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## Female Athlete Education.

# THE MENSTRUAL CYCLE: THE BASICS

### Defining the terms:

**Menarche:** The **first occurrence of menstruation** (aka your first ever period!).

**Menstrual cycle:** A fairly predictable, and repeating, **cycle of changes in sex hormones** (such as oestrogen and progesterone) making pregnancy possible. Day one of your cycle begins on the first day of your period and runs until the day before your next period!

**Period (menstruation/menses):** **Shedding of the endometrial lining** (of the uterus) through the vagina, if the egg released at ovulation is not fertilised.

**Ovulation:** The **release of an egg(s) from the ovary** (usually this occurs at the midpoint of each menstrual cycle).

### What's 'normal'?

**Reminder:** The menstrual cycle is **highly individual**, but there are some **common characteristics**:



**Cycle length:**  
between **21 and 35**  
days (21 to 40 days for  
teens).



**Period length:**  
between **2 to 7 days**.



**Period blood flow:**  
shouldn't be **excessive**  
or **interfere** with your  
quality of life.



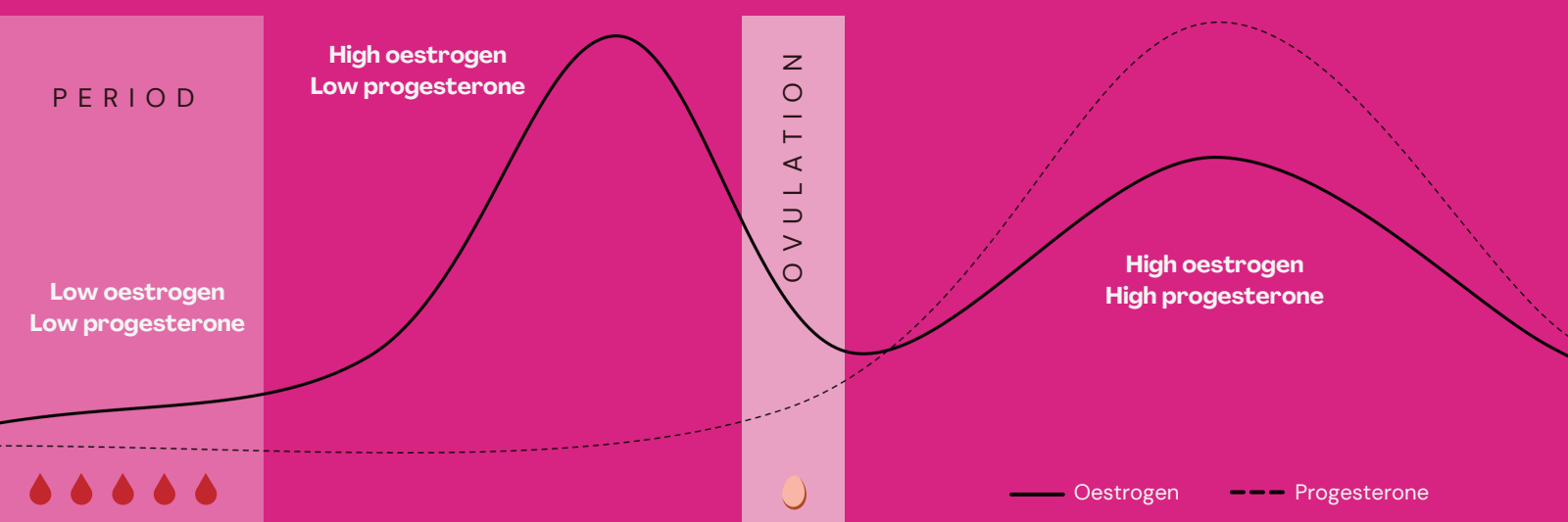
**First period age:**  
between **9 and 15**  
years old.

### The menstrual cycle:

The menstrual cycle is controlled by the **hypothalamic, pituitary, ovarian axis** (or HPO axis for short). Whilst there are many hormones involved in controlling the menstrual cycle (e.g., GnRH, FSH, & LH), the **two main hormones** that we're interested in are **oestrogen and progesterone**.

