



OPTIMISE YOUR

# Hormone Health

An evidence-based  
guide to setting up  
strong foundations for  
balanced hormones.

---

Dr. Shweta Patel, MD FACOG





# Table of Contents

INTRODUCTION	<b>03</b>
UNDERSTANDING HORMONES	<b>04</b>
THE IMPORTANCE OF NUTRITION	<b>11</b>
OPTIMISING YOUR LIFESTYLE	<b>17</b>
TOXIN EXPOSURE & EDC'S	<b>22</b>
TRACKING YOUR CYCLE	<b>27</b>
TESTING	<b>33</b>
NUTRITIONAL SUPPLEMENTS	<b>36</b>
HERBAL MEDICINE	<b>41</b>
A HOLISTIC APPROACH	<b>44</b>
REFERENCES	<b>47</b>

---

# Introduction

When it comes to balancing your hormones there are two important things to know. Firstly, your hormones don't go out of balance by themselves, there's always an underlying cause. Second, achieving hormonal balance is an ongoing journey rather than a destination. This is why a holistic approach is so beneficial, as it honours your body's innate healing abilities and enables you to set up strong foundations for healthy, balanced hormones.



Throughout this book we will explore hormonal health through a holistic lens. You'll learn what hormones are, what causes them to go out of balance, as well as steps you can take to optimise your hormones. The advice given in this book is of a general nature and does not take into account your individual circumstances. Please consult with your health care practitioner before making any major diet or lifestyle changes.

# 01

# *Understanding Hormones*

Hormones are chemical messengers produced by endocrine glands in your body. They travel around in your bloodstream and send messages to your tissues and organs. Your hormones play a crucial role in growth and development, metabolism, reproduction, mood and stress. Hormones are constantly fluctuating but when they are out of balance, either too high or too low, this can impact your overall vitality and how you feel on a daily basis.

While hormones are to blame for a wide range of symptoms and conditions, a hormonal imbalance in itself is a symptom of a deeper underlying issue. Hormones don't tend to go out of balance by themselves, instead, they're responding to an obstacle that is inhibiting their natural equilibrium. Examples of obstacles include nutrient deficiencies, poor detoxification, inflammation, poor gut health, stress and toxin exposure.



A conventional approach often focuses on hormones themselves as the primary issue and uses medications to directly alter hormone levels. A holistic approach on the other hand takes a deeper dive, and aims to identify and address the root cause, allowing your hormones to naturally regain their balance.

## DIFFERENT HORMONES

### **Estrogen**

Estrogen is primarily produced by the ovaries, but smaller amounts can be made by the adrenal glands and fat tissues. There are 3 main types: Estradiol is the main type of estrogen during reproductive years, estrone, a weaker form of estrogen becomes the main form after menopause, and estriol is primarily produced during pregnancy. Estrogen fluctuates during the menstrual cycle being highest during ovulation and lowest at menstruation. Besides its role in reproduction, estrogen is also important for bone density and cardiovascular health.

### **Progesterone**

Progesterone is produced during ovulation and is most well-known for its role in fertility and pregnancy. Progesterone levels are at their highest 5-7 days after ovulation. Other roles that progesterone has in the body include calming the nervous



system, stabilising mood, and promoting better cognition and sleep.

### **Testosterone**

While typically known as a male hormone, testosterone is also important in smaller amounts in females. It plays a role in sexual function and libido, bone and muscle health, and overall vitality. Excessive testosterone in women, however, is associated with the condition PCOS.

### **Stress Hormones**

The body's two main stress hormones are cortisol and adrenaline. Following a threat, your brain tells your adrenals to produce adrenaline, putting your body into fight or flight mode. Your breathing and heart rate increase, muscles tense and pupils dilate to help you fight or flee. If the stress continues, your adrenals then begin to release cortisol which helps your body adapt to this increased stress by ensuring there is enough glucose in your bloodstream. Over time the communication between your brain and adrenals can become disrupted, which is known as HPA-dysfunction.

## Thyroid Hormones

Thyroid hormones thyroxine (T4) and triiodothyronine (T3) are responsible for controlling metabolism, heart rate and body temperature. They are produced by your thyroid gland in response to a hormone called TSH which is released by your brain. TSH directs your thyroid gland to either increase or decrease its production of T4 and T3 based on their levels in your bloodstream. TSH is the most common blood test used to investigate your thyroid function, however measuring T4, T3, rT3 and thyroid antibodies alongside TSH provides a much more comprehensive overview of your thyroid health.

## Insulin

Insulin is a hormone released by your pancreas that plays a crucial role in blood sugar regulation. Insulin is like a key that allows glucose to enter your cells from your bloodstream. Insulin resistance is where cells stop responding to insulin and consequently, glucose cannot efficiently enter the cells. This leads to higher levels of glucose in the bloodstream and over time can lead to type 2 diabetes and other health complications.



