

# PREMENSTRUAL SYNDROME

## A NATURAL APPROACH TO MANAGEMENT

Premenstrual syndrome (PMS) is a disorder that occurs during the luteal phase (1 to 2 weeks before the period) of the menstrual cycle, producing a diverse number of physical and emotional changes. The most common symptoms of PMS include bloating, backache, breast tenderness, food cravings, fatigue, irritability, and depression. The timing of the appearance and disappearance of symptoms, rather than the presence of specific symptoms, is of more importance in the diagnosis of PMS. The direct cause of PMS is unknown, although there are numerous theories relating to hormonal imbalances, nutritional insufficiencies, and psychological factors. A nutritional approach to PMS that takes into account the complex interactions of all bodily systems that influence hormonal balance and neuroendocrine function, with an emphasis on the liver, is recommended. The nutritional factors that have been studied include vitamin B6, magnesium, zinc, choline, vitamin E, and essential fatty acids, in addition to weight management and stress reduction. Herbal therapies have also proven beneficial in the management of PMS.

In an attempt to offer women viable natural treatments for the relief of PMS and explain their rationale, many theories have been offered. The most common symptoms of which PMS patients complain can be broken down into four subgroups according to the classification system developed by Dr. Guy Abraham, former clinical professor of obstetrics and gynecology at UCLA, who has published extensively on the subject of PMS. While comforting in its attempt to organize the syndrome, this theory is yet to be confirmed in research studies yet still used as a basis for using these many natural therapies.

### PMT-A: (Anxiety)

Characterized by elevated blood estrogen and low progesterone. Patients consume excessive dairy products and refined sugars. Symptoms include nervous tension, mood swings, irritability, anxiety, and insomnia.

### PMT-C (Cravings)

Associated with increased carbohydrate tolerance and low RBC magnesium. Prostaglandin E1 may be deficient. Symptoms include: headache, craving for sweets, increased appetite heart pounding, dizziness or fainting, fatigue.

### PMT-D (Depression)

Mean blood progesterone may be higher than normal during the midluteal phase, and elevated adrenal androgens are observed in some hirsute patients. Other patients with normal progesterone and estrogens have hair lead levels and chronic lead intoxication. Symptoms include depression, forgetfulness, crying, and confusion.

### PMT-H: (Hyperhydration):

Associated with symptoms of water and salt retention, and possibly by elevated serum aldosterone. Vitamin B6 suppresses aldosterone resulting in diuresis. Symptoms include weight gain above 1.4kg, swelling of the extremities, breast tenderness, and abdominal

bloating.

PMDD: (Premenstrual Dysphoric Disorder)

According to the criteria to the Tenth Revision of the International Classification of Diseases, a diagnosis of PMS requires the presence of only one symptom. In contrast, according to DSM-IV criteria, a diagnosis of PMDD requires the prospective daily self-rating of symptoms for at least two cycles; the presence of at least 5 or 11 total symptoms, 1 of which must be a core symptom (depressed mood, anxiety or tension, affective lability, or irritability); and interference with social or work activities during the week prior to menses.

Diagnosis of PMS and PMDD

PMS

Does not meet DSM-IV criteria for PMDD but does meet ICD-10 criteria for PMS

Symptoms occur only in the luteal phase, peak shortly before menses, and cease with menstrual flow or soon after

Presence of one or more of the following symptoms:

Mild psychological discomfort

Bloating and weight gain

Breast tenderness

Swelling of hands and feet

Aches and pains

Poor concentration

Sleep disturbance

Change in appetite

PMDD (DSM-IV criteria)

At least five of the symptoms below, with at least one being a core symptom, are present a week before menses and remit a few days after onset of menses:

Depressed mood or dysphoria (core)

Anxiety or tension (core)

Affective lability (core)

Irritability (core)

Decreased interest in usual activities

Concentration difficulties

Marked lack of energy

Marked change in appetite, overeating, or food cravings

Hyperinsomnia or insomnia

Feeling overwhelmed

Other physical symptoms (e.g. Breast tenderness, bloating, headache, joint or muscle pain)

symptoms must interfere with work, school, usual activities, or relationships

symptoms must not merely be an exacerbation of another disorder

Criteria a, b, and c must be confirmed by prospective daily ratings for at least two cycles.