FOLLICULAR PHASE

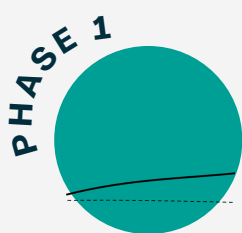
LUTEAL PHASE



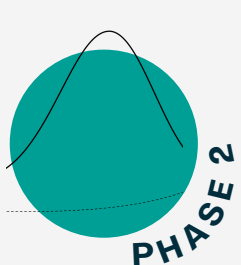
*The above diagram represents the fluctuations in sex hormones across a textbook 28-day cycle. Please note we're not all textbooks and only 13% of women have a 28-day cycle!*

### The phases:

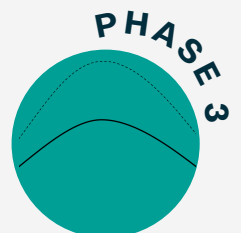
The varying concentrations and ratios of oestrogen and progesterone across the menstrual cycle give the cycle its **four main phases**:



Menstruation occurs. Oestrogen and progesterone concentrations are **at their lowest**.



**Oestrogen rises whilst progesterone remains low.** Eventually, oestrogen reaches its peak just prior to ovulation before it begins to decline.



**Progesterone starts to rise** after ovulation and reaches its peak at the mid-point of the luteal phase. **Oestrogen also has a secondary peak** at this time.



If pregnancy does not occur, **both oestrogen and progesterone begin to decline**. Because the endometrium is no longer supported, it begins to shed and a new cycle begins.

### When to get help?

Speak to your doctor/GP:

- If you haven't started your first period by **age 15**.
- If you have **missed three or more consecutive periods** when your periods were previously regular.
- Period pain/other symptoms that **stop you from performing day-to-day activities or training**.
- **Heavy menstrual bleeding** (e.g., needing to change a super pad or tampon every 2 hours, flooding, large clots, interferes with your quality of life) or **abnormal bleeding** between periods/after sex.
- If you think you're **pregnant**.
- If you have any **questions** about your menstrual cycle/notice a **change** in your 'normal' cycle.

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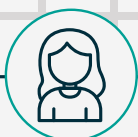
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# THE MENSTRUAL CYCLE : DISORDERS DICTIONARY



## Primary amenorrhea

When a girl reaches **age 15** and her period has not yet started.



## Secondary amenorrhea

The **absence of at least three consecutive periods** in non-pregnant women who previously had regular menstruation and who are not on hormonal contraception.



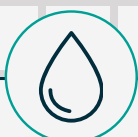
## Oligomenorrhea

Infrequent periods, or intervals **longer than 35 days** between each period (roughly four to nine periods in total over twelve months).



## Anovulation

A cycle that **does not include ovulation** (i.e., unable to detect ovulation using urinary ovulation test kit or by blood hormone analysis).



## Heavy periods

**Abnormally heavy periods** (e.g., needing to change a super pad or tampon every 2 hours, flooding, large clots, bleeding lasting more than 7 days) that interferes with a woman's quality of life.



## Dysmenorrhea

**Painful periods** which can be primary (pain caused by the bleeding itself) or secondary (pain with another root cause, such as endometriosis etc.).



## Premenstrual syndrome (PMS)

A cluster of repetitive **symptoms** (e.g., breast pain, bloating, mood changes) experienced by some women in the 1 to 2 weeks **before their period**.



## Premenstrual dysphoric disorder

A **severe form of premenstrual syndrome**. Typically symptoms include depression, and other mood changes a week or two before the period.



## Polycystic ovary syndrome (PCOS)

A **hormone disorder** resulting in:

- Irregular or absent periods
- Elevated androgen hormones which might result in excess facial and body hair, acne, and male-pattern hair loss.
- Ovaries might contain cysts (polycystic).



## Endometriosis

**Tissue similar to the inner lining of the uterus grows outside the uterus**, resulting in chronic pelvic pain, painful periods, painful sex, back pain, etc.



If you have any questions arising after reading this infographic please speak to your doctor/GP.

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# THE MENSTRUAL CYCLE : DEBUNKING COMMON MYTHS



## 1 "I shouldn't talk about my periods at training".

When it comes to our participation in sport we often talk about sleep habits, diet, and training, **but rarely our menstrual cycle**. But, to optimise our health, participation, and performance in sport, we need to **break this silence** and start to consider the menstrual cycle in the same light as these other functions.



## 6 "Everyone has a period every 28 days".

A textbook cycle might be 28-days, **but we're not all textbooks!** The length of a menstrual cycle (time from day one of bleeding to the day before your next period) is between **21 to 35 days** (and up to 40 days in teens). It is also 'normal' for menstrual cycle length to vary by up to 5 days cycle-to-cycle.



