A warm, golden-toned photograph of a pregnant woman with long, wavy hair, wearing a white and black vertically striped long-sleeved shirt and blue jeans. She is smiling broadly, showing her teeth. A man's face is partially visible on the right, smiling and embracing her. His hands are resting on her pregnant belly. The background is a soft, out-of-focus light color.

# Whole Health Guide to Prenconception Health



Symphony

NATURAL HEALTH

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Last updated on December 30, 2025

# About the Author

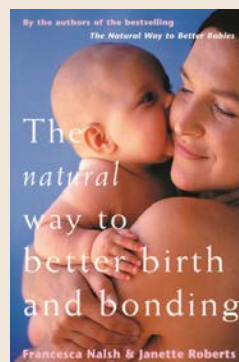
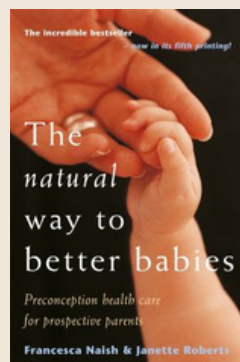
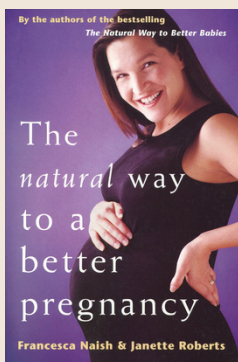
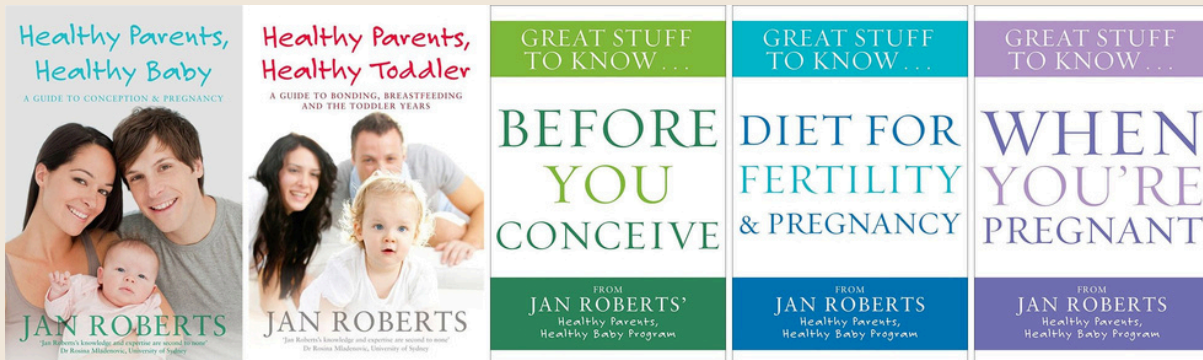
Jan Roberts has provided information and inspiration for prospective Moms and Dads for over forty years. She is the author of six best-selling books and e-books and three mini e-books. Her early works achieved official 'ever-green' status and have been translated into Dutch, Spanish, and Italian. She has made hundreds of presentations to health professionals and prospective parents around the world and has written for both medical journals and popular media.

Jan believes that preconception health is the most important, yet least discussed area of health, as current childbearing generations getting healthy to improve the health of the next generation not only improves the health of those groups but also future generations to come.

But it doesn't stop with conception - Jan is also a staunch advocate of the healthiest possible choices during pregnancy and breastfeeding, as well as the nurturing conscious parenting practices that also foster a child's emotional health, build self-esteem, and promote the well-being of the whole family.

Jan has two sons, who were the inspiration for her work, two grandsons, and a granddaughter. She sees firsthand the benefits of preconception care across generations! She lives in the beautiful Blue Mountains, west of Sydney, Australia.

Read more from Jan in her books, e-books, and mini e-books:



# Empowerment & Knowledge

## Foundations for a Healthy Beginning: Preconception Care

Healthy conception starts long before pregnancy begins — for both of you. The choices you and your partner make in the months leading up to conception can influence not only your ability to conceive, but also your baby’s lifelong health and development.

For many women, there has been a long-held belief that conception is when they need to start to be “healthy.” However, evidence now shows that preconception care is just as critical for men. In fact, the male partner contributes up to 50% of fertility concerns, underscoring the importance of supporting reproductive health in both partners [1]. Growing research also highlights a concerning trend: a global decline in sperm concentration and total sperm count since 1973, accompanied by lower testosterone levels since 1985 [2,3]. For example, the average total testosterone level for a 30-year old man today is lower than that of a 65-year old man in 1985 [4].

FIGURE 1  
Estimated Sperm Parameters in 1973 vs. 2018

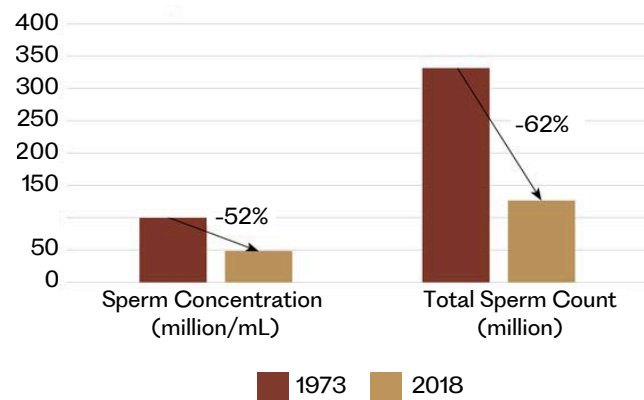
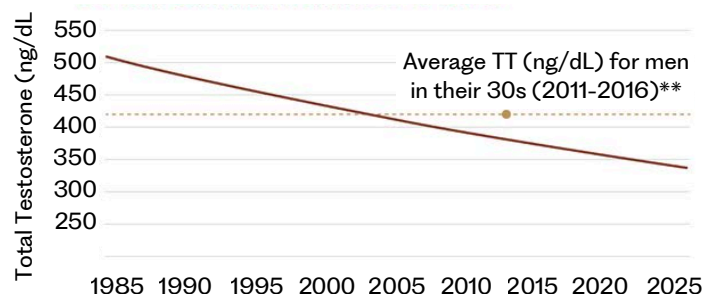
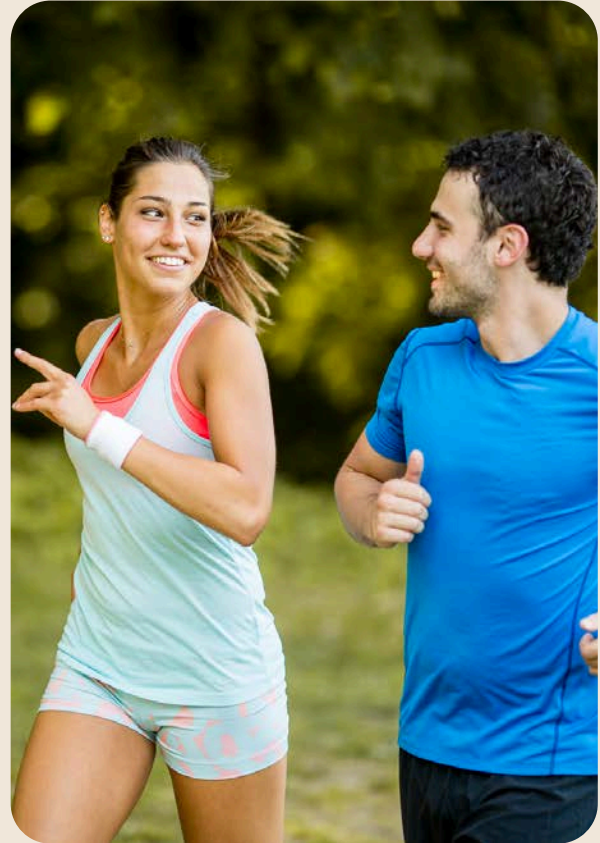


FIGURE 2  
Estimated Total Testosterone (TT) Levels for 65-Year-Old Men from 1985 to 2025\*



\*Calculated based on MMAS data  
\*\*NHANES 2011-2016 data

Many experts regard the four months immediately before conception as the most important stage in the reproductive process for both women and men — sometimes called the body’s “real first trimester”. While sperm take three to four months to form, follicles, which contain the oocyte or egg, mature over a period of approximately 6 months [5,6]. Oocytes may be particularly sensitive to their environment during the final maturation and follicle selection process, which occurs over approximately three months—or three menstrual cycles—prior to ovulation [7]. This period of time is associated with rapid growth, making it an important time to focus on preconception care through diet and lifestyle strategies that support both partners.



It is important to highlight that in some cases, parents-to-be may need more time than four months to address underlying concerns around nutrient status, hormone imbalance, toxicity, genetics, and more. Every positive step helps, so start whenever you can. It is never too early to prepare, and preparing together makes the biggest difference!

## The History of Preconception Care

Preparing for pregnancy well before the mother-to-be is pregnant has many well-established historical precedents. The ancient Greeks and Romans knew that alcohol taken before and around the time of conception affected the fetus’s health, and they banned the drinking of alcohol by young women and newlyweds. Additionally, many tribal societies fed special diets to young women and men of childbearing age [8].

While preparing for pregnancy has ancient and traditional roots, more recent understandings of human reproductive health and epigenetics have brought to light additional scientific evidence around the important role both men and women play in the future health of their child.

## What Can We Learn From Traditional or Primitive Diets?

Dr. Weston Price, an American physician who has been called “the Isaac Newton of Nutrition,” was one of those very early researchers. His observations, conducted in the 1930s, showed that native peoples who ate their traditional, unrefined diet had robust physical and mental health. It didn’t matter whether the diet was one rich in dairy products (e.g., unpasteurized milk, butter, cream, and cheese), as favored in Swiss villages; fish with oats made into porridge or oatcakes, as eaten along the Scottish coast; game animals together with grains, tubers, vegetables, and fruit, as consumed by hunter-gatherers in Canada, America, Australia, and Africa; or seafood eaten by the indigenous Polynesians [9].

The foods that allowed people of every race to be healthy were whole, natural foods—meat with its fat, organ meats, whole milk products, fish, insects, whole grains, tubers, vegetables, and fruit. Many traditional communities also enhanced the vitamin content of grains and tubers and made minerals more available by soaking, fermenting, sprouting, and sour leavening.



When a community switched to a refined Western diet with an emphasis on foods containing sugar, white flour, and chemically altered vegetable oils, there were marked physical and mental changes, as well as a decrease in the efficiency of the birthing process. Findings like these only become apparent in large-scale observational studies across many years. Weston Price’s book, “Nutrition and Physical Degeneration: A Comparison of Primitive and Modern Diets and Their Effects,” contains striking photographs of healthy native populations and illustrates unforgettably the physical changes that occur when human groups abandon nourishing traditional diets in favor of modern convenience foods [9].