# MOST COMMON HORMONAL IMBALANCES

## **Estrogen Dominance**

One of the most common hormonal imbalances in women is estrogen dominance, or an excess of estrogen relative to progesterone. It can either present as high levels of estrogen or normal estrogen but low progesterone. The consequences of estrogen dominance include irregular cycles, PMS, heavy or painful periods, headaches, mood swings and worsening of endometriosis & fibroids. Common causes of estrogen dominance include poor detoxification of estrogen, exposure to endocrine-disrupting chemicals, stress and inflammation.

## **PCOS**

Polycystic ovarian syndrome (PCOS) is characterised by elevated testosterone and other androgens, which disrupt ovulation, leading to irregular menstrual cycles and symptoms such as facial hair, acne and hair loss. There are four different types of PCOS. Approximately 70% have insulin-resistant PCOS where elevated insulin is the cause of high androgens. Post-pill PCOS is a temporary surge in androgens after discontinuing hormonal contraceptives. Inflammatory PCOS is characterised by normal insulin levels but the presence of chronic inflammation which is driving the PCOS. Lastly, adrenal PCOS is characterised by normal levels of testosterone but elevated levels of DHEAs.

## **Cortisol Dysregulation**

You may have heard of the term adrenal fatigue, which is now referred to as cortisol dysregulation or HPA-axis dysfunction. This condition is caused by chronic stress, which initially causes high cortisol levels, but over time can disrupt the communication between your brain and adrenals, causing low cortisol. Symptoms include fatigue and lethargy, mood disturbances, poor motivation, brain fog, weight gain around the middle and poor immune function.

## **Hypothyroidism**

Hypothyroidism occurs when the thyroid fails to produce enough thyroid hormones to maintain optimal metabolic function. Symptoms include stubborn weight gain, fatigue, sluggishness, hair loss, dry skin, depression and irregular cycles. Hypothyroidism can be caused by an autoimmune condition called Hashimoto's, as well as nutrient deficiencies, inflammation and chronic stress.



# SYMPTOMS OF A HORMONAL IMBALANCE

- Fatigue
- Headaches
- Mood swings
- Irregular periods
- Heavy periods (menorrhagia)
- No periods (amenorrhea)
- Light periods
- Short cycles
- Hair loss/thinning
- Facial hair (hirsutism)
- Acne
- Period pain (dysmenorrhea)
- Breast tenderness
- Bloating/fluid retention
- Low libido
- Stubborn weight gain
- Hot flashes
- Night sweats
- Brain fog
- Anxiety
- Depression
- Muscle weakness
- Recurrent BV or thrush
- Dry skin
- Spotting
- Sleep difficulties
- Appetite changes
- Food cravings

# 02

## *The Importance of Nutrition*



Your diet has a huge influence over your hormonal health, and should be the first thing you focus on when it comes to balancing your hormones. A Western diet rich in processed foods, sugar and unhealthy fats is known to create inflammation, gut dysbiosis, blood sugar dysregulation and nutrient deficiencies, all of which can significantly disrupt your hormones. Studies have shown that PMS symptoms are more severe with a Western dietary pattern [1]. In addition, a Western diet can reduce levels of SHBG and increase bioavailability of estrogen and testosterone in the body, worsening conditions such as endometriosis, fibroids and PCOS [2].

One of the most well-researched dietary patterns for optimal hormone health is the Mediterranean diet which emphasises the consumption of whole, natural and minimally processed foods including fruits, vegetables, whole grains, legumes, nuts, seeds, fish and extra virgin olive oil. It also limits the intake of processed foods, refined carbohydrates, and processed meat.

A 2023 study found that long-term adherence to the Mediterranean diet is associated with lower levels of morning cortisol and favourable changes in fasting glucose, TSH and testosterone [3]. Another study found that a lower-carb Mediterranean diet can significantly restore endocrine function and regulate the menstrual cycle in patients with PCOS [4]. The Mediterranean diet is also a useful intervention for PMS and reduces the risk of hormone-sensitive cancers [5,6]. By supplying an abundance of dietary fibre, vitamins, minerals, antioxidants, polyphenols and healthy fats such as omega-3, the Mediterranean diet helps to balance hormones.

## ESSENTIAL NUTRIENTS FOR YOUR HORMONES

- **ZINC** - Cashews, almonds, sunflower seeds, lentils, chickpeas, dairy products, chicken, red meat.
- **OMEGA 3** - Fatty fish such as salmon, sardines & trout, walnuts, hemp seeds, flax seeds, algal oil.
- **MAGNESIUM** - Avocado, almonds, spinach, black beans, dark chocolate, pumpkin seeds, wholegrains.
- **VITAMIN D** - Sunlight, fatty fish, some mushrooms & eggs
- **B VITAMINS** - Wholegrains, meat, fish, eggs, beans, lentils, chickpeas, dark leafy greens, dairy products.

