

# Nutrition: Women's Health, Part 1

Hey, everyone, in this presentation we're going to talk about nutrition for women's health. Women's health often is not given the attention required in the Paleo ancestral community. Recommendations for very-low-carbohydrate intake, intermittent fasting, high-intensity training, etc., may not suit many or even most women. The desire to have children impacts decisions regarding diet, supplements and lifestyle choices, and this presentation will cover female health conditions and basic guidelines for how to address them.

Let's start with PMS, or PMDD. PMS affects 90 percent of women during their lifetime. Clinically significant PMS affects 20 to 30 percent of women. This can affect daily functioning even up to a week before menstruation, and the causes of PMS are still ... well, there are several things that are suspected, of course, but they're not clearly understood. It appears to be an interaction between fluctuations in sex hormones and neurotransmitters, and the hallmark of diagnosis is a symptom-free time period after menstruation and before the next ovulation.

Common PMS symptoms include mood swings, changes in appetite, insomnia, brain fog, bloating and water retention, headache, fatigue, depression, anxiety, breast tenderness, acne flare-ups, constipation or diarrhea, and back pain.

PMDD is a more severe form of PMS. Three to 8 percent of women have PMDD. It's diagnosed when at least five major symptoms of PMS are experienced within seven days prior to menstruation and are alleviated soon after the start of menstruation. It can be related to more severe gynecological conditions such as endometriosis or uterine fibroids. Many conventional physicians prescribe hormonal birth control or antidepressants to alleviate these symptoms, and these treatments can provide symptom relief for many women, but unfortunately, they do not typically address the underlying cause of PMS, which of course we want to do from a functional medicine perspective.

Frequent causes of worsened PMS symptoms include estrogen or progesterone imbalance, could be estrogen dominance or relative estrogen excess, and/or low progesterone. Those are often associated with more severe PMS, and addressing hormonal imbalances will often significantly improve or eliminate PMS symptoms. Autoimmune disease is another contributor to PMS. Severe PMS can be a signal of something worse than simply a hormonal imbalance. An example might be that there's significant evidence that endometriosis is an autoimmune disease. Inflammation from autoimmunity can increase PMS symptom severity, and women with severe PMS or PMDD should be evaluated for autoimmunity and leaky gut.

PCOS, or polycystic ovarian syndrome, is diagnosed in women with at least two of the following symptoms: irregular or absent menstrual cycles, elevated testosterone or other androgenic hormones, and polycystic ovaries diagnosed via ultrasound. Other symptoms include acne,

excessive hair growth, weight gain, or infertility. PCOS is the most common cause, statistically speaking, of female infertility in the US.

Potential causes of PCOS, it's still not fully understood, but they include insulin resistance, that's the most accepted cause of PCOS; it's unknown if PCOS actually also contributes to insulin resistance in a kind of vicious cycle. Excess insulin stimulates testosterone production in women. Lowering insulin if elevated is one of the many treatment goals for PCOS. Low-grade inflammation is certainly involved, that can stimulate androgen production. High levels of androgens disrupt the menstrual cycle, and inflammation could be related to autoimmunity, inadequate micronutrient intake, food sensitivities, high omega-six intake, sleep disruption, etc. PCOS appears to have a genetic element; it runs in families. Women who are overweight are at high risk of PCOS; 60 percent of women with PCOS are overweight, so being lean does not rule out PCOS, that's important to know. It's not clear if weight gain is a cause or a symptom of PCOS. It may be related more to insulin resistance. Losing weight is commonly recommended to overweight women with PCOS, but losing too much weight or having a really low body fat percentage can also affect menstrual cycle and androgen output. Also related, overtraining or over-exercising may be related, and stress appears to play a role, not surprisingly. It plays a role in just about everything, as we'll be talking about in the HPA axis unit, but HPA axis dysregulation can affect ovarian hormonal production by several different mechanisms. Ovaries are controlled by hypothalamic regulation by the hypothalamic-pituitary-thyroidal-gonadal-adrenal axis, the HPTGA axis. High levels of stress may also contribute to hormonal dysregulation observed in PCOS.

As for diet recommendations, of course the key question is, is a low-carb diet best for women's health issues? The typical recommendation for PCOS and related symptoms is a low-carb and low-glycemic-index diet, and this is related to how often insulin resistance occurs in PCOS. A low-carb approach can certainly be indicated for overweight and/or insulin-resistant patients with PCOS, but if a patient is normal weight or underweight, a low-carb approach may actually make hormonal imbalances worse.

So this is, of course, a fundamental principle of functional medicine, is tailoring the treatment for the individual. Amenorrhea, or complete loss of menstrual function, is often related to hypothalamic or pituitary dysfunction. It's also not clearly understood but has many potential causes including low body weight, which is a common cause of a condition known as hypothalamic amenorrhea; it's often caused by low-calorie and/or -carbohydrate intake. Excessive exercise, overtraining is a well-known cause of amenorrhea. It's usually associated with low body weight but can occur in normal-weight women as well. Stress is another common cause of hypothalamic amenorrhea; cortisol affects the release of other hormones, including LH and FSH, particularly the pre-ovulatory LH pulse. So women with chronically elevated cortisol, HPA axis hyperactivation, can experience amenorrhea.

PCOS is another potential cause of amenorrhea, so you see dysregulation of sex hormones and androgen production that can make periods irregular or absent. Thyroid disorders, both hypo- and hyperthyroidism, can contribute. Thyroid is also controlled by the hypothalamic pituitary system, like the adrenal glands and ovaries. Pituitary tumors, most are benign adenomas that affect certain

hormonal output including prolactin growth hormone and ACTH. Premature ovarian failure, also called primary ovarian insufficiency, can cause amenorrhea, and the symptoms there are similar to menopause but found in younger women and may be autoimmune-related according to some recent research, so many different potential causes here to consider.

Amenorrhea is associated with increased risk of osteoporosis and poor bone density, so it's important to recover menstrual function if possible in order to protect bone health. Loss of estrogen is a common cause of poor density in young women, and if women cannot recover menstrual cycle for any reason, exogenous hormone replacement may be required in order to preserve bone density.