Most importantly, the work of Weston Price strongly informed the work of a world-leading preconception care research and education group – Foresight.

## Current Guidelines for Preconception Care

It has been more than 40 years since the findings of Weston Price. Today, the Center for Disease Control (CDC), the Office on Women’s Health, the American College of Obstetricians and Gynecologists, the American Academy of Family Physicians, the World Health Organization, and other organizations have guidelines and recommendations for preconception care for both men and women. The goal is to support healthy neonatal and birth outcomes by addressing the health of the parents-to-be before they try to conceive [10]. It is well-recognized and accepted that the time preceding conception is critical for the health and development of the child [11].

For example, published recommendations for preconception care by the Centers for Disease Control include [12]:

- Consuming 400 mcg of folic acid per day
- Stop drinking alcohol, smoking, and using certain drugs
- Avoid toxic substances and contaminants, such as synthetic fertilizers and bug sprays
- Reach and maintain a healthy weight, which may involve weight loss or gain
- Support your mental health

In addition, the CDC recommends learning about your family history and meeting with your healthcare provider to discuss existing medical conditions, medication use, and more. Though some of these recommendations apply primarily to women—for example, consuming 400 mcg of folic acid per day—men will benefit from taking part in other recommendations, such as maintaining a healthy weight and avoiding toxic substances, alongside their partner.

### Preconception care begins four months before conception.

As previously mentioned, sperm take three to four months to form, and ova (egg cells) are particularly sensitive for approximately 3 months prior to ovulation [5,7]. Therefore, both partners can benefit from support prior to conception. With both partners equally involved, this preparation can support physical and mental health for your future child. In addition, preconception care can support:

- Healthy reproductive status
- Healthy pregnancy and labor
- Healthy breastfeeding
- Healthy bonding



# Your Preconception 4-Month Plan: A Healthy Start for Both Partners

Timeline	For Both Parents-To-Be	For Women	For Men
Start Early: Things to Begin Anytime	Learn about your family history and speak to your healthcare provider about existing medical conditions or genetic testing.	Begin tracking your menstrual cycle and symptoms so you can identify imbalances (see page 19).  Speak with your healthcare provider about when and how to stop hormonal birth control.	Consume adequate protein and fats for healthy testosterone production (see pages 31 & 33).
Four Months Until Conception	Begin reducing exposure to environmental toxins, such as pesticides and cigarette smoke (see pages 30, 52 & 53).	Talk to your healthcare provider about testing for nutrient deficiencies, such as iron and vitamin D (see pages 41 & 52).	Focus on testosterone and sperm support with key nutrients, including zinc, iron, and omega-3 fatty acids (see pages 39-43).
Three Months Until Conception	Consider beginning preconception support with the <a href="#">Fertility Preconception Pack</a> .	Focus on ovulation and healthy egg support with fiber and key nutrients, including zinc. Consider <a href="#">Herbatonin®</a> , as appropriate (see pages 37, 40 & 51).	Consider minimizing scrotal heat stress, which can affect sperm health (see page 27).

## Your Preconception 4-Month Plan: A Healthy Start for Both Partners

Timeline	For Both Parents-To-Be	For Women	For Men
Two Months Until Conception	Support your circadian rhythms with consistent sleep/wake times and reduced artificial light at night (see pages 50 & 51).	Emphasize micronutrients that support a healthy pregnancy, such as folate and vitamin C (see pages 41 & 42).	Choose antioxidant-rich foods to help protect sperm from oxidative stress (see page 42).
One Month Until Conception*	Cultivate intimacy and connection, and seek mental health care for support through pregnancy and beyond, if needed.	Begin a prenatal supplement at least one month before conception, if not sooner.	Continue with an antioxidant-rich diet.



\*It's important to keep in mind that your timeline to conception may not go exactly as planned. The average time to conception in women trying to conceive is approximately four months [14]; however, this can vary based on cycle length variability. Most healthy, young couples conceive within six months [14].

# Hormones

## KEY COMMUNICATORS IN THE BODY

### How does the body communicate within?

All information in the body is received through two types of messengers—neurotransmitters and hormones [15]. Neurotransmitters tend to come from proteins and help cells communicate through the nervous system. Hormones are usually fat-soluble and communicate cell to cell or from one cell through the bloodstream to another cell. These two messengers control nearly every aspect of the body's function.

### What does “hormone balance” really mean?

You might have heard the phrase “hormone balance,” though it's rarely defined. Put simply, hormone balance refers to streamlined communication within the endocrine system, which is a network of glands working through a feedback loop. This network is able to send signals through the body, turning them on or off as needed [16].

For example, the brain can register stressful situations as a threat. The hypothalamus and pituitary gland receive this signal and send out a series of hormones to communicate with other parts of the endocrine system, such as the thyroid and adrenal glands. The thyroid and adrenal glands receive the signal to produce thyroid hormone and cortisol, respectively, which help the body metabolize fuel so you can handle the stressor.

After these hormones are released and used by the body, they eventually signal back to the hypothalamus and pituitary gland to “turn off” their signals. This allows your body to return to its baseline state. This is called a negative feedback loop, as it initiates changes that help the body maintain homeostasis, much like a thermostat works.

Hormone imbalance may occur when communication through the hypothalamus, pituitary gland, thyroid gland, adrenal gland, and ovaries or testes is not in harmony. The hypothalamus or glands may not be able to efficiently send or receive signals for a variety of reasons, including genetics, stress, environmental toxins, lack of nutrients, or an imbalance in the body's natural inflammatory response.

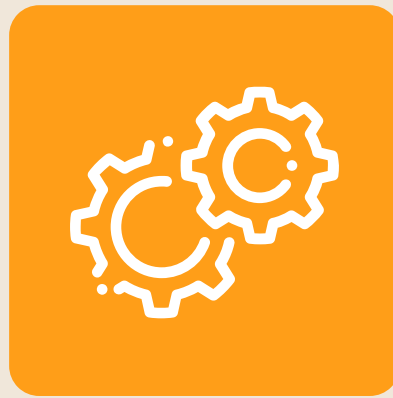
You can think of this like an orchestra where a few instruments are out of tune or the musicians aren't following the conductor's lead—the music continues, but it doesn't sound harmonious.

## The way to feel at “HOME” in your body: Four steps to hormone balance

To improve your body’s communication and have seamless signals and ready responses from the endocrine system, we need to look at four different processes, which are all happening simultaneously in your body. When we consider these four aspects, you can feel more calm, balanced, and functional in your body—in other words, you feel more “at home” in your body.



Harmonization



Optimization



Metabolism



Elimination

If you can remember the H.O.M.E. acronym, you’ll easily recall how to get back into hormone balance.

## Harmonization

Think of your endocrine system and its glands as part of an inner orchestra. They are all making the “music” within, communicating signals back and forth, then turning on and off to the perfect beat and rhythm. Before an orchestra starts its performance, the conductor ensures that each instrument is properly tuned. If just one instrument is out of tune, it can make the entire symphony sound like noise rather than beautiful music.

Similarly, we need to “tune” our endocrine glands so they can work in harmony. Harmonization occurs in several ways. We can take care of our bodies and our endocrine “instruments” through a nutritious diet, physical activity, stress reduction, restful sleep, and reduced exposure to environmental toxins. When we reduce the interference and support the endocrine system, we are supporting better communication.



In this guide, we will help you find ways to make this shift. Sometimes you may need to work with a healthcare professional to guide you in making these changes “stick.” It takes time and effort to tune your endocrine system. However, it’s well worth it, because if you don’t address the overall health of the endocrine system, the symphony inside will be a cacophony of noise.

## Optimization

Because hormones are made from fats, and neurotransmitters are made from proteins, it's important to include healthy fats and quality proteins in your diet to fuel your endocrine system. Nutrients in the proper balance and ratios for your body support proper functioning of the endocrine system. Though fats and proteins are key, high-fiber carbohydrates, such as cruciferous vegetables (e.g., broccoli, kale, and cauliflower), legumes, whole grains, and leafy greens, can provide long-lasting energy.

However, micronutrients, which are vitamins and minerals, complement macronutrients to help support your body's production of hormones [17]. Vitamins and minerals are often required as helpers in hormone synthesis, which is like an assembly line. If you're missing a key nutrient, the assembly line will be incomplete, and you may not have healthy hormone production.

In this guide, we provide you with an outline of foods that will support your endocrine system, including the macronutrients (protein, fat, carbohydrates) and micronutrients (vitamins, minerals, and phytonutrients, or plant compounds).



# Metabolism

In your harmonized orchestra, all the players are adequately nourished and fed, and now they need to make their music! Metabolism is the music that carries through the endocrine system. It is the body synthesizing hormones, moving them from one place to another through the blood and lymph, and then arriving at the cell so they can exert their action [18]. Usually, this means that the hormone fits like a key into a receptor to facilitate communication inside the cell. Often, those messages will make their way to the genes, causing more downstream effects.



Therefore, the “music” of hormones is heard throughout our bodies. That communication is “heard” even by the DNA, causing more communication. You might think of this process as an overall dance of one hormone affecting another, and ultimately, the entire body is moving to this rhythm of hormones.

Once that hormone does its job, it can then travel to the liver, which packages it up in a way that can be eliminated from the body. This process of “metabolic transformation” is sometimes referred to as detoxification, which requires essential nutrients. Without the necessary nutrients, the detoxification of hormones may become impaired, hindering our ability to properly eliminate them.

In this guide, we provide you with diet and lifestyle strategies to help support this multi-part “dance” of metabolism.



## Elimination

We eliminate hormones in many ways: through poop, pee, and perspiration (the 3Ps!) That's why it's so important to have regular bowel movements (1-2 per day, on average), urinating throughout the day, checking the color of the urine to be sure it's not too light or dark, and engaging in enough physical activity so you can sweat.



Poop



Pee



Perspiration

In this guide, all the food and lifestyle strategies are designed to get you to the end with healthy elimination.

# Hormones & Preconception Care

Balanced hormones are essential for conception, a healthy pregnancy, and birth. However, hormone balance continues to become harder and harder to maintain. Different lifestyles and our environment are becoming increasingly toxic from heavy metals, pesticides, and endocrine disruptors, which can appear in many forms in household and personal care items [19]. Additionally, modern diets deliver a less-than-optimal supply of essential trace elements and an inappropriate balance of essential fatty and amino acids. This is compounded by chronic stress, which can affect hormone balance.