# EATING FOR YOUR HORMONES



**Eat breakfast within 1 hour of waking** - Skipping breakfast can trigger a cortisol and blood sugar spike, which can disrupt your energy and mood throughout the day. Ensure you eat a quality breakfast with protein and healthy fats within an hour of waking.



**Have your coffee after food** - Coffee on an empty stomach can spike cortisol levels, worsening things like stress and anxiety. Wait until you've had a nourishing breakfast to have your morning coffee or try switching it out for green tea, which contains L-theanine, a calming chemical.



**Ensure you're eating plenty of fibre** - Your body cannot eliminate excess hormones like estrogen without the help of your gut. Keep things moving and keep your gut bugs happy by consuming at least 30 different plant foods every week.



**Load up on the cruciferous veg** - Vegetables like broccoli, cauliflower and cabbage contain sulforaphane, which activates your phase II liver detoxification. This is essential for your body to process and eliminate hormones like estrogen, as well as endocrine-disrupting chemicals.



**Prioritise quality protein** - Consuming sufficient protein is essential for hormone synthesis, transport, and function, as well as for regulating blood sugar levels. Aim to include a palm-sized portion of protein in every meal.



**Don't fear fats** - Healthy fats are fundamental for hormone synthesis and receptor function. They're also essential for reducing inflammation and for blood sugar regulation. Aim for 1-2 servings of healthy fats at every meal.



**Consume fermented foods daily** - Fermented foods such as yoghurt, sauerkraut, kimchi and kombucha contain probiotics that promote a healthy and diverse gut microbiome.

EAT MORE	EAT LESS OR AVOID
<ul style="list-style-type: none"> <li><b>Fruit &amp; veg:</b> Leafy greens, cruciferous veg, carrots, garlic, onion, fresh herbs, berries, kiwi fruit, citrus</li> <li><b>High-quality protein:</b> Fish, eggs, organic poultry, natural yoghurt, cottage cheese, tofu, tempeh, legumes</li> <li><b>Healthy fats:</b> Extra-virgin olive oil, avocado, coconut, nuts, seeds, fatty fish like salmon &amp; sardines</li> <li><b>High-fibre foods:</b> Wholegrains like quinoa, buckwheat &amp; brown rice, lentils, beans, chickpeas</li> <li><b>Filtered water:</b> Aim for 2L of filtered water daily</li> </ul>	<ul style="list-style-type: none"> <li><b>Caffeine &amp; alcohol</b></li> <li><b>Refined grains:</b> white bread, flour, pasta, white rice</li> <li><b>Added sugars:</b> soft drinks, baked goods, ice cream, breakfast cereals, flavoured yoghurt, sauces</li> <li><b>Processed meats:</b> sausages, deli meats, bacon.</li> <li><b>Trans fats:</b> margarine, fried foods, pastries.</li> <li><b>Food additives:</b> artificial colours, flavours, sweeteners, MSG</li> </ul>

## **Breakfast**

- Overnight oats with chia seeds, cinnamon, Greek yoghurt and blueberries
- Avocado & white beans on wholegrain toast with feta and hempseeds
- Omelette with mushrooms, spinach and garlic

## **Lunch**

- Grilled chicken salad with leafy greens, fresh herbs, feta, nuts and an olive oil dressing
- Falafel wholemeal wrap with hummus, fresh herbs and vegetables
- Vegetable and lentil soup

## **Dinner**

- Lentil bolognese with wholegrain pasta
- Grilled salmon with roast vegetables
- Tofu or chicken stir fry with soba noodles
- Chickpea curry with quinoa

## **Snacks**

- Vegetable sticks with hummus
- Handful of mixed nuts
- Rice cakes with avocado
- Greek yoghurt with berries
- Dates with almond butter



# 03

## *Optimising Your Lifestyle*

Your lifestyle is equally important when it comes to your hormonal health. Lack of exercise, lack of sleep and stress can all significantly disrupt your hormones.

### MOVEMENT

The benefits of building and maintaining muscle mass cannot be overstated when it comes to balancing your hormones. Exercise supports metabolic health and body composition, blood sugar balance, stress reduction and blood circulation to your reproductive system. It also helps to regulate levels of cortisol, estrogen, progesterone and testosterone.

If you're just starting to incorporate more movement into your daily routine, then any physical activity is better than none. Ideally, you want to aim for at least 20-30 minutes of moderate-intensity exercise every day. This includes anything that

increases your heart rate and breathing, but still allows you to carry on a conversation. This could include a fast-paced walk, bike ride, swim, pilates, climbing stairs, or even household chores like gardening or sweeping.

It's also recommended that you do strength training at least two or more days every week. This includes bodyweight exercises such as push-ups, lunges and squats, using weights to perform exercises, pilates, certain types of yoga focused on building strength and heavy gardening work like digging or shovelling.

