



## **YOUR MENSTRUAL CYCLE**

### ***Could you period be an ergogenic aid?***

Our fluctuating hormones and their related symptoms could be the difference between a 5k PB or a day feeling like you're in a fog and that everything is a huge effort. Simply understanding why you feel certain ways through your cycle can be really empowering. Understanding your menstrual cycle and the effect that it has on your emotions, your training ability and nutritional requirements can be a huge asset not only for your running performance but for everyday happiness and work place productivity as well.

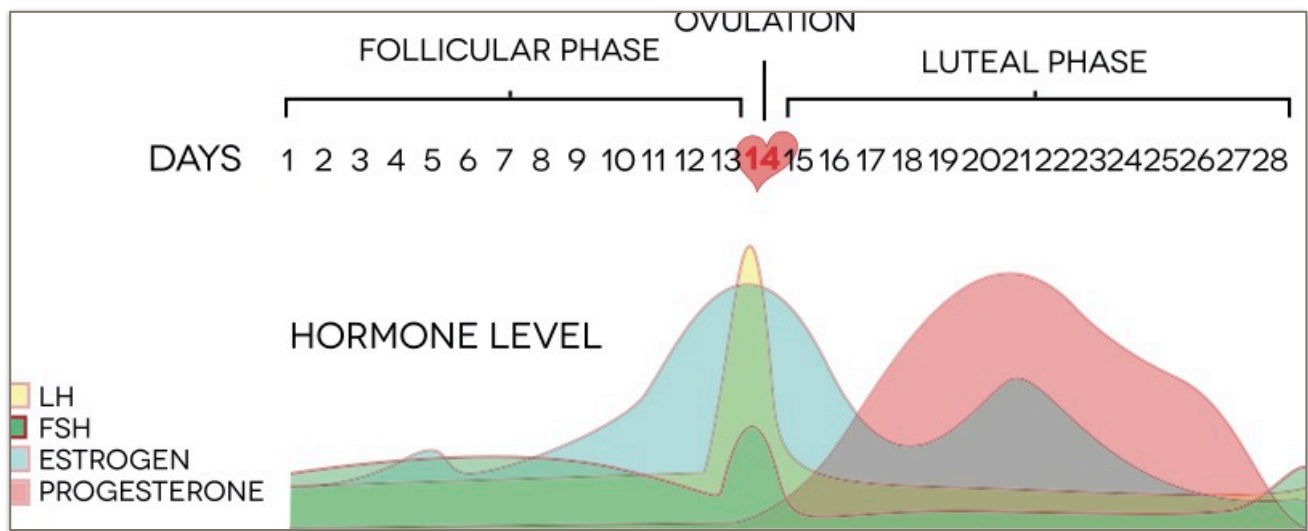
We are still very much in the infancy of research for women. The majority of papers to date around periodisation and training uses men as subjects and the research that is produced on women is of low quality or more based around the effects of contraception. Things are changing though and interest has grown considerably in this area. Women are different, we have different anatomy, hormones and even then all experience our menstrual cycles differently so a blanket approach isn't going to work for everyone.

#### **1. UNDERSTAND YOUR CYCLE AND HORMONES**

We often talk about a 28 day cycle, but in reality evidence has shown us that the majority of women have cycles lasting 30-35 days. We generally split our cycle into 2 halves, FOLLICULAR (low hormone) and LUTEAL (high hormone) which are either side of ovulation, when an egg is released. This is also your fertility window.



There are various hormones that regulate these phases, particularly oestrogen and progesterone which affect our fertility, thermoregulation, bone health, appetite, serotonin levels, training ability and much more. Simply understanding that there are different phases is the first step in then tailoring your training, recovery and diet through your cycle. We talk you through each phase below



## 2. TRACK YOUR CYCLE

Before you even start considering modifying training at different phases of your cycle, you first need to track it to be aware of how long it is. Remember having a regular cycle is really important for our health (see low energy availability page) so if they start becoming less frequent or stopping altogether it is really important to speak to your healthcare provider. There are various ways to track your period, but the FitrWoman app is a brilliant free way to do this, and is also filled with lots of information. This tracking is also really useful from a fertility perspective. Make sure you also note symptoms you have at these phases, whether it is cramps, fatigue, pain for example. Overtime you can then see trends and learn how we can then adapt around these times.