#### **SYMPTOMS OF PMS**

##### **Psychological**

Irritability

Tension

Anxiety

Mood swings

Aggression

Loss of concentration

Depression

Forgetfulness

Mental confusion and fatigue

Insomnia

Change in libido

Crying spells

##### **Physiological**

Bloating

Weight gain (fluid)

Breast tenderness

Headache

Pelvic discomfort and pain

Change in bowel habits

Increased appetite

Sugar cravings

Generalized aches and pains

Physical tiredness

Weakness

Clumsiness

#### **INCIDENCE AND IMPACT**

PMS is one of the most common disorders of women of reproductive age. Numerous epidemiological surveys have shown PMS to consistently affect between 25% and 50% of women in this age group. However, reports of the incidence of PMS vary from 0% to 60% depending on the diagnostic tool used to measure symptoms. The incidence of PMS peaks among women age 30 to 40, but studies have shown that adolescents frequently suffer the effects of PMS as well. With the large number of women in the work force, the impact of PMS on productivity as a result of absenteeism and work inefficiency undoubtedly has a huge impact on the economy. Most women who have symptoms do not seek medical care but

instead self-treat, making this an ideal arena for natural self-care.

### ETIOLOGY

Although the symptoms of PMS have been well defined, the etiology is still unclear. Over the years, researchers have proposed numerous theories, including excessive estrogen, progesterone deficiency, elevated prolactin, increased aldosterone, nutritional insufficiencies, and various psychological factors. The lack of reproducibility of studies designed to demonstrate measurable changes in hormones associated with PMS suggests that the true etiology of PMS is the consequence of complex and poorly understood interactions between ovarian hormones, endogenous opioid peptides, neurotransmitters, prostaglandins, and the circadian, peripheral, autonomic, and endocrine systems. It is interesting to look at the work done on serotonin to appreciate the incidence of mood disorders after ovulation in women with PMS. Abnormal serotonin metabolism has long been linked to depression. Elevating serotonin levels is how the widely popular antidepressant Prozac works. Menstruation might contribute to susceptible women's neurotransmitters being adversely affected at a physiologically critical time, resulting in mood swings, anger, and irritability. This is congruent with the views of feminist writers who criticize the medicalization of PMS symptoms as disease, arguing that medicine has tended to pathologize behaviors that do not conform to the unnatural yet pervasive female stereotype. Certainly, no other named condition in women is so common, so little understood, and yet contains so many significant pieces to our lives.

### PMS ETIOLOGY THEORIES

Excess estrogen	Prostaglandin deficiency or excess
Progesterone deficiency	Endogenous hormone allergy
Fluid retention	Endogenous opiates
Hyperprolactinemia	Psychogenic
Vitamin B6 deficiency	Thyroid abnormality
Hypoglycemia	Serotonin deficiency

### METABOLISM & FUNCTION OF ESTROGEN & PROGESTERONE

Estrogens are a family of hormones produced predominantly by the ovaries, but also by the corpus luteum and peripheral aromatization of androgens in the liver, skin, and adipose tissues. Estradiol is the primary estrogen of ovarian origin. Increased production of estrogens may result from increased ovarian secretion, ovarian tumors, and functional cysts. However, the most common cause of estrogen excess is increased aromatization of androgens in peripheral tissues.

Progesterone is produced and secreted by the corpus luteum at midcycle (around day 14) under the influence of leutinizing hormone (LH) from the pituitary gland. Corpus luteum production of progesterone may be dependent on a number of nutritional factors, including magnesium and vitamin E, while a deficiency may result from overconsumption of animal fats. Secondary causes of deficient corpus luteum production are defective liver, heart, or kidney function and hyperprolactinemia.