## Hormonal Birth Control

Using hormonal birth control (e.g., birth control pills) impacts the body's natural hormone levels to prevent pregnancy. As part of preconception care, speak with your healthcare provider about when and how to discontinue the use of these medications. Keep in mind that it may take some time to regain your natural menstrual cycle. The information in this guide can help you support natural hormone levels for a healthy menstrual cycle.

Let's consider select hormones and their roles in reproduction:

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## Pituitary hormones

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The pituitary gland is the controlling and initiating gland in both women and men, though it is under the regulation of the hypothalamus [20]. It sends messages via hormones to the gonads (ovaries or testicles), which then manufacture their own hormones to send messages back to the pituitary. This cycle of hormonal activity helps regulate reproductive function. The hypothalamus and pituitary are both responsive to increased levels of light, which may explain why menstrual cycles are generally monthly, as they're influenced by lunar rhythms [21].

The pituitary hormones include prolactin, follicle-stimulating hormone, and luteinizing hormone, among others.

### Prolactin

In females, this is the hormone that stimulates lactation after childbirth [20]. In non-lactating females, high prolactin levels can prevent ovulation from taking place, as often happens during breastfeeding, and may lead to missing menstrual cycles [22]. Though prolactin is characteristically low in males compared to females, both high and low levels may influence sexual function and reproductive health, including healthy sperm production [23,24]. Therefore, balance is key.

Abnormal prolactin levels are commonly a result of some abnormality of the pituitary gland, making it essential to work with your healthcare provider if you are experiencing this. However, stress can also influence prolactin through its effect on the hypothalamus-pituitary-adrenal (HPA) axis [25].

### Follicle stimulating hormone (FSH)

Follicle-stimulating hormone (FSH) is released by the pituitary in response to a signal from the hypothalamus, which is the part of the brain that controls many bodily functions, including the periodic timing of the menstrual cycle [26]. In females, FSH is involved in estrogen production and follicle development in preparation for ovulation during the follicular phase of the menstrual cycle [21]. In males, FSH helps maintain normal sperm count and function [21].

### Luteinizing hormone

Luteinizing hormone (LH) is co-secreted with FSH [27]. In females, LH triggers ovulation, influences the length of the menstrual cycle, stimulates progesterone secretion after ovulation, and impacts the implantation of the egg in the uterus. While many hormones are under the control of a negative feedback loop, LH is under positive feedback control when estradiol reaches a certain point during the follicular phase, which triggers an LH surge and initiates ovulation. LH is also important for male reproductive health as it stimulates the production of testosterone in the testis.

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## Reproductive hormones

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The hormones classified as reproductive hormones are often more well-known and are primarily made in the ovaries and testes [28]. These hormones are responsible for pregnancy, menstruation, sperm production, libido, and more. Reproductive hormones include estrogen, progesterone, and testosterone. Though these hormones can affect many aspects of health in both men and women, this section reviews their important roles in reproductive health.

### Estrogen

Estrogen describes a group of hormones—estrone, estradiol, and estriol—primarily known for their role in developing female characteristics. In females, the ovaries are the main production site for estrogen, though it is also made in fat tissue and the adrenal glands [29].

During the menstrual cycle, estrogen:

- Controls follicle development and selection [30]
- Triggers an LH surge to trigger ovulation [27]
- Regulates the secretion of cervical mucus that is clear, stretchy, and/or slippery, which helps transport and nourish sperm [31]
- Thickens the uterine lining in preparation for implantation [32]

In males, estrogen helps to develop the reproductive system and supports sperm maturation [33,34].

### Progesterone

In females, progesterone is primarily released from the corpus luteum—a temporary endocrine gland formed by ovarian follicle cells—after ovulation [35]. Progesterone prepares the uterine lining for possible implantation and, upon conception, remains elevated to maintain a healthy pregnancy. In addition to its role in maintaining the uterine lining during pregnancy, progesterone also decreases uterine contractions. Progesterone's influence on the body's basal temperature also suggests that ovulation has occurred, which provides one way to track ovulation for women who hope to conceive [36].

Though primarily considered a “female hormone,” progesterone is produced by the adrenals and testes in men. It supports healthy sperm production and function and helps maintain healthy testosterone levels [37].

### Testosterone

In females, healthy testosterone levels support ovarian function and influence some aspects of sexual health, such as desire [38,39]. In males, testosterone is the primary sex hormone and is responsible for the development of male characteristics. It's also important for healthy sperm production and sexual function [40].

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## Thyroid hormones

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The thyroid gland is part of the endocrine system and works with other glands through the hypothalamus-pituitary-thyroid-adrenal-gonad (HPTAG) axis. Thyroid hormones help support normal metabolism and energy use [41]. They also support overall hormone balance and the healthy function of reproductive organs, including the ovaries. While the effect of thyroid function on reproductive health is more clearly illustrated in females, more research is needed to elucidate its role in male reproductive health [42].

### How Women Can Track Hormones

One of the best ways for women to understand their hormones is to measure them. There are a variety of ways to assess the dynamic flux of hormones on a monthly basis:



- Order labs: Work with your health practitioner to order labs relevant to preconception care, such as those to assess hormone levels and nutrient status.
- Track symptoms: Monitor your symptoms and menstrual cycle dates using a journal or smart phone app. Share these findings with your health team so that they can help you understand any patterns.
- Use a fertility monitor: Use an at-home fertility monitor, such as Mira, to track hormones specific to fertility and keep you up to date on your most fertile days.

Men can also track their hormones, such as testosterone, via lab testing with their healthcare provider.

### Mira—the world’s mini hormone lab

Mira is an at-home fertility monitor that helps predict ovulation and identify your most fertile days. To do so, it tracks four key hormones:

- Luteinizing hormone (LH)
- E3G (a urinary metabolite of estradiol)
- PdG (a urinary metabolite of progesterone)
- Follicle-stimulating hormone (FSH)



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## Common Signs Associated with Hormone Imbalance

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### Hormone Imbalance in Women

Some of the signs of hormone imbalance are now so common that women might consider them just ‘par for the course.’ However, the following symptoms may suggest hormone imbalance [8,43]:

- Discomfort before menstruation, including sore, swollen, or lumpy breasts, fluid retention and bloating, food cravings, fatigue, digestive upset, headaches, or aches and pains
- Heavy, prolonged, or painful menstrual bleeding
- Irregular, unpredictable, or missing periods
- Little or no cervical mucus present mid-cycle (at or before ovulation)
- Periods that are accompanied by nausea or vomiting
- Vaginal dryness and itching

#### How long should your menstrual cycle be?

A number of factors go into menstrual cycle length, including age and genetics. However, your cycle can also be sensitive to certain lifestyle influences, including your diet, alcohol consumption, stress levels, and exposure to endocrine disrupting chemicals. While a cycle length of 24 to 38 days is considered normal, it is recommended that you track your cycle length so that it’s easier to identify when you stray from your personal “normal” [44].

Some health conditions, including infections, thyroid or pituitary concerns, and other hormonal or structural concerns, have the potential to compromise reproductive health. You should work with your healthcare provider to determine whether or not you have a health condition that may affect your reproductive health. He or she can help guide you in your best approach to preconception care.

For a healthy conception, pregnancy, and breastfeeding experience, the goal is that women:

- Ovulate in every (or most) cycles [45]
- Have a pre-ovulatory phase of not more than 17 days [46]
- Have a post-ovulatory phase of not less than 12 days [46]
- Experience a comfortable menstrual cycle that generally doesn’t interfere with their day-to-day life

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## Hormone Imbalance in Men

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A lot of focus tends to be placed on women for preconception care, but babies have fathers, too! Male reproductive health can be influenced by hormone imbalances, semen health, mental health, testicular function, and lifestyle habits [47]. Testosterone is one hormone involved in male reproductive health, including sperm health.

In males, low testosterone can result in changes in [48]:

- Body composition, including increased body fat [49]
- Concentration
- Energy levels
- Libido
- Mood
- Muscle mass and strength [49]
- Sexual function [49]
- Sleep [50]

Additionally, a semen analysis can be used to assess reproductive function and the health of sperm. A semen analysis informs you of the following:

- Sperm count
- Sperm motility
- Sperm morphology
- Semen volume, viscosity, and pH levels



Although a sample may be considered viable, other factors—such as nutrient status—may influence reproductive outcomes [51]. This is why preconception care is so critical. Hormone imbalance, toxicity, and nutrient status are not measured in a semen analysis. Still, an unfavorable semen analysis can indicate that these factors are of concern and need particular attention.

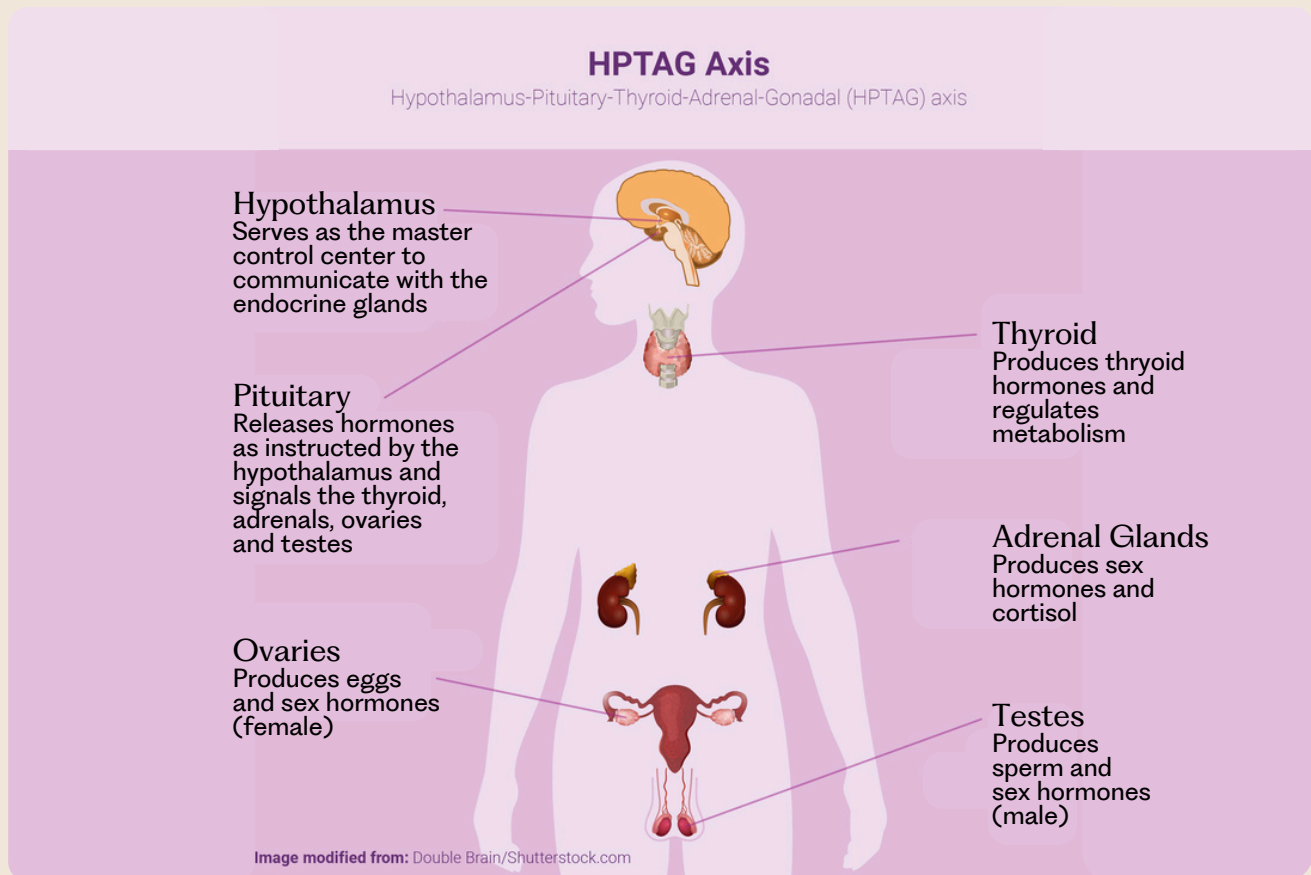
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## How to Support Hormone Balance Naturally for Men and Women