### 3. USE THE PHYSIOLOGY OF YOUR CYCLE TO YOUR ADVANTAGE

#### PHASE 1: LOW HORMONE

*MENSTRUATION DAYS (approx days 1-7)*

**HORMONES:** The first day of your period is the first day of your cycle. The length of bleeding and heaviness will vary for every woman, along with other symptoms such as cramps, bloating, headaches and nausea. In this phase hormones are low, we typically have higher pain tolerances and higher energy levels (some may notice this after a tough first few days). You may start to feel happier and more clear minded. The premenstrual decline in progesterone in phase 4 triggers an inflammatory response that is sustained in this phase which causes some menstrual symptoms.

**TRAINING:** Essentially this is where we are physiologically most like men and can get some fantastic training gains. Go for high intensity workouts such as tempos or threshold runs and even chase your PB. You may also feel stronger in this phase and can add some real load (progressively) to your weight sessions. Depending on the severity of any symptoms you may need to wait a few days before you start pushing it but equally getting some tough training can really offset your symptoms.

Our ability in mental tasks is said to be higher, so this may also be a great time to learn a more complex skill where good coordination is required. Neuro muscular control may be lower so consider including more muscle activation exercises in your warm up, especially before an intense session. The increased inflammation in this phase may also mean it takes a little longer to recover, so focus on your recovery strategies in this phase.

### **NUTRITION:**

- It is important to prioritise iron sources to make up for blood loss such as red meat, eggs, fortified cereal, tofu and green leafy veg.
- Combine these with sources of Vitamin C to help with absorption such as oranges and spinach.
- Stay hydrated and eat nitrate rich foods such as beets, pomegranate and spinach to ease headaches and other symptoms.
- Essential fats are great for their anti inflammatory properties and enhanced recovery.
- Foods rich in Vit D are important here as well as calcium, fish oils B vitamins (try natural yoghurts, bananas, blueberries and kiwi).
- White cell count is lower which may increase the risk of certain types of illness so it is really important to fuel correctly here and optimise sleep to reduce illness and injury risk.

## PHASE 2: LOW HORMONE

### PRE OVULATION (approx days 8-13)

**HORMONES:** Oestrogen levels rise to a peak just before ovulation and progesterone levels are still very low. You're past the painful menstruation and can enjoy the feel good hormones levels and features of the fertile window. You may feel more energetic, confident and positive as this phase progresses. Once bleeding ceases, progesterone begins to rise to prepare for ovulation. Rising levels lead to greater protein synthesis, which primes the body for building lean muscle, repair of muscle tissue and improved ability for recovery.

**TRAINING:** Research has shown that adaptation to high intensity exercise and strength training remains superior in this phase so try and include these in your training around this time. This is the perfect time to try for a PB if race dates work out. With our greater protein synthesis it is also a great time to hit the gym and work on strength. Just remember how important form is however in terms of injury prevention, particularly as oestrogen rises around ovulation our ligaments become more lax. There is some evidence that when oestrogen is high we are at increased risk of injury, such as anterior cruciate ligaments.

This of course doesn't mean you shouldn't run through this phase but it may not be the time to go straight for the steeper descents if you haven't got the muscular control for it and had the preparation. Factor in time to complete a more progressive and thorough warm up during this phase, particularly if you are doing sharper changes of direction. Oestrogen is also associated with increased antioxidant release, which will help adaptation and recovery from exercise.



While you may feel stronger and push the training, make sure you take sufficient time for recovery too.

**NUTRITION:** Blood sugar levels are more stable in this phase and the body becomes more efficient at using fat for fuel, especially during moderate intensity training. While carbs are still important for exercise, you'll be able to use a higher percentage of fat for fuel, meaning exercise may feel a little easier.