Both estrogen and progesterone act synergistically to prepare the female reproductive system for pregnancy. Estrogens stimulate the growth and development of tissues involved in reproduction, such as the endometrium, and act anabolically to influence bone and cartilage.

growth. They also cause vasodilation and heat dissipation by affecting the peripheral blood vessels. In contrast, progesterone reduces the proliferative actions of estrogen on the endometrium and converts it from proliferative to secretory in preparation for fertilization. Progestins also decrease peripheral blood flow, thereby decreasing heat loss, so that the body temperature tends to increase during the luteal phase of the menstrual cycle, which is used as an indicator of ovulation.

### **ESTROGEN, PROGESTERONE, AND PMS**

Alterations or imbalances of the circulating ratios of estrogen and progesterone based on the time of the month can aggravate the target tissues of these hormones. This potential tissue aggravation is based on the anabolic properties of estrogen and the secretory properties of progestins.

The role of increased levels of estrogen in the etiology of PMS has been described for many years and may be due to 1) an overproduction of estrogen within the body, 2) a relative increase of estrogen due to low progesterone secretion by the corpus luteum, 3) a decreased estrogen clearance rate, and/or 4) an increased target tissue sensitivity to steroid sex hormones (prostaglandin mediated).

Progesterone excess is observed less frequently. The administration of synthetic progestins that resist liver conjugation and excretion or depressed levels of estrogen may account for true or relative progesterone elevation. A relative increase in the progesterone/estrogen ratio in severely depressed, withdrawn, and suicidal PMS patients has been observed. Therefore, careful screening before administering progesterone therapy for patients exhibiting this symptom profile is advised.

### **ACTION OF FEMININE HORMONES**

Estrogen Excess/Hypersensitivity May Contribute To:

Bloating, weight gain, and water retention as a result of sodium retention.  
Excess central nervous system stimulation, producing irritability and anxiety.  
Possible histamine release, which may promote skin and allergy problems.  
Increase in pro-inflammatory prostaglandins, producing a tendency toward pain, redness, and swelling.

Relative increase in prolactin, a hormone that can produce depression and dysphoria, breast tenderness and pain.

Increased contraction and cramping of uterine smooth muscles.

RELATIVE PROGESTERONE EXCESS MAY CONTRIBUTE TO:

Decreased libido.

*Water retention due to renin stimulation and aldosterone formation*

Symptoms of excess corticosteroids.

Depression and fatigue.

Sedation.

Hyperinsulinemia.

#### ENTEROHEPATIC CIRCULATION AND EXCRETION OF ESTROGEN

Enterohepatic circulation involves the metabolism of a substance in the liver, excretion into the bile, passage into the lumen of the intestine, reabsorption through the intestinal wall, and then return to the liver in the portal circulation. Many endogenous compounds have an enterohepatic circulation, including estrogens, folic acid, vitamin B12, bile acids, cholesterol, protoporphyrin, metabolites of vitamin D, and xenobiotics. Disruption at any phase of this process can contribute to an increased body burden of endotoxins, malabsorption of fat-soluble vitamins and essential fatty acids, and steroid hormone imbalances.

Several factors determine whether estrogens or other substances are secreted from the liver into the bile, including successful conjugation and optimal bile acid synthesis. The compound generally is conjugated to a polar group such as glucuronic acid, sulfate, taurine, glycine, or glutathione before secretion into bile. Glucuronidation is involved in the conjugation of estrogens as well as xenobiotics and bile acids and requires niacin, vitamin B6, and magnesium to take place. Magnesium increases glucuronyl transferase activity, an enzyme directly involved in hepatic glucuronidation of estrogen.

Bile acid synthesis is dependent on the enzyme 7-alpha-reductase, the rate limiting factor in bile acid production. 7-alpha-reductase is vitamin C dependent. Other cofactors determining the fate of smooth flowing bile are pantothenic acid and taurine. Pantothenic acid participates in the biosynthesis of cholesterol (HMG-CoA reductase) an essential component of bile. The amino acid taurine plays a key role in bile conjugation and decreasing platelet aggregation sensitivity, which affects the circulation of the blood.