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Hormone balance begins in the brain in the hypothalamus, cascading down through the pituitary, thyroid, adrenal glands, and eventually the gonads (ovaries and testes) [52]. This signaling then circles back to the hypothalamus, creating a continuous feedback loop for ongoing communication between those organs. This process is referred to as the hypothalamus-pituitary-thyroid-adrenal-gonadal (HPTAG) axis (Image 1).

However, many factors affect how efficiently this communication system works, and additional support for the HPTAG axis can support reproductive health. While diet and lifestyle are important, additional support for reproductive health can include botanicals like maca. Instead of introducing hormones into the body to manipulate and control hormone levels, maca addresses the root of hormone balance by nourishing the HPTAG axis [53].



### Image 1. HPTAG Axis

The Hypothalamus-Pituitary-Thyroid-Adrenal-Gonadal (HPTAG) axis is how your body communicates hormonal messages through the endocrine system. The hypothalamus works with the pituitary gland to serve as a master control center to the other endocrine organs such as the thyroid, adrenal glands, ovaries, and testes.

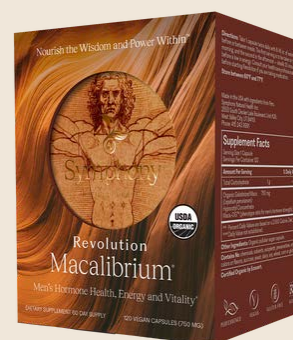
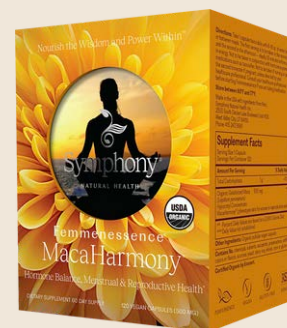
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## Maca Phenotypes for Healthy Hormones

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### Femmenessence® MacaHarmony® for Women & Revolution Macalibrum® for Men

Femmenessence® MacaHarmony® and Revolution Macalibrum® are made from targeted concentrations of maca phenotypes grown at specific altitudes, harvested by hand, and prepared for maximum bioavailability and hormonal impact. Something that many people aren't aware of, but Symphony Natural Health has been researching for 25 years, is that there are actually up to 17 different phenotypes (or types) of maca that can be different colors, have different DNA, different analytical profiles and most importantly, can have different physiological effects in the body [54]. For example, there is one phenotype of maca that supports women's fertility and a completely different one that supports men's fertility.



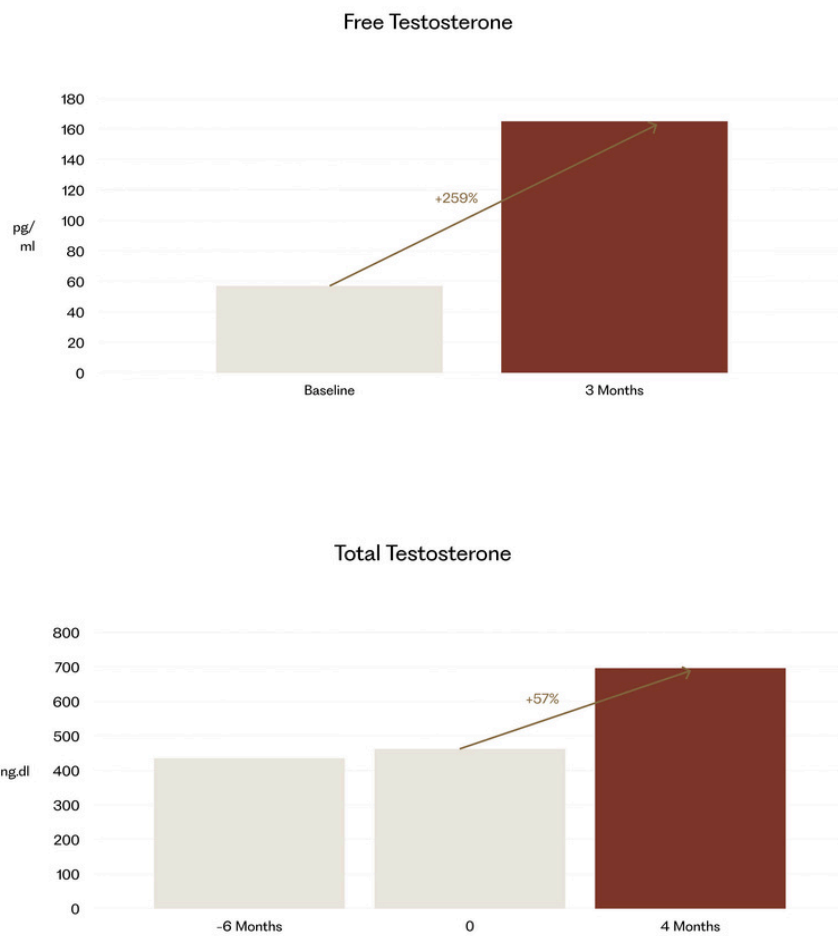
When it comes to women with more sensitive hormonal and metabolic health, using the wrong type of maca that stimulates the adrenals, like black maca, can create unwanted hormonal shifts. However, if you use the right combination of phenotypes to support the HPTAO axis, it can help support healthy hormone balance. Published research also suggests that red maca may support aspects of prostate health [54].

There is a lot more on this that our Medical Team has published and also a website detailing which colors impact what areas of health: [www.lepidiumperuvianum.org](http://www.lepidiumperuvianum.org).

Even more impactful on efficacy and function is the location and elevation it is grown and how it is manufactured. Femmenessence® MacaHarmony® and Revolution Macalibrum® have concentrated levels of key active ingredients up to 10x higher than raw maca. Its water solubility is 99% as compared to raw maca, which is 68%, improving bioavailability and absorption.

Femmenessence® is the first to ever demonstrate statistically significant effects on hormones in women. Instead of introducing hormones into the body, Femmenessence® supports the body's own hormone production, which can result in the increase or decrease of individual hormones, depending on what the body needs. In one case report, a 31-year-old female sought support for preconception care, including maintaining a healthy, regular menstrual cycle and overall comfort [55]. Her health history included reproductive- and metabolic-related health concerns that may influence hormone balance. After three months of using Femmenessence® MacaHarmony® as part of a comprehensive clinical protocol, she experienced normal menstrual cycle regularity (28-32 days), signs of healthy ovulation (e.g., presence of cervical mucus), and improved menstrual comfort. After two years of continuing her reproductive health routine, lab results also showed favorable changes in hormones related to fertility. These results reflect this specific case report and may not represent individual experiences.

As mentioned, maca may support male reproductive health, and there are case reports that have detailed its effects on testosterone levels, mood, and multiple sperm parameters. In one recent case report, a 44-year-old Caucasian male experienced a 32% increase in total testosterone, a 259% increase in free testosterone, and improved emotional well-being after using Revolution Macalibrum® (1500 mg twice daily) as part of a comprehensive clinical protocol (see Figures 1 and 2). More specifically, total testosterone levels increased from 469 to 616.6 ng/dL and free testosterone from 45.7 to 164 pg/mL [56].



Figures 1 & 2: Total testosterone of one male at baseline and after three months of using Revolution Macalibrum® - 1500 mg twice daily as part of an integrative medicine protocol consisting of diet, lifestyle suggestions (including icing the testes), supplements and acupuncture visits.

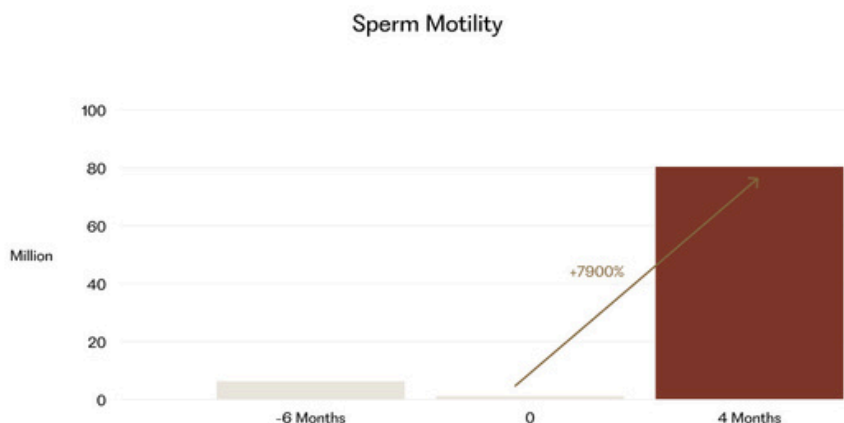
An interesting observation was the impact the addition of Revolution Macalibrium® had on total and free testosterone on an already high-protein diet and exercise program. Protein has long been associated with supporting healthy hormone levels because amino acids are the building blocks for hormones. However, in this case report, a high protein diet and exercise was not enough support for this patient. The addition of a comprehensive clinical protocol with Revolution Macalibrium® as support for the hypothalamic-pituitary-adrenal-testicular (HPAT) axis appeared to support healthy testosterone production. These results reflect this specific case report and may not represent individual experiences.

For a more detailed look at the personalized supplement and lifestyle intervention provided in this case report, [read the full paper](#).