## 2 "I'm going to perform worse on my period".

There are **no evidence-based guidelines** for managing exercise performance across the menstrual cycle. Some athletes might notice a difference in their performance across their menstrual cycle, whilst others might not. The best advice for now is to **take an individualised approach** through cycle tracking.



## 7 "Period pain and other symptoms are normal".

While some menstrual cycle-related symptoms are to be expected, **severe** period pain and other symptoms that impact your day-to-day life as well as performance and training should not be dismissed as 'normal'. **You don't have to train through the pain**. Speak to your doctor/GP for more information.



## 3 "I need to be training in line with my cycle."

**Everyone is individual** and some women might benefit from tailoring their training to their menstrual cycle phase, whereas others might not. Reminder: there are only 5 studies to date that have looked at tailoring strength training across the cycle, and no studies that have looked at endurance/combination training!



## 8 "I just have to get on with heavy bleeding".

Excessive heavy menstrual bleeding that **impacts your quality of life should not go ignored**. Heavy menstrual bleeding might put you at risk of iron deficiency and anaemia, and could be a sign of menstrual cycle dysfunction. Reminder: you shouldn't supplement with iron unless advised to by a medical practitioner!



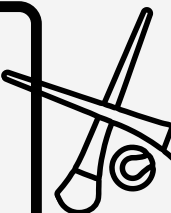
## 4 "My cycle doesn't help me as an athlete".

While the inconveniences of menstrual bleeding and negative cycle-related symptoms might leave you feeling this way, your menstrual cycle is in fact **an indicator of health**. The sex hormones involved in your menstrual cycle are also important for the likes of bone and cardiovascular health!



## 9 "I should avoid exercise on my period".

There is **no evidence** to suggest that you should avoid exercise (intense or not) whilst you're on your period. In fact, exercising whilst on your period is **completely safe, and might also help you to manage some of the negative cycle-related symptoms** you might be experiencing at this time!



## 5 "Not having a period means I'm training hard!"

Red flag: A missing period or extended/irregular cycle length might be a sign of relative energy deficiency in sport (REDs) which could be a result of over-exercising, under-fuelling, or a combination of both. This might put you at an **increased risk of injury, illness, and underperformance**.



## 10 "It's ok to be 16 and not have my first period".

Yes and no. There might be **medical and other (training and/or nutritional) reasons for delayed menarche** (aka your first period). If you reach the age of 15 and a half and you haven't experienced your first period yet, then it's time to see your doctor/GP as they can clarify any uncertainty and determine why.



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# THE MENSTRUAL CYCLE : HOW TO TRACK

01

## The benefits of menstrual cycle tracking:

As an athlete, tracking your menstrual cycle can benefit both your health as well as your sport participation and performance. In particular it can help you:

- 💡 Understand your own individual menstrual cycle patterns like cycle length and blood flow
- 📅 Identify any changes in your typical patterns and seek support for this (if needed)
- 📅 Be prepared by predicting your next period date(s)
- 🩺 Manage menstrual cycle related symptoms
- 📊 Tracking alongside performance, training and recovery metrics could help you identify performance related trends across the menstrual cycle (if any)



02

## How to track your menstrual cycle:

- 📱 Using a phone app designed for menstrual cycle tracking
- 📅 Using a calendar
- 📝 Using pen and paper

No matter which method you choose, consistency is key! Start by tracking your cycles for at least **three consecutive months** to establish your patterns and what's typical for you.

When using cycle tracking apps, ensure that your **personal data is secure** by reviewing the apps' policy to understand how your data will be collected, stored, and shared.



03

## What to track across your menstrual cycle:



### Cycle length:

The number of days from the start of one period to the day before the next period. To track this, **log the first day of your period** (first day of bleeding) - this marks day 1. *A typical cycle length is between **21 and 35 days** (or up to 45 days in girls who got their first-ever period in the last 3-5 years).*



### Period length and blood flow:

The number of days when you are bleeding and how much you bleed, such as light, moderate, heavy etc. You can also note any spotting/bleeding between periods. To track this, **log all the days when you are bleeding**. *A typical period length is between **3 and 7 days**.*