#### THE LIVER

Decreased clearance rate of estrogens by the liver can be due to a variety of factors. Magnesium and B vitamin insufficiencies may decrease the liver's ability to successfully form estrogen conjugates, ultimately resulting in reductions in fecal excretion. This may explain why some physicians observe improvement in premenstrual symptoms with the administration of B-complex vitamins. Biskind et al., during the 1940s, postulated that a deficiency of B vitamins could cause a cyclical excess level of circulating estrogens because of decreased hepatic clearance, producing PMS. His patients improved using B vitamins. More recently, a group of researchers have been exploring the role of B-complex vitamin insufficiencies as contributing to clinical depression in young adults and the elderly.

While individual B vitamins perform specific functions with regard to hormone regulation and neurotransmitter synthesis, a true B vitamin deficiency/PMS connection cannot be established in the average woman suffering from PMS. However, mild liver dysfunction may produce enough waste to interfere with communication between the pituitary, adrenals, and ovaries. There are many xenobiotics that are known to occupy receptor sites on the ovaries and other glands, thereby inhibiting optimal function. B vitamins are water-soluble, are eliminated from the system rapidly, and require continuous presence in the diet for optimal liver function to proceed.

Hepatic function may also be compromised by fatty infiltration of the liver, which can be caused by increased alcohol consumption, or increased consumption of saturated fats. The presence of lipotropic factors in the diet, such as choline, folic acid, and vitamin B12 are important elements in the prevention of hepatic lipid accumulation and in the maintenance of normal hepatic function.

Alcohol, sugar, caffeine, and fatty foods can all compromise liver function. Foods that introduce exogenous estrogens, such as meat and dairy products, as well as foods commercially grown with the use of synthetic pesticides and fertilizers, will further compromise the liver and add to the estrogen burden in the body.

Another important route of estrogen excretion is as estrogen conjugates eliminated by the kidneys. Due to kidney involvement during the management of PMS, women should consume eight glasses of water daily to enhance the normal urinary excretion of estrogen conjugates.

### INTESTINAL TRACT

The gastrointestinal (GI) tract plays an important role in the balancing of estrogen within the body. After hepatic formation of estrogen glucuronide conjugates, excretion occurs via the biliary tract. The estrogen glucuronide bonds must be maintained throughout the length of the intestinal tract to have the estrogen successfully eliminated with fecal material. If the gut transit time is lengthened, there are consequent changes in the flora of the GI tract that increase the production of beta-glucuronidase-producing bacteria. Beta-glucuronidase cleaves the estrogen-glucuronide linkage and liberates biologically active estrogens, which can then be reabsorbed. Beta-glucuronidase is increased in diets high in protein and fat, resulting in increased estrogen recycling.

Optimal intestinal function requires adequate digestive secretions, a high fiber intake, and an intestinal microbial balance. Goldin et al. Demonstrated a positive correlation between fiber intake and fecal estrogen excretion and an inverse correlation between fecal excretion of estrogen and plasma estrogen levels in a study of vegetarian and omnivorous women. These results suggest that dietary fiber can influence estrogen clearance.

#### *Other Hormonal and Neuroendocrine Factors*

##### *Dopamine and Serotonin*

Dopamine and serotonin are neurotransmitters that influence mood and appetite. Ovarian hormones affect the synthesis and uptake of neurotransmitters, which can result in the manifestation of physical and behavioral symptoms of PMS. Estrogens may suppress the action of dopamine, which is a major hormonal modulator of the homeostatic balance of the active amines important for creating relaxation and mental alertness. Dopamine exerts an inhibitory effect on prolactin secretion and influences the adrenal glands and kidneys, preventing sodium and water retention. A relative deficiency of dopamine can aggravate edema and interstitial fluid shifts during the menstrual period. Vitamin B6, magnesium, and vitamin C are essential cofactors for the proper production of dopamine.

According to recent theories, serotonin may play an important role in PMS or late luteal phase dysphoric disorder (LLPDD). One study found that compared to a control group,

serotonin levels of women with PMS were significantly lower during the luteal phase, which may account for some of the psychological symptoms of PMS such as depression, anxiety, headaches, and mental confusion. Low serotonin levels may also trigger early ovulation and a shift in estrogen and progesterone patterns, which could account for some of the physical symptoms of PMS such as breast tenderness, bloating, and food cravings. Because exercise stimulates endorphin production it may provide some relief from PMS symptoms.