Many people also enjoy more intense exercise such as HIIT or running, which can lead to greater benefits for cardiovascular health, insulin sensitivity and body composition. Be careful not to overdo it, as too much high-intensity exercise is a stressor on the body. Listen to your body and avoid this type of exercise when you are highly stressed, premenstrual, unwell or feeling depleted.

It's important to set small, achievable goals that you can sustain over time. Exercise with a friend or partner, or join a fitness class to keep you accountable and motivated.





# STRESS

In this day and age, it's rare to find anyone who isn't stressed. But the harsh reality is what's common isn't necessarily normal. During fight or flight processes like digestion and reproduction are put on the back burner as your body prioritises immediate survival. Over time if the stress continues, your body has to adapt to this increased level of stress by elevating cortisol levels. Cortisol is beneficial initially, but chronically high levels can create HPA-dysfunction.

## **Removing sources of stress**

Start by making a list of things that cause you stress. This can include external factors like financial issues and work deadlines or internal factors like self-criticism. Categorise your stressors into things you can control and things you can't. Make a plan for the ones that you can control. This could mean changing your routine, setting boundaries or seeking the help of a therapist.

## **Regulating your nervous system**

To support optimal nervous system function it's important to find mindfulness activities that work for you and practice them regularly. This can include deep breathing, meditation, yoga, qi gong, journalling, getting out in nature and even gentle exercise. Bringing your attention to the present moment helps to calm your body and reduce stress hormones.

## SLEEP

During sleep, your body engages in vital restorative processes, repairing and rejuvenating tissues, cleansing and removing waste products and toxins, balancing hormones and recalibrating your nervous system. Skipping sleep compromises your body's ability to heal and recharge, leading to hormonal changes.

Our sleep-wake cycle is regulated by a delicate balance of chemicals and our internal body clock known as our circadian rhythm. When daylight diminishes, our brain releases melatonin, which signals to our body that it's time to wind down and prepare for sleep. Another major player is a chemical called adenosine, which builds up in our brain throughout the day as we engage in activities. As levels of adenosine rise, so does our sleep drive, which eventually leads to drowsiness and the need for restorative sleep.

# SLEEP HYGIENE PRACTICES



**Establish a consistent sleep schedule** - This trains your body to release sleep-promoting chemicals at the right time to promote restful sleep. Try to go to bed and wake up at the same time every day, even on weekends and resist the urge to hit the snooze button.



**Create a relaxing bedtime routine** - Winding down before bed signals to your body that it's time to sleep. Try reading a book, having a bath, gentle yoga or listening to calm music.



**Limit caffeine** - Caffeine keeps you alert by blocking adenosine receptors, making it more difficult to fall asleep. I recommend avoiding coffee, tea and other sources of caffeine like dark chocolate at least 4-6 hours before bed.



**Limit bright lights and screens** - Blue light emitted from screens can suppress melatonin production. Use soft, warm lighting at night and limit screens 1-2 hours before bed.

# 04

## *Toxin Exposure & EDC's*

Endocrine-disrupting chemicals (EDC's) are environmental chemicals that wreak havoc on your hormones. There are thousands of different EDCs including pesticides, BPA, PCBs, phthalates, dioxin, parabens, air pollution, nickel, copper, lead and mercury.

Endocrine-disrupting chemicals mimic hormones and interfere with hormone signalling. They can bind to receptors and inappropriately activate them or block them and prevent normal hormonal processes from taking place. Even a small amount of an EDC can significantly disrupt your hormones. Studies have found links between EDC exposure and early menopause, altered fertility, reduced ovarian function, menstrual cycle irregularities, breast cancer, fibroids, PCOS, endometriosis and diabetes [8, 9, 10]. EDCs can also affect your thyroid, adrenal and pancreatic function. While our bodies have natural ways to eliminate toxins, we were never designed to cope with the ever-increasing level in our modern environment.

## ALCOHOL

Alcohol consumption, even in moderate amounts, is known to significantly disrupt hormones by interfering with the communication between your brain and endocrine organs such as your adrenals, thyroid and ovaries [7]. It can increase levels of stress hormones, cause irregular menstrual cycles, disrupt ovulation, impair fertility, and increase the risk of early menopause and hypothyroidism [7]. It's important to cut back on alcohol as much as possible and aim for no more than 2-5 drinks a week.

## SMOKING AND VAPING

The effects of smoking on reproductive function and fertility are well documented, and research is beginning to uncover similar concerns with vaping. This can be attributed to the array of toxins and endocrine-disrupting chemicals that come with smoking and vaping. For support visit <https://www.quit.org.au>



# SUPPORTING DETOXIFICATION



A plant-rich Mediterranean diet will provide your body with nutrients to support each phase of detoxification.



Drinking plenty of clean, filtered water is necessary to flush toxins out of your body.



Daily exercise helps in the elimination of toxins stored in fat tissues. It also helps with blood and lymphatic circulation.