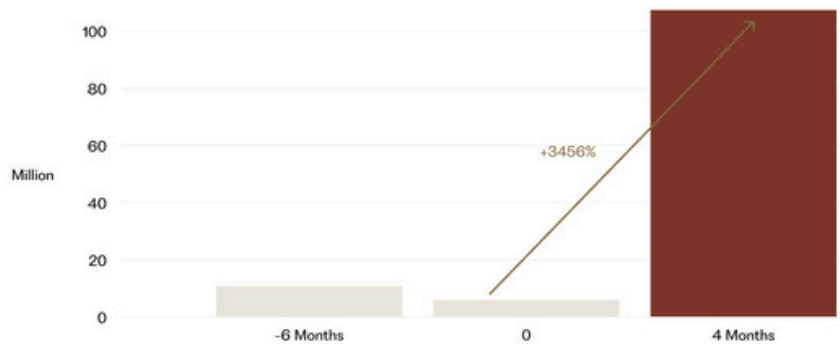
In another case report, a 38-year-old Indian male sought care to help with reproductive health. His health history included metabolic, hormonal, and digestive health concerns. He also wanted to support healthy sperm motility [56]. After following a comprehensive clinical protocol for six months, which included taking 1500 mg of Revolution Macalibrium® twice daily for about four months, the man experienced a 57% increase in total testosterone levels. His fertility markers were also reported to improve [56]:

- Sperm motility by 7900%
- Sperm morphology by 75%
- Total motile sperm by 3456%
- Sperm count by 48%

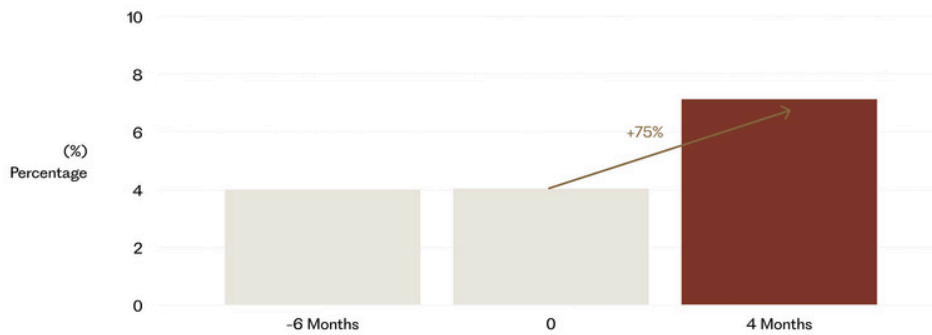
Figures 3-6: Changes to sperm morphology of one male after four months of using Revolution Macalibrium® - 1500 mg twice daily as part of an integrative medicine protocol consisting of diet, lifestyle suggestions (including icing the testes), supplements and acupuncture visits.



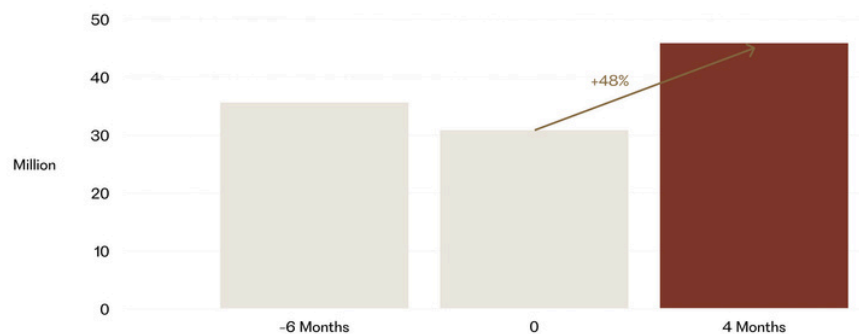
Total Motile Sperm



Sperm Morphology



Sperm Count



As part of the integrative clinical protocol, the 38-year-old male was advised to follow or continue

- A vegetarian and Paleo-style diet
- A physical activity regimen that included aerobic exercises such as walking and high-intensity interval training for at least 30 minutes daily
- Stress reduction techniques, which included yoga
- A robust sleeping schedule that provided at least eight hours each night



Additionally, he was directed to ice his testis for 15 minutes daily. “Scrotal cooling” may support sperm health by maintaining a healthy inflammatory response [57]. Although there is often low compliance for scrotal cooling due to discomfort, it is a non-invasive and affordable method to support sperm health [57]. On the other hand, exposure to high temperatures, such as from tight clothing, long periods of sitting, hot baths, or sauna, may adversely affect sperm health [58,59].

While a whole-health approach could quickly become overwhelming, it can also create an opportunity for patients to feel fully supported in all aspects of their lives and invite them to reflect on their experiences. Case reports are useful for illustrating how a whole-health approach to fertility may look in practical applications. However, these case study results reflect particular patients and may not represent individual experiences.

For a more detailed look at the personalized supplement and lifestyle intervention provided in this case report, [read the full paper](#).

# Diet & Nutrition

There are many options to choose from when considering a dietary plan. For example, the Mediterranean diet is one of the most extensively studied food plans. One study suggests it can support sperm health and healthy pregnancy outcomes, while another study reports its positive impact on female reproductive health, likely due to the positive impact on metabolic health, such as weight management and healthy glucose and insulin regulation [60,61].

**There isn't one dietary pattern that all women and men should follow.**

The best food plan is one you can comply with and should be personalized to your likes and lifestyle!

Even though one's diet needs to be personalized, here are some general nutrition guidelines that can provide benefits for preconception care for men and women.



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## Drink Water

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Proper hydration aids in delivering nutrients, regulates body temperature, improves mood and concentration, increases/maintains energy, lubricates joints, and supports healthy detoxification. It is also critical to support regular bowel movements, urination, and sweating — our three routes of eliminating waste from our bodies. Water intake may need to be adjusted based on physical activity and sauna use, to name a few.



### Do you find water boring?

Add fruits like oranges, lemons, limes, and grapefruit, herbs like mint, cilantro, and rosemary, or vegetables like cucumbers. Get creative and combine some of these fruits, herbs, and vegetables, such as cucumber & mint or grapefruit & rosemary.

Additionally, if you drink water but still feel dehydrated, you may consider mineralizing your water using Sole (a super-saturated Himalayan crystal salt solution). One study demonstrated that mineralized water increased hydration indicators by 10% and was effective in stabilizing pH [62]. A clinical study looked at the effect of consuming Sole made with Original Himalayan Crystal Salt® or a brine solution with table salt. After 30 days of daily use, the group consuming Sole had better indicators of hydration, mineralization, and oxidative stress compared to the group containing a table salt brine [63].

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## Prioritize organically-grown food

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The evolution of the food chain, degradation of the soil in which produce is grown, pesticides that prevent the uptake of minerals, herbicides that destroy the microorganisms in the soil, fertilizers that are devoid of trace elements, genetic modification, food additives, preservatives, extended transport and cooking methods that destroy nutrients are among the many factors that make nourishing your body more of a lottery than a certainty [64,65].

Pesticides, which are chemicals that help control pests and disease on crops, can disrupt the normal functioning of the endocrine system and contribute to reproductive issues in men and women [66,67].

Women: Pesticides can negatively affect oocyte (egg) viability and development [67].

Men: Pesticides can negatively affect sperm function and testosterone levels [66].



Not only do organically-grown fruits and vegetables contain fewer pesticides, but a review of multiple studies shows that these foods also provide significantly greater levels of vitamin C, iron, magnesium, and phosphorus compared to non-organic varieties of the same foods [68]. While being higher in these nutrients, they are also significantly lower in nitrates and pesticide residues.

The Environmental Working Group's annual Dirty Dozen™ and Clean Fifteen™, guides can help prioritize your options. These guides identify which foods included in testing had the highest vs. the lowest amounts of pesticide residues. In short, you may choose to prioritize organically-grown options from the Dirty Dozen™ list while choosing non-organic options from the Clean Fifteen™ list so that your grocery shopping better aligns with your budget.

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## Dietary Protein

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Protein recommendations for preconception health are not well-defined, but research suggests intake above the recommended dietary allowance (RDA) may be beneficial. This is especially relevant to muscle health, which has implications for metabolic health. While the RDA of protein for healthy adults is 0.8 g/kg body weight (BW), intake of 1.0, 1.3, and 1.6 g/kg BW is recommended to support muscle for those with minimal, moderate, and intense physical activity, respectively [69]. Nonetheless, there are some considerations for men and women.

**Women:** Consuming adequate protein—especially from plants—can help support healthy ovulation, possibly by maintaining the body’s natural insulin response [70,71]. Additionally, adequate protein intake during early pregnancy may support healthy development during childhood [72].

**Men:** A moderate protein intake supports reproductive health. On the other hand, both low (diets with 2-10% protein) and high (diets with >3.4 g protein per kg body weight) protein diets may have a negative impact [73,74]. Though there are no definitive guidelines, research suggests that protein intake of about 25% or up to 2 g per kg body weight is appropriate for men [69].



Men and women can include lean proteins, such as:

- Wild-caught fish (e.g., sardines, salmon)
- Pasture-raised poultry (e.g., chicken, turkey)
- Grass-fed meat (e.g., beef, bison, buffalo, lamb)
- Organic beans and legumes (e.g., chickpeas and lentils)
- Pasture-raised eggs
- Soy-based proteins (e.g., tofu, tempeh)

Factors impacting the amount of protein you consume include your exercise routine and goals, diet preferences, and existing health conditions. It’s recommended to work with your healthcare provider or a qualified nutritionist to determine your personal protein requirements.

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## Vegetables

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“Eat the Rainbow”- eat 1 serving of each color of the rainbow daily.

### Non-starchy

Choose 1-2 servings of the cruciferous family of vegetables:

- Broccoli
- Brussel Sprouts
- Cabbage
- Cauliflower
- Kale
- Radishes



Choose green leafy vegetables daily:

- Bok choy
- Lettuces
- Spinach



Pick from a variety of other vegetables to make up the rainbow!