### *Prostaglandins*

Prostaglandins (PGs) are hormone-like compounds that function as mediators of a variety of physiological responses such as inflammation, vascular dilation, and immunity. They are synthesized in virtually all cells of the body, including the brain, breast, gastrointestinal tract, kidney, and reproductive tract. The anti-inflammatory series 1 PGs are derived from linoleic acid (LA), which is converted to gamma-linolenic acid (GLA), while arachidonic acid, found in animal fats, is the precursor of the proinflammatory series 2 PGs and leukotrienes. Imbalances in PG series could produce inflammation in tissues, thus stimulating PMS. Two studies have shown that women with PMS have abnormal serum levels of PGs and their precursors. Lower levels of circulating PGE1 may sensitize reproductive tissues to estrogens, producing a vulnerability to normal ovarian hormone cycling.

Nutrients known to increase the conversion of EFAs to the anti-inflammatory series 1 PGs include magnesium, vitamin B6, zinc, niacin, and vitamin C. Factors that interfere with the production of anti-inflammatory PGs include diets rich in saturated fats, alcohol consumption, and catecholamines released from the adrenal medulla during stress.

### *Prolactin*

Prolactin is a hormone secreted by the pituitary gland that can influence estrogen and progesterone secretion. Excess secretion of prolactin, or hyperprolactinemia, is one of many etiological factors proposed as being a potential cause of PMS. Elevated levels of prolactin create states of dysphoria, breast tenderness, water retention, and depression, and decrease the life and action of the corpus luteum, thus decreasing the production of progesterone. Estrogens are known to enhance the release of prolactin, while dopamine inhibits prolactin secretion.

Physiological factors that may promote prolactin overproduction and/or abnormal tissue sensitivity to prolactin are excess estrogen levels, stress, hypothyroid, and deficiencies of dopamine, vitamin B6, zinc, vitamin C, and magnesium. Dietary factors can influence elevated levels of prolactin production, such as diets high in protein and total unsaturated fats.

### *Endorphins*

Endorphins are neuropeptide hormones of the endocrine system that participate in the regulation of diverse physiologic functions such as pain transmission, emotions, appetite control, and hormone secretion. It has been postulated that a change in progesterone level or estrogen to progesterone ratio during the luteal phase of the cycle may lead to changes in endorphin activity during the days leading to menstruation. These changes in endorphin levels may have important effects on mood and behavior and, through the possible mediation of prostaglandin levels, have physical effects as well. Stress-related distortions in the release of

beta-endorphin may be related to some PMS symptoms.

## **PMS MANAGEMENT**

Historically, conventional mainstream medicine has not been able to offer women a known cause for PMS nor has it been able to offer a management approach short of pharmaceuticals with as many side effects as relief. The current treatment options for PMS vary considerably and reflect the multiple etiology theories and the complexity of hormonal interactions likely involved in PMS. They include ovulatory suppressants, progesterone, nutritional therapies, diuretics, bromocriptine, prostaglandin and melatonin inhibitors, antidepressants or other psycho pharmaceuticals, and psychosocial therapies such as relaxation training, support groups, exercise, and dietary changes. Progesterone is the most widely used treatment for PMS. Unfortunately, no one treatment has proven completely successful, and many of these therapies are not without side effects.

Self-care with natural therapies has been the dominant method of how women manage PMS. Women have clearly taken this monthly recurring familiar problem into their own hands and more often than not have determined what works for them. Fortunately, PMS is a condition where inadequate self-treatment yields dissatisfaction rather than dangerous side effects or progression of a serious disease. In an effort to find safer, less extreme approaches to PMS management, researchers have explored the influence of diet and lifestyle modification and nutritional supplementation on female neuroendocrine function. The B-complex vitamins, magnesium, ascorbic acid, and essential fatty acids have the capability of influencing the same hormonal feedback systems as prescription treatments for PMS. However, these natural substances focus on improving the way these systems interact by influencing the transport, reception, and elimination of peptide and steroid hormone levels, rather than directly decreasing or increasing a specific hormone.