Ensuring 8 hours of quality sleep a night allows your body to remove waste and toxins from your brain and body.

## SWAP OUT



Tap water or  
plastic bottles



Filtered  
water in  
stainless or  
glass bottle



Non-stick  
cookware



Stainless, or  
cast iron



Conventional  
Produce



Organic,  
local, home-  
grown or  
washed well



Artificial  
fragrances



Fresh flowers,  
essential oils (in  
moderation)



Plastic  
containers



Store food in  
glass & never  
heat food in  
plastic.



## SWAP OUT



Cleaning supplies



Use bicarb soda, vinegar, lemons &/or castile soap



Skincare products



Use natural alternatives free from parabens & phthalates



Clothing and bedding



Use natural fabrics like cotton and bamboo



Alcohol



Sparkling water with lemon & mint or pomegranate juice



Processed foods and additives



Wholefoods



# 05



## *Tracking Your Cycle*

Your cycle is like a monthly report card, offering valuable insight into your reproductive health and fertility. Tracking your cycle empowers you to know your body on a deeper level and identify problems that may otherwise go unnoticed.

It helps you understand the length and regularity of your cycle, which is a fundamental indicator of your overall reproductive health. Long or short cycles, a short luteal phase, missed periods and spotting can indicate a potential underlying condition or hormonal imbalance that needs to be addressed.

Many people rely on apps to track their cycle and identify ovulation, and while apps can provide an educated guess based on the length of your cycle, it's still only a rough estimate. In addition, many women experience anovulatory cycles where they don't ovulate but still experience a normal period. Tracking your temperature and cervical mucus helps you accurately predict when ovulation will occur, as well as identify anovulatory cycles.

## HOW TO TRACK YOUR CYCLE

The first step is to purchase yourself a basal body or ovulation thermometer. This is more sensitive than a regular thermometer and has 2 decimal places. You'll find them in most chemists. Your basal body temperature is your body's temperature at rest, which is measured first thing in the morning before you get out of bed, after at least 3 hours of consecutive sleep.

1. Choose a starting point, the best place to begin is on the first day of your period, which is day one of your cycle.
2. As soon as you wake up in the morning, take your temperature under your tongue. Add your temperature to the chart on the next page.
3. It's also helpful to pay attention to cervical mucus changes, noticing the colour and consistency.



# BASAL BODY TEMPERATURE TRACKER

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Date:	/	/																																	
Time:	:	:																																	
98.9°F	37.3°C																																		
98.8°F	37.2°C																																		
98.7°F	37.1°C																																		
98.6°F	37.0°C																																		
98.5°F	36.9°C																																		
98.4°F	36.8°C																																		
98.3°F	36.7°C																																		
98.2°F	36.6°C																																		
98.1°F	36.5°C																																		
98.0°F	36.4°C																																		
97.9°F	36.3°C																																		
97.8°F	36.2°C																																		
97.7°F	36.1°C																																		
97.6°F	36.0°C																																		
97.5°F	35.9°C																																		
97.4°F	35.8°C																																		
97.3°F	35.7°C																																		
97.2°F	35.6°C																																		
97.1°F	35.5°C																																		
97.0°F	35.4°C																																		
96.9°F	35.3°C																																		
Fertile Mucus:																																			
Intercourse:																																			
Period:																																			

**Charting your cycle:** Using a digital thermometer, take your temperature under your tongue before getting out of bed. Record it with an X on the chart. Day 1 of your cycle is the first day of menstruation.

# MENSTRUAL CYCLE TRACKER

# HOW TO INTERPRET YOUR CHART

## **Follicular phase (pre-ovulation):**

- In the first half of your cycle your basal temperature tends to be lower, typically ranging from 36.1°C to 36.4°C (97.0°F to 97.5°F).
- Your cervical mucus may be minimal or absent right after your period, and then gradually become creamy or lotion-like in consistency as your estrogen levels rise.

## **Ovulation phase:**

- Your basal temperature may dip slightly right before ovulation due to a surge in estrogen. This dip will be followed by a significant rise in temperature after the egg has been released, usually reaching between 36.4°C to 37.0°C (97.6°F to 98.6°F).
- Cervical mucus becomes stretchy, slippery, and transparent, resembling raw egg whites. This type of fluid is highly fertile, creating an optimal environment for sperm.

## **Luteal phase (post-ovulation):**

- After ovulation your temperature remains high until progesterone drops, triggering menstruation. If the egg has been fertilised, temperature will remain high as progesterone levels are sustained.

# TROUBLESHOOTING

## **Inaccurate readings:**

- Factors like alcohol consumption, stress, illness and irregular sleep patterns can all influence temperature readings. Take note of these and try to minimise them as much as possible.
- Ensure that you're taking your temperature at the same time every morning after at least 3 hours of consecutive sleep.
- If you consistently forget to take your temperature, it might be worth exploring a wearable device like TempDrop.