- Carrots
- Celery
- Cucumbers
- Jicama
- Mushrooms
- Peppers
- Tomatoes



### Starchy vegetables

( $\frac{1}{2}$ -1 cup per day)

- Acorn squash
- Butternut squash
- Parsnips
- Potatoes (all colors)
- Root vegetables
- Rutabaga
- Squash



# EAT THE RAINBOW

Based on **The Rainbow Diet**  
book by our Chief Science  
Officer, Dr. Deanna Minich

## RED

Roots, fruits, legumes  
Polyphenols, lycopene



## ORANGE

Fruits, squashes, roots  
Carotenoids



## YELLOW-TAN

Roots, starches, tubers  
Fibers, enzymes



## GREEN

Leaves, crucifers  
Nitrates, folates



## BLUE-GREEN

Sea plants  
Minerals



## PURPLE-BLACK

Fruits, vegetables  
Anthocyanins



## WHITE

Bulbs, roots, fruits  
Flavonoids, allicin



Learn More: [The Rainbow Diet: A Guidebook to the Science and Art of Colorful Foods for Health and Well-Being](#)

Low-glycemic fruits - 1-2 servings per day:

- Apples
- Berries (all)
- Cherries
- Lemons
- Limes
- Oranges
- Peaches
- Pears
- Plums



Healthy fats and oils - daily requirements vary

- Oils
  - Avocado oil
  - Extra virgin olive oil (EVOO)
  - Flaxseed oil
  - Pumpkin seed oil
  - Sesame oil
- Avocados
- Clarified butter/ghee
- Olives



Low-fat diets may negatively affect testosterone production in men:

Cholesterol, a component of dietary fat, is an important building block for testosterone production [75]. Evidence suggests that low-fat diets negatively affect testicular testosterone production [76]. For men, it's recommended that dietary fat intake not fall below 25% of daily energy intake [75].

Nuts and seeds — daily requirements vary

- All nuts and seeds, including nut butters (e.g., almond, cashew)
- For flaxseed, ensure it is stored in a dark container to protect it from oxygen and light, as both reduce healthy nutrients.



Whole grains\* - 1-2 servings per day

- Barley
- Buckwheat
- Millet
- Oats
- Rice (e.g., brown, basmati, jasmine)



\*Choose gluten-free options when applicable

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## Reduce or avoid

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Suspected or known food sensitivities, intolerances, and allergies, such as:

- Caffeine (e.g., coffee, energy drinks, soft drinks, teas)
- Corn (e.g., chips, tortillas)
- Dairy products (e.g., cheese, milk, yogurt)
- Gluten (e.g., barley, rye, wheat, spelt)
- Peanuts
- Shellfish



Note: Work with your healthcare provider to determine whether you have any food sensitivities, intolerances, or allergies through laboratory testing or elimination from the diet.

Processed/refined carbohydrates: Minimizing your intake of processed and refined carbohydrates helps maintain healthy blood sugar balance and a healthy inflammatory response [77,78].

- Breads, especially white bread
- Chips
- Crackers
- Fruit juice
- Pancakes and waffles
- Pastas
- Ready-to-eat cereal
- Soft drinks
- White flour
- White sugar and other refined sweeteners



Dietary advanced glycation end products: These foods contain damaged, complexed proteins and fats called Advanced Glycation End products (AGEs), which are known to be associated with changes in inflammatory balance and accelerated aging.

**Women:** Diets high in AGEs may disrupt healthy ovarian function in women [79]. Taking steps to remove AGEs from the diet during pregnancy can help support healthy metabolic function in offspring [79].

**Men:** Animal studies suggest that AGEs inhibit testosterone production in the testes, which contain receptors for AGEs (RAGE) [80].

AGEs can be found in foods that are high in fat, protein, and/or sugar, especially in those that are prepared using cooking methods that involve high and dry heat (e.g., grilling, roasting, and frying) [81]. Examples of foods high in AGEs include:

- Grilled, fried, or roasted meats (e.g., bacon)
- High-fat and aged cheeses
- High-fat spreads
- Roasted nuts

**Alcohol:** Multiple organizations and agencies recommend the avoidance of alcohol during preconception care. Chronic alcohol consumption may affect healthy total and free testosterone levels in healthy men [82].



## A note about glycemic impact

Foods that have a low to medium glycemic impact are slower to digest, which contributes to a steadier release of blood glucose. The change in blood glucose levels can vary person to person, and newer research suggests it may also depend on the gut microbiome. Including protein, fiber, or fat can help to reduce the glycemic impact of a meal containing starches and sugars. In women, choosing foods with a low glycemic impact can support healthy insulin balance, ovulation, and reproductive health [61].

Also, eating foods in a particular order, starting with vegetables and protein first, followed by carbohydrates, may support a healthy blood sugar response [83].

- 1 Vegetables
- 2 Proteins & Fats
- 3 Sugars & Starches

Eating a healthy, balanced diet is undoubtedly important, but consuming enough daily calories is a foundation for preconception health. This foundation can often be missed when striving to “eat clean,” which may cause you to over-focus on nutritious foods that happen to be low in calories, such as most fruits and vegetables.

**Women:** Overly restricting calorie intake can have a considerable effect on the endocrine system, contributing to menstrual cycle changes and hormone imbalance in women [84].

**Men:** Chronic low-calorie intake can negatively impact testosterone levels, an important hormone in male reproductive health [75].

Signs that someone may not be eating enough calories include changes in menstrual cycle length, changes in libido, fatigue, mood changes, and of course, hunger. If support is needed, working with your healthcare provider, qualified nutritionist, or therapist can help you address your relationship with food, which is often stressful and can be redefined for long-lasting change.

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## The health of your microbiome

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Only in the last twenty or so years have scientists begun to understand the critical importance of the human microbiome. The microbiome is the collection of all microbes—bacteria, fungi, viruses, and their genes—that live within our bodies. It’s astounding that there are about 10 times more microorganism cells in the gastrointestinal (GI) tract alone than the entire number of human cells in the body, and it contains about 100 times the amount of genetic information [85].

While the microbiome comprises the organisms on your skin, mouth, and other orifices, the bacterial population in your GI tract is an important focus for preconception care as its role includes maintaining the integrity of the GI lining, vitamin synthesis and nutrient absorption, immune function, energy metabolism, neurotransmitter formation, and hormone production [86-88].

Ensuring your GI tract is populated with beneficial organisms is a fundamental step in your preconception program. Restoring GI health begins with the food you consume daily.

Consider adding probiotic and prebiotic-rich foods into your daily diet. Probiotics are live microorganisms, and prebiotics are nondigestible substances, usually from fiber-rich foods, that feed probiotics and promote their growth and activity [86]. High fiber foods also support bowel movements, the elimination of excess hormones and toxins, and provide vitamins and minerals.

### Select probiotic-rich foods

- Aged cheese
- Cottage cheese
- Fermented vegetables
- Kefir
- Kimchi
- Kombucha
- Miso
- Plain yogurt
- Sauerkraut



### Select prebiotic-rich foods

- Apples
- Asparagus
- Garlic
- Green bananas
- Jerusalem artichokes
- Legumes
- Onions
- Whole grains



Seek assistance from a trained professional if you need assistance with your gut health, which can include the creation of a nutrition plan and probiotic support.

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## Increase your intake of key nutrients

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You might wonder why you need supplements if you implement the dietary guidelines above.

Apart from ensuring healthy eggs and sperm, consider that from conception to the end of the first trimester is a critical growth period with rapid cell proliferation [89]. This is also when the placenta and organs, including the brain, are developing [89,90].

For pregnant women, this rapid phase of growth and strict development timetable requires levels of nutrients that are higher than those required during the non-pregnant state. The RDA for some nutrients, such as iron, increases by 50% and may be particularly difficult to replete during pregnancy [91]. On the other hand, folic acid supports normal neural tube development, with the neural tube closing approximately 28 days after conception [92]. Many women are unaware that they're pregnant at this time, making preconception care even more important. This is why prenatal vitamins are recommended, with research suggesting that preconception supplementation of multiple micronutrients supports reproductive health and a healthy pregnancy [93].

As such, ensuring your nutrients are at a healthy level is an ideal way to begin your pregnancy. There is a long list of nutrients and their particular role in reproduction, and you can read my books if you want that list (see page 3 for a list of my books). Here are a select few of those that often receive too little attention.

Oral contraceptive use is associated with lower levels of several key nutrients, including B vitamins, vitamin C, vitamin E, magnesium, zinc, and selenium [96].

## Zinc

Depleted soil, food refining, stress, and chronic alcohol use can contribute to low zinc levels [97–99]. Additionally, oral contraceptive use is associated with lower zinc levels [96].

**Women:** Zinc supports a regular menstrual cycle and healthy ovulation [19]. Additionally, not only is zinc important for the healthy development of the baby, but it may help support healthy birth outcomes, too [100].

**Men:** Zinc supports healthy testosterone production [10].

Restoring zinc status can take time, and both parents-to-be should achieve adequate status and maintain that for at least four months before they start trying to conceive.

The zinc taste test is one way to assess zinc status [75,101]. The zinc taste test itself is extremely simple and involves taking 1 teaspoon (5 ml) of zinc sulfate solution into your mouth. You can buy this solution from integrative practitioners or your local pharmacy.

- If you promptly experience a strong, unpleasant taste, your zinc status is likely adequate, but you may still need to maintain it with supplementation.
- If you experience a dry, furry, or delayed taste sensation, your zinc status is likely marginal.
- If you experience no taste at all, you likely need more zinc.

In both latter instances, you may benefit from increasing your intake of or supplementing with zinc. However, you should speak with your healthcare provider before beginning any dietary supplements.

Of note, intake of excessive calcium, which is also often routinely recommended during pregnancy, can reduce the bioavailability of zinc [102].

## B-Complex Vitamins

The eight B vitamins—commonly referred to as B-complex vitamins—are important for the proper functioning of metabolic pathways involved in energy production and genetic expression [103]. Because these vitamins are water-soluble, they must be consumed daily to ensure adequate levels. Ideally, the B-complex vitamins are all included in one supplement because their functions and metabolism are intertwined with one another. Taking one B vitamin in supplemental form may lead to a greater need for others [104].

As previously mentioned, adequate folate intake before and during pregnancy supports healthy development of the neural tube in early pregnancy and helps improve birth outcomes [105]. Finally, because increasing numbers of individuals cannot metabolize folic acid due to a MTHFR genetic mutation, it may be best to choose a supplement in which folate is provided as methylfolate, which is the biologically active form of folate [106].

## Iron

Iron is a mineral that is involved in hormone metabolism and supports blood flow to reproductive organs [19].

**Women:** Iron supports regular ovulation [107].

**Men:** Iron supports sperm and testosterone production, as well as testicular function [107].

However, it's important to work with your healthcare provider to assess iron levels via lab work before supplementing to avoid excessive iron levels. It is also often recommended to assess for iron deficiency prior to pregnancy because it becomes increasingly difficult to correct as iron needs increase throughout pregnancy. It's best to take iron supplements apart from other minerals, such as zinc, as minerals compete for absorption [108].

## Vitamin C

Vitamin C, also known as ascorbic acid, is an antioxidant.

**Women:** Antioxidants support healthy oocyte maturation, and vitamin C in particular supports healthy progesterone levels during the luteal phase [109].