It's a great time to maximise your healthy intake and reduce carbohydrates. Get plenty of antioxidant sources from fruit and vegetables, prioritise calcium and vitamin D such as milk, cheese, yoghurts, oily fish and tofu. Include sources of collagen such as jelly alongside Vitamin C rich foods to help with muscle, tendon and ligament recovery such as broccoli, peppers, orange and carrots.

### **3. PHASE 3: HIGH HORMONE**

*Luteal phase (approx days 14-21)*

**HORMONES:** Oestrogen levels initially drop off as ovulation occurs. Then both progesterone and oestrogen start to rise and remain high. Progesterone levels surpass oestrogen to prepare the uterus for egg implantation and you may experience some pain related to ovulation at the beginning of this phase. If the egg isn't fertilised and pregnancy doesn't occur, oestrogen and LH hormones will fall over the preceding days, while progesterone continues to rise.

This shift in hormones can cause varying symptoms. Basal metabolic rate increases which means you burn more calories at rest, and blood sugar levels are more likely to be unstable resulting in increased cravings and appetite.

Your breathing rate and heart rate may also increase as well as temperature by 0.3 and sweat rate, so you may feel like you're overheating more easily and that exercise is harder. The changing hormone levels can also affect your mood and make you feel more lethargic. If you are sensitive to progesterone, you may experience breathing difficulties as increases in progesterone can result in inflammation of the airways.

**TRAINING:** With rises in progesterone, blood sugar levels fluctuate a lot more and the body relies more on carbohydrates for fuel during training. So the body has to work harder, which is why the same level of exercise can feel much harder than in the previous phase. So don't be too hard on yourself if you can't hit the same numbers you did 10 days ago. Focus on endurance runs here and low intensity to build your aerobic base, as well as flexibility and core strength. In the gym, focus on mastering technique and work on skill based exercises rather than hitting big numbers. Think about appropriate cooling strategies if you're exercising in the heat too.

**NUTRITION:** As progesterone levels rise, so does protein catabolism, which is the breakdown of protein. To counteract this process, make sure to eat more protein before and after training. High levels of oestrogen reduce your carbohydrate burning ability and the body starts to burn more fats. This may be beneficial for endurance activities, but not a great time to increase intensity. If you're doing more high intensity work during this phase you will need to eat more carbs than usual, so consider a carbohydrate source during your workout to maintain energy levels. It can be helpful to focus on some anti inflammatory and anti oxidant rich foods in your diet to help prepare for phase 4.



## **PHASE 4: HIGH HORMONE**

### *PRE MENSTRUATION (Approx days 21-28)*

**HORMONES:** Oestrogen and progesterone levels decline to their lowest point. This decrease in hormones triggers inflammatory responses which is thought to be part of the cause for the infamous PMS symptoms. Pre menstrual stress is something many suffer with so you need to acknowledge these symptoms and take it easy on yourself. There is an endless list of symptoms from intense cravings, bloating, exhaustion, increased temper, crying spells, insomnia and changes in bowel movements. The decrease in hormones can affect your ability to fall asleep and you may wake more frequently, which can also affect concentration, awareness and performance.

**TRAINING:** The change in hormones can increase water retention, a decrease in blood plasma and makes you more prone to central nervous fatigue, all of which makes exercise much harder than normal. During this time you may struggle to hit previously achieved goals which can be frustrating. Try not to judge these results of training undertaken in this phase in isolation. It may be worth focusing on some yoga and pilates for a few days if you're struggling, which have a positive effect on symptoms. Exercise in itself will release endorphins so even if you go for an easy paced 5k, it can really assist with symptoms.

The increased inflammation in this phase may reduce your ability to recover after a tough session, so put a greater focus on recovery strategies and nutrition to offset this.

**NUTRITION:** Higher progesterone can cause constipation, so to keep things moving increase the intake of wholegrain, fibre, nuts, seeds and drink plenty of water to keep things moving. Be sure to eat adequate protein to enhance recovery as well as B Vitamins from meat, poultry, fish, eggs, leafy greens and milk.



To reduce pre menstrual symptoms, anti inflammatory and anti oxidant rich foods are essential such as oily fish, eggs, nuts, fruit and veg. Try and reduce processed foods and refined foods.