## **Difficulty detecting ovulation:**

- If you can't identify ovulation through basal temperature and cervical mucus, then track additional signs such as cervical positioning.
- It's possible that you may have experienced an anovulatory cycle. If this happens for 2 or more consecutive months then it's best to consult with a practitioner.

## **Irregular cycles, short luteal phase, missing period:**

- If you notice any of these things, then it's important to consult with a healthcare practitioner to investigate potential hormone imbalances, PCOS or thyroid concerns.

# 06

## *Testing*

One of the best ways to understand what your hormones are doing is through testing. There are many ways to test different hormones including blood, urine and saliva, however the most common way is through a blood test ordered by your doctor.

When it comes to testing your hormones there are a few key things to know:

1. Your hormones are constantly fluctuating which means your results will vary depending on which day of your cycle they are tested on. Knowing which day of your cycle to test on is essential for accurate results.
2. Normal ≠ optimal. The standard reference ranges used by labs are broad and not reflective of someone who is functioning at their absolute best. Naturopaths use optimal ranges which are more reflective of someone who is healthy.
3. Testing other markers alongside your hormones such as a full blood count, electrolytes and liver function, cholesterol, glucose, insulin, iron, B12, folate, zinc, copper, vitamin D & hsCRP can help to provide more context.



## WHEN TO TEST HORMONES

**Estrogen, LH, FSH, testosterone, SHBG, DHEAs & prolactin:**

Test on day 3-4 of your cycle.

**Progesterone:** Minus 7 days from your cycle length and test on this day. For example if your cycle is typically 26 days long, then you should have the blood test on day 19 (mid-luteal phase). This is because progesterone is made during ovulation, so this will tell if you have ovulated. Estrogen can also be tested at this time to assess the overall balance between these two hormones.

## TIPS FOR ACCURATE RESULTS

1. Always fast for 8-10 hours beforehand (no more than 12).
2. Avoid exercising on the day & no high intensity exercise 1-2 days prior.
3. Stop taking your supplements 3+ days prior.
4. Avoid testing when you're unwell (for routine bloods).
5. Hydrate before the test.
6. Have the test done first thing in the morning.

# BLOOD TEST OPTIMAL RANGES

Marker	Optimal range	Marker	Optimal range
FSH	<10 IU/L (should be approx 1:1 with LH)	Fasting insulin	<8 mU/L
LH	<10 IU/L (should be approx 1:1 with FSH)	Fasting glucose	3.9-5.4 mmol/L
Estradiol (E2)	120-150 On day 3-4 350-500 7 days before menstruation	Vitamin D	>100 nmol/L
Progesterone (P4)	25-30 nmol/L 7 days before menstruation	Ferritin	30-100 ug/L
Total Testosterone	0.8-1.3 nmol/L	Vitamin B12 Active B12	>400 >100
TSH	1-2.5 IU/L	Folate	7-45 nmol/L
Free T4 Free T3	14-18 4-5 pmol/L	Homocysteine	5-8 umol/L



# 07

## *Nutritional Supplements*

While a balanced diet and healthy lifestyle are foundational for optimal hormone health, sometimes they are not enough to address specific deficiencies or imbalances. In an ideal world, we would get everything we need from food, however, our soil isn't as nutrient-rich as it once was, and factors such as stress, toxins and genetic variations can increase your body's nutrient needs. For this reason, supplements can provide targeted support to enhance hormone production, regulation, and overall endocrine function.

### **ZINC**

Zinc deficiency can disrupt the synthesis and regulation of hormones such as estrogen, progesterone, testosterone and thyroid hormones. Inadequate zinc can play a role in PCOS, insulin resistance, period pain and endometriosis [11]. A 2019 systematic review found that women with PCOS have

significantly lower zinc levels compared to healthy controls [12]. Another study investigated the effects of zinc supplementation on PMS and found that zinc significantly improved PMS symptoms including headaches, anger, anxiety, depression, breast tenderness and bloating [13].

The best way to assess zinc levels is through a plasma zinc blood test. Ideally, levels should be above 14umol/L for optimal hormone functioning. It's also beneficial to test zinc alongside copper and ceruloplasmin, due to the relationship between zinc and copper in the body. Zinc and copper exist on a seesaw, so when one is low the other is often high. Elevated copper is closely linked to elevated estrogen.

## MAGNESIUM

Statistically, women are more likely to be magnesium deficient and growing evidence suggests a strong link between magnesium deficiency and hormone-related conditions [14]. One study found significant associations between low serum magnesium and general stress, hypothyroidism and gynecological conditions like endometriosis & PCOS [14]. Another study found that supplementation of 200mg magnesium citrate significantly reduced pelvic pain in primary dysmenorrhea and caused significant reductions in the need for painkillers [15].