**Men:** Research has shown that ascorbic acid (vitamin C) is associated with healthy testosterone levels [110].

The antioxidant effects of vitamin C may also protect against the toxicity of heavy metals, pesticides, and other environmental pollutants [111-113]. Vitamin C is also necessary for hormone production, essential fatty acid metabolism, iron absorption, immune function, and collagen production [114]. Because vitamin C is abundant in common foods, including citrus fruits, berries, leafy greens, and tomatoes, supplementation is usually not necessary, though it is often included in multivitamins.

Dietary antioxidants, such as vitamin C, can support healthy levels of oxidative stress in sperm [115]. Though normal levels of oxidative stress can actually support normal sperm functions, excessive amounts can cause changes to the sperm's DNA and cell membrane, affecting functions like sperm motility. Other dietary antioxidants that can support healthy sperm include zinc, selenium, vitamin E, vitamin D, lycopene, and folate.

## Omega-3 Fatty Acids

Omega-3 fatty acids support reproductive health for both men and women [116].

**Women:** Omega-3 fatty acids support hormone balance, menstrual cycle function, reproductive organ function, oocyte quality, and embryo implantation [116]. Omega-3 fatty acids are important for brain development in the baby and may support healthy birth outcomes. For women, it's recommended to provide these nutrients before conception, during pregnancy, and during the breastfeeding period with a supplement containing docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA), two omega-3 fatty acids. Before pregnancy, it's recommended that women consume at least 250 mg per day of EPA and DHA from foods or supplements [117]. During pregnancy, it's recommended to add at least 100–200 mg per day of DHA to the preconception recommendation [117]. Those with low DHA levels require higher doses.

**Men:** Omega-3 fatty acids support sperm health and the quality of semen, the latter of which contains high levels of docosahexaenoic acid (DHA), one of the omega-3 fatty acids [118].

A balanced intake of omega-3 and omega-6 fatty acids helps maintain a healthy inflammatory response [119]. However, the typical Western diet tends to be high in omega-6 fatty acids, while the intake of omega-3 fatty acids is suboptimal. The richest dietary sources of omega-3 fatty acids are from marine sources, such as salmon and sardines, fish oil supplements, and, to a lesser extent, nuts and seeds [120]. An easy way to remember healthy types of fish to eat is the acronym SMASH: Salmon, Mackerel, Anchovies, Sardines, and Herring.

While omega-6 fatty acids are found in nutritious foods, such as walnuts and pumpkin seeds, they are also abundant in oils, such as soybean, safflower, and corn oil, that are commonly used in processed foods. This “background” intake of omega-6 fatty acids is more likely what skews the healthy balance [119].

When supplementing, it's important to buy a reputable brand as some fish oils may be contaminated with toxins such as PCBs (polychlorinated biphenyls) or pesticides [121,122]. Of note, multivitamin supplements—even when formulated for pregnant women—don't usually contain essential fatty acids.

## Creatine

You may have heard about creatine for muscle and energy, but did you know it also supports reproductive health and healthy birth outcomes?

Creatine is a natural compound produced in the body with roles in energy production and metabolism, cognitive function, exercise capacity, fat metabolism, bone health, and mood [123].

**Women:** Consuming sufficient creatine from the diet ( $\geq 13$  mg creatine per kg body weight) is associated with regular menstrual cycles, healthy birth weights, and a healthy birth [124]. In pregnant women, creatine concentrations increase in the placenta and are found in high amounts in the colostrum of breast milk. Additionally, creatine intake during pregnancy may support a safe and appropriately timed birth [125].

**Men:** Men's reproductive health may be supported by creatine, too. Not only is creatine present in semen, but it also plays an important role in energy metabolism in sperm [126]. Though more research is needed, evidence has shown that using a creatine-containing medium for in vitro fertilization (IVF) was associated with changes in fertilization outcomes [127].

Creatine is not yet considered a conditionally essential nutrient during pregnancy, but given its role in maintaining maternal health and sperm health, it may become a more commonly supplemented nutrient.



# Exercise & Movement

For women, exercise before and during pregnancy is associated with a healthy pregnancy and birth, faster recovery, and the maintenance of pre- and postnatal mental health, including support for body image-related mental health concerns [128-130]. It can also support metabolic health, which influences menstrual health [129]. Though more research is needed, some research shows that exercise can help support sperm health [131]. However, some activities, such as cycling, may impact sperm health [132]. Nonetheless, exercise is an important aspect of health for both men and women.

Preconception exercise should include a combination of aerobic and resistance training alongside stretching. Yoga or Pilates are both great options since they support muscle strength as well as flexibility. Once you are pregnant, there are specific exercises that will support an active birth.

A wearable device that tracks steps taken can provide real incentive, especially if you and your partner are on this mission to get fit together. Progress to more adventurous and more vigorous exercise as your muscles (and your mind) become accustomed to the extra activity.

Here are examples of exercises you can try:

- Aerobic activity: Walking, jogging, hiking, dancing, and cycling
- Mind-body exercise: Yoga, Pilates, tai chi, and Qigong
- Resistance training: Training with free weights, resistance bands, machine equipment, and plyometric activities. Bodyweight resistance training can include push-ups, pull-ups, lunges, and squats.



Remember: any movement is good movement! Movement of any kind supports a healthy stress response, hormone balance, and healthy metabolism. It doesn't take much—a simple walk after eating can support a healthy glycemic response [133].

For women, it's recommended to speak with your healthcare provider about which types of exercise are safe for you during pregnancy. As a rule of thumb, it is acceptable to continue with an existing exercise routine during pregnancy, though some adjustments may be needed [134]. With this in mind, developing an exercise routine you enjoy before conceiving will benefit you during your pregnancy.



Excessive exercise can contribute to hormone imbalances, including testosterone in men and estrogen in women, especially when paired with insufficient food intake [135,136]. Healthy levels of these hormones are important for maintaining reproductive function. In order to sufficiently recover from exercise and support healthy hormone levels, it's important to incorporate enough rest days, which will vary based on your exercise history and training routine. If your exercise performance is stagnant or declining, it may be time to reassess your training routine and eating habits.

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## Some tips to help you move more

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Do what you enjoy! For some, it may mean the gym and hitting the elliptical and weights. For others, it can be the pool, and still others, the dance floor. Find a combination of activities that you enjoy.



Add some resistance activities — consider squats, lunges, push-ups, resistance bands and/or light weights to give your large muscle groups some additional attention.



The pool is a great place to combine aerobics with the natural resistance the water provides.



Find a buddy or group to work out with or to participate in classes or activities. Think about things like a hiking group, dance class, yoga, Pilates class, soccer team, golf, tennis, or others.



Schedule a time with yourself for exercise to help maintain consistency! Consider hiring a personal trainer to keep you accountable or joining a gym that's convenient, such as one that's on the way home from work

Seek assistance from a trained professional for assistance with creating the ideal exercise routine. With their support, you can ensure exercise meets your likes, time schedule, and addresses any health or joint concerns (e.g., back problems or pregnancy-related exercise concerns).

# Stress Management

Chronic stress, whether emotional or physical, can affect hormone balance.

Cortisol, which is released from the adrenal glands during stress, impacts the balance of other hormones, such as thyroid hormone, estrogen, testosterone, and progesterone [137]. Chronic stress can influence hormone balance and affect how the body regulates metabolism, energy, mood, and reproductive health.

However, stress management practices may help support overall and reproductive health. A large study found that yoga and mindfulness-based practices supported healthy cortisol levels as well as the maintenance of normal blood pressure and blood sugar levels [138].



Stress management practices include:

- Coloring, journaling, or completing puzzles
- Doodling or drawing
- Engaging in meditation, guided imagery, prayer, or breathwork
- Getting a massage
- Listening to soothing music
- Playing with pets
- Practicing yoga
- Reading a fiction book
- Sipping on some tea and relaxing
- Soaking in a bath with bath salts and calming essential oils, like lavender
- Taking intentional “pauses”. This can be a time for doing something creative or just simply ‘being’
- Walking in nature (“forest bathing”)
- Watching a comedy



Like exercise, find something you enjoy doing and make time for it.

## Cultivate Intimacy & Connection through Intercourse and Touch



Sex is good for you, and while that might seem self-evident, it is important that you maintain a healthy sex life if that's important to you.

Oxytocin is the hormone that makes the uterus contract during labor, stimulates the letdown reflex during breastfeeding, and is also released at orgasm [139]. Oxytocin is present in both sexes, promoting calm, connection, bonding, love, and intimacy. It is commonly called the “cuddle hormone.” It directly counteracts the flight or fight response, reducing stress levels and supporting healthy growth hormone levels, which is essential for overall health and healing. Oxytocin also supports sperm production [139].

Apart from being an effective oxytocin producer, great sex is also a mighty effective stress reducer! Orgasms increase the blood flow to the reproductive organs, supporting proper function [140]. While his orgasm is essential, conception can happen without hers. However, her orgasm may increase the chance of conception. Some research shows the contractions that accompany the female orgasm may help carry sperm further into the cervix [141]. Other research shows that compared to menstrual cycles with at least one day of sexual intercourse, those with no sexual intercourse were shorter in length and had shorter luteal phases [142].

Because it's a peptide hormone, an adequate amount of quality protein must be consumed daily to support this hormone's production [143].

# Lifestyle & Environment

## Modifying Lifestyle Factors May be Helpful for Hormone Balance

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### Support quality sleep

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Sleep is important for preconception care because it influences the hypothalamus-pituitary-adrenal (HPA) axis in both men and women. Maintaining proper functioning of the HPA axis supports healthy hormone levels [144]. In men, short or fragmented sleep can negatively affect testosterone levels, especially when it occurs in the second part of the night [80,145]. If you don't consistently get 7-9 hours of sleep per night or frequently wake up feeling unrested, then you may want to take steps to improve your sleep.

If you're having trouble with your sleep, there are plenty of reasons. Over the years, societies have extended their day with electric light. Most people sleep in a light-infused limbo with text messages and emails coming and going, while a variety of light-emitting devices —laptops, computers, TVs, alarm clocks, phone chargers, and more— constantly glow and wink through the hours that nature designed to be experienced in complete darkness. Ensuring exposure to darkness at night is important for signaling to the body that it's time to sleep, thus inducing melatonin secretion [146].





Here are some tips to help you have a restful night of sleep:

- Dim lights two hours before bed to support melatonin production.
- Reduce screen time before bed and use blue-light-blocking glasses when necessary.
- Sleep in a very dark, cool room.
- Stick to a regular sleep-wake routine, even on weekends, to maintain a consistent sleep-wake schedule
- Avoid stimulating activities before bed (e.g., work emails, difficult conversations, or scary movies).
- Use melatonin supplements as necessary, and when safe to do so, to support the circadian rhythm.
- If switching time zones, plan to have 1 day of adjustment for every 1 hour time zone change. Consider using melatonin to help shift the circadian rhythm.