### Ovulation:

Keeping a track of signs of ovulation, such as changes in **cervical fluid, basal body temperature and ovulation predictor kit results** can help you spot if and when ovulation might be occurring (allowing you to get a better estimation of your cycle phases). *For more details on cycle phases, refer to 'The Menstrual Cycle: Back to Basics'*



### Menstrual cycle related symptoms:

Log any **physical and mood symptoms (and their severity)** even if you aren't sure if they are linked to your cycle. Over time, you may be able to identify patterns and trends across multiple cycles. *Some common symptoms: abdominal cramps, fatigue, lower back pain, mood changes*



### Performance related factors:

You can **map your performance data** (e.g., wellness, performance results, training data, and recovery metrics) **onto your cycle data**. Over time, you may be able to identify patterns and trends across multiple cycles.

04

## Takeaway message:



As an athlete you might want to start to track your menstrual cycle to:

1. Gain a deeper understanding of your body
2. Recognise any menstrual irregularities and dysfunctions (and seek medical help if needed)
3. Anticipate and manage any menstrual cycle related symptoms
4. Understand if/how your menstrual cycle influences your sport performance and what strategies can help you overcome any negatives or make the most of any positives!

All of this will allow you to keep performing at your best at any day of your cycle!

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# HORMONAL CONTRACEPTION: THE DIFFERENT TYPES

O1

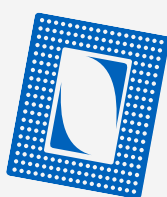


## COMBINED CONTRACEPTIVE PILL

*Example brands: Microgynon®, Rigevidon®, and Ovranette®*

- **Delivery method:** Self-administered, taken orally
- **Frequency:** Some types might be taken every day whereas others might be taken for 21 days followed by a break for 7 days. Sometimes individuals might have a shorter break of 4 days (tailored regime) or skip the break (continuous regime).
- **Formulation:** Synthetic oestrogen and progesterone. Also available in monophasic, biphasic, triphasic and quadruphasic forms.

O2



## CONTRACEPTIVE PATCH

*Example brands: EVRA®*

- **Delivery method:** Self-administered. A small square patch, 5cm by 5cm that you wear on your skin (top of your arm or back, your bottom or your tummy) which releases hormones into your body.
- **Frequency:** Replaced every 7 days for 3 weeks until patch free week (or sometimes might be worn back-to-back)
- **Formulation:** Synthetic oestrogen and progesterone.

O3



## VAGINAL RING

*Example brands: NuvaRing®*

- **Delivery method:** Self-administered, inserted into vagina. It's made of soft plastic and is around 5cm across.
- **Frequency:** Replaced every 3 weeks followed by ring free week (or sometimes might be worn back-to-back)
- **Formulation:** Synthetic oestrogen and progesterone.

O4



## PROGESTIN-ONLY PILL

*Example brands: Cerazette®, Cerelle®, and Norgeston®*

- **Delivery method:** Self-administered, taken orally.
- **Frequency:** Typically this is taken daily for 28 days. When you finish a pack, you start a new pack the next day (without any break). Some new forms might be taken for 24 days followed by a 4 day break.
- **Formulation:** Synthetic progesterone *only*.

O5



## INJECTION

*Example brands: Depo-Provera™*

- **Delivery method:** Medically administered, intramuscular injection (you can choose to do one type of contraceptive injection yourself at home and a doctor or nurse can show you how to do this).
- **Frequency:** Once every 8 to 13 weeks, depending on the type.
- **Formulation:** Synthetic progesterone *only*.

O6



## IMPLANT

*Example brands: Implanon™ and Nexplanon™*

- **Delivery method:** Medically administered. A small plastic rod, around 4 cm long which is implanted under skin of the upper arm.
- **Frequency:** 3 years then needs to be replaced with a new one
- **Formulation:** Synthetic progesterone *only*.

O7



## INTRAUTERINE SYSTEM [IUS]

*Example brands: Mirena™*

- **Delivery method:** Medically administered, inserted in the uterus
- **Frequency:** 3 to 8 years, depending on the type
- **Formulation:** Synthetic progesterone *only*.

\*Please note: The IUS (or hormonal coil) is not the same as an intrauterine device (IUD). An IUD, also known as a copper coil, does not contain any synthetic hormones.



This infographic does not constitute medical advice. It is essential to consult with your healthcare provider/GP regarding hormonal contraceptive options to make informed decisions that prioritise your health and safety. Always adhere to the manufacturer's instructions and follow your doctor's advice.

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