Most of your body's magnesium is stored within your cells, and your body tightly regulates your blood levels. As a result, your blood magnesium levels can look normal even if you are deficient at a cellular level. However, low magnesium levels in a blood test ( $< 0.85 \text{ mmol/L}$ ) indicate a more advanced, chronic deficiency and should be investigated further.

## OMEGA 3

Omega 3 deficiency is a well-known cause of inflammation and inflammation is a common driver of many hormonal health concerns. A 2024 meta-analysis found that daily omega 3 supplementation can reduce menstrual pain and painkiller use in women with dysmenorrhea [16]. Another study found that omega 3 supplementation can significantly reduce the severity of PMS and the psychological and somatic symptoms, especially with a longer treatment duration [17]. Fatty fish, fish oil or algal oil (plant-based) supplements are the best source of the long-chain omega 3's EPA & DHA.



## VITAMIN D

Vitamin D is one of the most common nutrient deficiencies worldwide. A 2018 study found that women who had blood levels of vitamin D below 75nmol/L had almost five times the odds of having menstrual cycle disorders as those with sufficient vitamin D. In Australia the standard lab range is >50nmol/L, which is a good example of why optimal ranges are so important [18]. Studies have also shown that 67-85% of those with PCOS are vitamin D deficient [19]. Supplementation has been shown to improve fasting glucose, reduce insulin resistance, improve testosterone levels and improve menstrual cycles in those with PCOS [20].

## MYO-INOSITOL

Inositol is a type of sugar found in the body that has shown promising effects on hormonal regulation, particularly in women with PCOS. A 2023 meta-analysis found that inositol reduced serum total and free testosterone and androstenedione levels, increased SHBG levels, and normalised menstrual cycles compared to placebo. Myo-inositol, in particular, showed the most significant benefits, including improvements in fasting glucose, insulin levels, and BMI [21]. Myo-inositol has also been shown to significantly improve insulin sensitivity compared to metformin [22].

## DOSAGES

**Zinc** - 25-50mg/day depending on blood levels

**Magnesium** - 300mg/day of magnesium glycinate

**Omega 3** - 1000mg/day combined EPA & DHA from fish or algal oil

**Vitamin D** - 1000-2000IU/day or higher depending on blood levels

**Myo-inositol** - 2-4g/day

## IMPORTANT THINGS TO KNOW

- Supplements should be used in conjunction with a comprehensive treatment plan that investigates and addresses the root cause of your hormonal health concerns.
- A one-size-fits-all approach very rarely works, so it's important to work with a practitioner who can tailor your supplement prescription to your body's needs.
- The form, dose and quality of your supplements is essential. Quality over quantity is important and the supplements you purchase in a chemist or online don't compare to practitioner-grade ones.
- Supplements are not a quick fix or a replacement for a healthy diet and lifestyle. Focus on building those foundations first.

# 08

## *Herbal Medicine*



Herbal medicine has been used to treat hormonal concerns for thousands of years. Herbs contain bioactive compounds that interact with your body's hormonal pathways to gently bring things back into balance. They can help to relieve symptoms and also help to address the underlying cause when used appropriately.

### **Chaste Tree - *Vitex agnus-castus***

Chaste tree or vitex is one of the most common herbs used for female reproductive disorders. Vitex is known to increase progesterone levels and balance out estrogen levels, making it a beneficial herb for conditions such as PMS, anovulation, irregular periods, and perimenopause. Caution is needed with PCOS, as it has the potential to worsen the condition if LH levels are already high. A 2024 study investigated two vitex-containing products and found that they considerably improved painful periods, heavy bleeding, breast tenderness, irregular cycles, mood swings, sleep quality, and menstrual migraines [8].

### **Peony - *Paeonia lactiflora***

Peony is known to stimulate an enzyme called aromatase, which is required for the conversion of testosterone to estrogen. It can also increase progesterone levels, regulate the LH:FSH ratio and balance prolactin levels. Peony is often used alongside licorice in the treatment of PCOS [5].

### **Black seed - *Nigella sativa***

Nigella has been shown to promote menstrual regularity in PCOS by reducing LH, reducing prolactin and reducing fasting glucose and insulin [9]. It is also effective at increasing thyroid function, reducing TSH, and anti-TPO antibodies, and increasing T3 in Hashimoto's [10].

### **Berberine**

Berberine is a herbal constituent derived from herbs such as barberry and Oregon grape. It has particularly promising benefits in PCOS. Berberine showed greater improvements in waist circumference, waist to hip ratio SHBG levels, free androgen index and lipid profiles in comparison to metformin and myo-inositol [22].

### **Maca root - *Lepidium meyenii***

Early studies suggest that maca has hormone-balancing effects through maca alkaloids, which influence the HPA & HPO axis [23]. Maca has been shown to alleviate mood and stress,

inflammation, menopausal symptoms, fatigue and insulin resistance [23].