When indicated, you may benefit from calming herbs such as chamomile, lavender, valerian, or lemon balm [147,148]. Further, L-theanine, found in green tea, can help promote relaxation and sleep. Supplemental L-theanine can be considered for nighttime use as green tea contains caffeine [149].

Check with your healthcare provider before starting any sleep support supplements, as there may be some contraindications. Additionally, “more is not always better” when using supplements for sleep support; therefore, guidance should be provided on choosing the correct dose.

One of the most well-known supplements to support sleep is melatonin. Further, melatonin’s antioxidant properties may support oocyte and sperm quality [150].

One paper showed that a phytemelatonin (melatonin from plants) demonstrated up to 950% stronger antioxidant potential compared to synthetic melatonin, which is the most common supplementation form on the market [151].

Herbatonin® 0.3 mg is a plant melatonin that is a potential addition to your supplement protocol, though it is recommended that you speak with your healthcare provider before adding dietary supplements to your routine.

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## Eliminate the use of cigarettes, alcohol, and social drugs

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Sperm are susceptible to damage. Taking up to four months to form, they are adversely affected by a host of dietary, lifestyle, and environmental factors [5]. Alcohol, cigarettes, and social drugs (including cannabis) may affect sperm health [152–154].

While the maturing eggs are better protected than sperm, which are quite exposed in the testes, eggs are particularly susceptible to damage in the three months before conception [7]. The same avoidance advice applies to prospective mothers.

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## Get regular sun exposure

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While all the vitamins and trace elements have a crucial role in reproduction, ensuring vitamin D status is particularly important given the likelihood of deficiency in Western society.

**Women:** Adequate vitamin D levels support healthy ovulation and birth as well as a healthy baby in later life [155,156].

**Men:** Some evidence suggests an association between low vitamin D levels and low testosterone levels in men, but more research is needed to clarify this relationship [157]. This could be because the cells in the testes that produce testosterone contain vitamin D receptors, suggesting a role for vitamin D in testosterone production [158]. Therefore, adequate vitamin D levels should be considered to support reproductive health.

Vitamin D, while it is consumed in the diet, can be synthesized through the skin when exposed to the sunshine.

Sunshine suggestion:

- 10–15 minutes of midday sun exposure per day [159]
- Expose your arms, legs, or other large areas of skin as much as possible and comfortably



If you have very fair or sensitive skin, be sure to take the necessary precautions to avoid sunburn, which may mean choosing a time of day with a lower UV index or shortening time spent in direct sun. When spending longer periods of time outdoors, using sunscreen is advised to avoid damaging the skin [159]. Additionally, it's recommended that you speak with your doctor if taking medications, as some may increase sensitivity to the sun.

Even with sun exposure, supplements may be necessary to ensure adequate vitamin D levels, especially for those living in northern regions [159]. Use oral supplements of vitamin D3 dosed based on your current lab values. Nonetheless, sun exposure has benefits beyond vitamin D synthesis, including supporting a healthy circadian rhythm.

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## Use clean, green, toxin-free personal & household products

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The Environmental Working Group (EWG) Survey found that people are exposed to 126 chemical ingredients through the use of personal products alone [160]. On average, women use 13 products daily (up from 12 in 2004), and men use 11 products daily (up from 6 in 2004) [160]. The good news is that the number of chemicals people are exposed to has decreased in this 20-year period, likely due to the awareness and availability of chemical-free options.

Toxins and chemicals impact fertility and contribute to infertility [161]. Therefore, it is best to choose non-toxic personal care products in the months leading up to conception and continuing after that. The EWG provides a guide for safer personal products at [www.ewg.org/skindeep](http://www.ewg.org/skindeep).

Likewise, the EWG provides a list of verified cleaning products that are safe for use. Salt, sodium bicarbonate, and vinegar were good enough for grandma, and they haven't lost their ability to clean—they've just lost their popularity.

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## Reduce exposure to electromagnetic field radiation

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Exposure to electromagnetic field (EMF) radiation comes from Wi-Fi, Bluetooth devices, cell phones, radios, computers, radar equipment, and more [162]. Sadly, the fact that electromagnetic pollution is unseen makes it even more insidious. Taking steps to reduce exposure may support male and female reproductive health and even cognitive health [163]. In females, reducing exposure to EMF radiation may help protect the uterus and ovaries from free radical production [162]. Though the evidence is uncertain, reducing exposure to EMF radiation may support sperm health [163].

Given that exposure is inevitable, you can take protective measures by including antioxidant nutrients in your diet [164]. Research suggests that vitamin E may be particularly beneficial. This nutrient can be found in foods such as sunflower seeds, almonds, hazelnuts, peanuts, spinach, and broccoli [165]. Other potentially protective nutrients include folate and melatonin [164].

In addition, you can avoid exposure to those devices that are within your control. That means keep your cell phone out of your pockets and laptops and tablets out of your laps! Turn off your computer at night, and eliminate all electronic devices from your bedroom, aiming for at least 8 hours free from EMF radiation.



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### Walk barefoot on grass or sand

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Grounding yourself to the earth, sometimes called earthing, can support your health [166]. Simply put, it puts you in direct contact with the earth's health-boosting energy and may support a healthy inflammatory response. Interestingly, it's an activity that every living thing does instinctively, yet most of us probably walk barefoot on the earth infrequently.

Tips for reducing your toxin load to support hormone balance and preconception care:

- Buy bisphenol A (BPA)-free water bottles and containers. When possible, use glass or stainless steel.
- Minimize the use of food in cans to reduce intake of aluminum and bisphenol liners.
- Toss Teflon and other non-stick cookware and replace them with cast iron, stainless steel, and glassware.
- Drink tea and coffee from a plastic-free reusable mug when on the go.
- Avoid microwaving food in plastic containers or coverings.
- Avoid fragrances whenever possible (e.g., perfumes, candles, etc.).
- Following an anti-inflammatory, high-antioxidant food plan with adequate protein, as described in this guide, can provide foods that support the elimination of toxins from the body.
- Some specific foods and supplements, such as milk thistle, dandelion greens, spirulina, and alfalfa, may provide additional support [167,168]. [pH Quintessence](#) is a 40:1 concentrated organic alfalfa that can support detoxification for hormone balance.

[Try our Fertility Preconception Pack for him and her.](#)

## Conclusion

Many dietary and lifestyle factors may help support preconception care. Our goal is to help you improve hormone health through diet and lifestyle choices, and using supplementation as needed. Working with a health professional who can customize a plan to meet your individualized needs is recommended.

Consult a health professional with expertise in preconception care if either of you suffers from chronic or existing conditions, if you have been exposed to environmental toxins, or if you have prior reproductive problems.

## One Last Word

“Becoming a parent is a life-changing experience. Parenting is the most rewarding and challenging job you will ever do. Tomorrow’s children will experience challenges that you, their parents, can only dream about. Ensuring they have the physical, mental, and emotional resources to rise to those challenges is up to you. It begins with embracing preconception care well before you start trying to conceive. The health of the next generation is in your hands.”

— Jan Roberts, Pharmacist and Clinical Nutritionist



# Summary



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## Empowerment & Knowledge

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- Many experts view the four months prior to conception as the most important stage in the reproductive process.
- Oocytes (eggs) are particularly sensitive to their environment during the three menstrual cycles prior to ovulation.
- The preconception period is a time to address underlying concerns around nutrient status, hormone imbalance, toxicity, genetics, and more, all of which can help support conception and a healthy pregnancy.



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## Hormones

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- Hormone balance refers to streamlined communication within the endocrine system, which is a network of glands working through a feedback loop.
- Hormone imbalance may occur when communication through the hypothalamus, pituitary gland, thyroid gland, adrenal gland, and ovaries or testes is not in harmony, affecting their ability to efficiently send and receive signals.
- Speak with your healthcare provider if using hormonal birth control to help you determine when to discontinue their use. Keep in mind that it may take some time to regain your menstrual cycle.
- Hormone imbalance in women can contribute to symptoms such as premenstrual discomfort; heavy, prolonged, or painful menstrual bleeding; and irregular or missing periods.
- Hormone imbalance in men can contribute to changes in body composition, concentration, energy levels, libido, mood, sexual function, and more.
- Femmenessence® and Revolution Macalibrium® contain specific maca phenotypes that can support healthy hormone levels in women and men, respectively, by nourishing the HPTAG axis.



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## Diet & Nutrition

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- Aiming to “eat the rainbow” every day is a simple way to support a nutritious diet.
- Consuming enough daily calories is a foundation for preconception health as low calorie diets can negatively affect the endocrine system.
- Key nutrients for preconception care include zinc, B-complex vitamins, iron, vitamin C, and omega-3 fatty acids.
- Prioritizing organically-grown foods limits exposure to pesticides, which may disrupt normal functioning of the endocrine system in men and women.
- Adequate dietary protein supports metabolic health, and in women, plant proteins can help support healthy ovulation.



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## Exercise & Movement

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- Exercise before and during pregnancy can support a healthy pregnancy, recovery from birth, and mental health during the pre- and postnatal periods.
- It is generally acceptable to continue with an existing exercise routine during pregnancy, though some adjustments may be needed.
- Excessive exercise can contribute to hormone imbalances in both men and women. Incorporating rest days is important to sufficiently recover and maintain healthy hormone levels.



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## Stress Management

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- High levels of cortisol, known as the stress hormone, may impact the balance of other hormones.
- Stress management practices, such as meditation, yoga, reading, and spending time in nature, can support overall and reproductive health.
- Oxytocin, known as the cuddle hormone, helps reduce stress levels. It is released during physical intimacy, including hugging but also at orgasm.



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## Lifestyle & Environment

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- Sleep is important for preconception care because it influences the HPA axis, which supports healthy hormone levels in men and women.
- Reducing light exposure at night, sticking to a regular sleep-wake routine, and using melatonin supplements when appropriate are some ways to support a restful night of sleep.
- Alcohol, cigarettes, and social drugs may affect sperm and egg health.
- Sun exposure supports vitamin D synthesis and a healthy circadian rhythm.
- Chemicals found in cleaning and personal care products may affect reproductive health. Choosing toxin-free options is often recommended for preconception care.
- Reducing exposure to electromagnetic field (EMF) radiation from Wi-Fi, Bluetooth devices, cell phones, and more may support reproductive health for both men and women.
- Nutrients, such as vitamin E and folate, as well as melatonin may support health when EMF radiation cannot be avoided.

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