decline to its lowest point one week before ovulation took place.

The Ovulation Phase:

On the 14th day of the cycle, the pituitary gland secretes a hormone that causes the ovary to release the matured egg cell. The released egg cell is swept into the fallopian tube by the cilia of the fimbriae. Fimbriae are finger like projections located at the end of the fallopian tube close to the ovaries and cilia are slender hair like projections on each Fimbria

During ovulation, your strength levels will still be high and you may notice the highest sheer force generation capacity during this phase. If you want to set a PR, now is the time to try. One study published in the Journal of Physiology noted that ovulating women showed an 11% increase in both quadriceps as well as handgrip strength.

Take note, though, that you may also be at a higher risk of injury. **As estrogen skyrockets to its highest point during this phase**, it can impact collagen metabolism and also influence your neuromuscular control.

So, train hard at this time, but be especially careful about using good form and being mindful of fatigue build-up.

Your metabolism will also be starting to climb at this point, so if you're feeling a little extra hungry, understand that this may very well be why.

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The Luteal Phase:

This phase begins on the 15th day and lasts till the end of the cycle. What happens:

1. The egg cell released during the ovulation phase stays in the fallopian tube for 24 hours.
2. If a sperm cell does not impregnate the egg cell within that time, the egg cell disintegrates.
3. The hormone that causes the uterus to retain its endometrium gets used up by the end of the menstrual cycle. This causes the menstrual phase of the next cycle to begin.

Workout performance suffers greatly during this phase. With your body temperature higher than normal, you'll experience higher cardiovascular strain and a decrease in time to exhaustion. In addition to this, you may be retaining excess water weight due to PMS, making it more uncomfortable to perform very intense sprint-like activities.

Your body will also rely more heavily on fat as a fuel source during the luteal phase instead of muscle glycogen.

For those suffering from very high fatigue and discomfort, yoga may be the route to go as studies suggest it may help lessen the severity and duration of PMS symptoms.

Metabolically, your body will be at its peak during this time. A study in the American Journal of Clinical Nutrition suggests your metabolism will be humming along about 7.7% higher than normal, and you'll also experience a greater thermic effect from food as your body will burn more calories digesting than it normally does.

One thing you want to watch out for in this phase, however, is your craving for high carbohydrate foods. Your serotonin production will be lower, and that can promote a poor mood and irritability. Your instinct will be to eat more carbs as they cause a rapid release of serotonin, instantly providing a mood boost and natural high.

However, due to your insulin sensitivity now being at its lowest point and the fact you'll be lowering the intensity of your workouts due to your high fatigability, you need to keep your carb intake under control.

To help offset the decline in serotonin and calm those cravings for carbs, consider supplementing with tryptophan or eating foods rich in this amino acid such as turkey, skim milk, soybeans, or pumpkin seeds as they can help produce a natural spike in this neurotransmitter precursor.

The Menstruation Phase:

Menstrual phase (day 1-5)

Menstrual phase begins on the first day of menstruation and lasts till the 5th day of the menstrual cycle. What happens:

1. The uterus sheds its inner lining of soft tissue and blood vessels which exits the body from the vagina in the form of menstrual fluid.
2. Blood loss of 10 ml to 80 ml is considered normal.

3. You may experience abdominal cramps. These cramps are caused by the contraction of the uterine and the abdominal muscles to expel the menstrual fluid**.**

However, as menstruation gets underway, you'll start feeling more like your normal self. PMS symptoms will subside, your body temperature will return to more normal levels, and your water retention will clear.

Your metabolism will be on its way down and insulin sensitivity will be increasing.

Side effects/Normal Occurrences during Mensural Cycle"

Abdominal Cramping

Abdominal cramping can occur before and during your period. The achiness and pain can be debilitating for some women, causing them to miss work or other everyday activities. While over-the-counter painkillers can provide relief, they also can upset your stomach, having an additional effect on your eating habits.

Water Retention

An underlying factor in weight loss during your menstrual cycle is that weight fluctuates at different points during your cycle. You might retain water before your period starts and then lose it later. You might experience changes in appetite in response to hormonal fluctuations.

PMS

Premenstrual syndrome includes a host of symptoms that can affect your weight. Symptoms include gastrointestinal distress. You might have food cravings, but you also might have other symptoms such as irritability and headaches.

Metabolism Changes

Your metabolism fluctuates during your menstrual cycle, which can have an effect on your weight, especially if you are dieting. A 1989 study in the "British Journal of Nutrition" found that metabolism can increase up to 10 percent in the days before menstruation begins. This increase can result in some weight loss, especially if you are experiencing other symptoms that affect your eating patterns.