### **Black Cohosh - *Actaea racemosa***

Black cohosh is one of the most widely used herbal medicines for the relief of menopausal symptoms. It can also regulate the hypothalamic-pituitary-ovarian (HPO) axis, modulate estrogen levels and suppress LH [24].

### **Ashwagandha - *Withania somnifera***

Ashwagandha is a powerful adaptogenic herb that helps to reduce the physiological effects of stress on the body. It has been shown to positively influence the endocrine system by improving thyroid and reproductive function and normalising adrenal activity [25]. Its ability to lower cortisol levels is crucial in the context of reproductive health as high cortisol can interfere with the HPO axis. Ashwagandha can also increase the secretion of T4 & T3 from the thyroid gland, reduce TSH, increase libido, and sexual function, and lower prolactin levels [25].





# 09

## *A Holistic Approach*

The health of your hormones is intricately connected to the health of the rest of your body. Nothing exists in isolation, which is why a holistic approach is best. Rather than solely focusing on your hormones and endocrine system, a holistic approach looks at your body as a whole. It supports your body's innate healing abilities by identifying and removing the obstacles that are preventing your hormones from returning to balance.

It's also important to take into account the concept of bio-individuality. Bio-individuality refers to all the factors that make up you. It's the reason why your body's nutritional requirements are completely different from the person sitting next to you, and the reason why a one-size-fits-all all approach never really works. The factors that influence your bio-individuality include genetics, family history, biological sex, gut health, nutrient status, diet, lifestyle, current health status, biochemical imbalances, age, sleep, metabolism and more.

# COMMON UNDERLYING CAUSES

CONDITION	UNDERLYING DRIVERS
PCOS	Insulin resistance, inflammation, gut dysbiosis, EDC exposure, stress, deficiencies in mag & vit D
PMS	Estrogen dominance, low progesterone, deficiencies in B6, omega 3, zinc, mag, inflammation
Period Pain	Inflammation, deficiencies in mag, zinc & omega 3, estrogen dominance, gut dysbiosis
Endometriosis	Gut & vaginal dysbiosis (high LPS), immune dysfunction, inflammation, estrogen dominance
Irregular periods	Hypothalamic amenorrhea, stress, undereating, overexercising, PCOS, hypothyroid, celiac disease
Short cycles	Low progesterone, deficiencies in B6 & zinc, high prolactin, hypothyroid, stress, inflammation
Heavy periods	Estrogen dominance, endometriosis, fibroids, hypothyroid, deficiencies in iodine, zinc, iron, B6
Acne	High testosterone/androgens, inflammation, gut dysbiosis, insulin resistance, zinc deficiency
Low libido	Low testosterone, imbalanced estrogen, chronic stress/high cortisol, deficiencies in zinc & B vitamins

# Final Words

Navigating your hormonal health concerns can be an overwhelming experience. It's important to be gentle with yourself, build a supportive network around you and prioritise self-love and self-care.

When it comes to managing specific hormonal concerns, it's important to work with a practitioner who you can trust and who makes you feel supported. A naturopath can provide a comprehensive assessment, functional testing, tailored treatment plan, high-quality supplements, ongoing support and collaborative care.

Remember that hormonal balance is a journey rather than a destination and it requires daily work. While this guide is here to support your journey, remember that nobody is perfect and making significant diet and lifestyle changes takes time. Go at your own pace and set small, achievable goals.



# References

1. <https://pubmed.ncbi.nlm.nih.gov/37457160>
2. <https://pubmed.ncbi.nlm.nih.gov/37060654/>
3. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10682947>
4. <https://pubmed.ncbi.nlm.nih.gov/35445067>
5. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9230049>
6. <https://onlinelibrary.wiley.com/doi/10.1111/joim.13333>
7. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3767933/>
8. <https://pubmed.ncbi.nlm.nih.gov/38393671>
9. <https://pubmed.ncbi.nlm.nih.gov/37007297/>
10. <https://pubmed.ncbi.nlm.nih.gov/27852303>
11. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7468694>
12. <https://pubmed.ncbi.nlm.nih.gov/30732885/>
13. <https://pubmed.ncbi.nlm.nih.gov/35226276>
14. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7821493/>
15. <https://pubmed.ncbi.nlm.nih.gov/36600872/>
16. <https://pubmed.ncbi.nlm.nih.gov/37545015/>
17. <https://pubmed.ncbi.nlm.nih.gov/35266254/>
18. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6265788>
19. <https://pubmed.ncbi.nlm.nih.gov/29271278/>
20. <https://pubmed.ncbi.nlm.nih.gov/37427232/>
21. <https://pubmed.ncbi.nlm.nih.gov/36703143/>
22. <https://pubmed.ncbi.nlm.nih.gov/35251851/>
23. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10910417>
24. <https://pubmed.ncbi.nlm.nih.gov/33926292/>
25. [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10671406/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10671406)