### **NUTRITIONAL SUPPORT IN THE TREATMENT OF PMS**

Recent research findings increasingly suggest that nutritional factors may play significant roles in influencing both the production and metabolism of various hormones, thus playing an important role in the management of PMS. Numerous research studies have shown that nutritional supplementation may be effective in controlling symptoms of PMS. The focus of nutritional intervention is on improving liver function, because the biochemistry of hepatic estrogen conjugation emphasizes the role that nutritional deficiencies may play in depressing the clearance rate of estrogens.

#### *Vitamin B6*

Vitamin B6 (pyridoxine hydrochloride) is an important cofactor for enzymes involved in estrogen conjugation in the liver; for the synthesis of several neurotransmitters including dopamine, serotonin, taurine, and norepinephrine; and for the synthesis of certain prostaglandins. With decreased levels of B6 in the body, the liver cannot conjugate estrogens, thus causing an increased blood level of estrogens. Vitamin B6 also stimulates cell membrane transfer of magnesium and increases intracellular magnesium.

There is much documentation in the medical literature to correlate the management of PMS with vitamin B6. In one study, 70 women with PMS were evaluated to assess the effectiveness of pyridoxine on their symptoms. The results suggest that pyridoxine, in dosages ranging from 40 to 100 mg daily, is an effective and well tolerated form of treatment.

It provided considerable benefit to over half of the women, particularly in relieving headaches, and slightly less effective in edema, bloatedness, depression, and irritability.

The liver is the primary organ responsible for the metabolism of vitamin B6, where dietary pyridoxine is converted to its active coenzyme form, pyridoxal-5'-phosphate (PLP). This activation is dependent upon zinc, vitamin B2, and magnesium. These nutrients, along with decreased dietary levels of pyridoxine, may play rate-limiting roles in the tissue levels of the coenzyme form of B6. Because the active form of vitamin B6 is hydrolyzed in the gut to its precursor form before it can be absorbed, the use of dietary supplements in the form of PLP, rather than pyridoxine, is not necessary.

### *Magnesium*

Because magnesium plays such an integral part in normal cell function, magnesium insufficiency may account for a wide range of PMS symptoms. Studies have shown that erythrocyte magnesium levels in patients with PMS are significantly lower than that of control groups of normal women, and magnesium supplementation may help to relieve mood-related PMS symptoms.

Magnesium's role in PMS symptomatology is multifactorial because of its many roles in cellular metabolism. Its role in PMS is not well understood, but magnesium is known to be involved in essential fatty acid metabolism and pyridoxine (vitamin B6) activity.

### *Essential Fatty Acids*

The main strategy of supplementing with essential fatty acids is an attempt to raise the body's own form of anti-inflammatory hormones, including PgE1 and PgE3. The most popular method of doing so has been to supplement with evening primrose oil (EPO) and flax oil in order to supply increased levels of gamma linolenic acid and alpha linoleic acid.

### *Multiple vitamin/minerals*

A multiple vitamin and mineral supplement may be helpful for women with PMS. A study was done in 1985 of a rather typical multiple. In a double-blind, placebo-controlled, crossover study, 16 of 23 subjects reported feeling better during the cycles in which they took the supplement, and 7 reported feeling better during the placebo cycles.

### *Calcium*

A very recent randomized, double-blind placebo-controlled, multicenter clinical trial was conducted to test the hypothesis that problems in calcium regulation may underlie some of the symptoms of PMS. Four hundred ninety-seven women were enrolled and given either 1,200mg of calcium carbonate or placebo for 3 menstrual cycles. During the luteal phase of the treatment cycle, a significantly lower symptom complex score was observed in the calcium group for both the second and third months. By the third month, calcium effectively resulted in a 48% reduction in total symptom scores from baseline compared with a 30% reduction in the placebo group. All four symptom factors (i.e. negative mood affect, water retention, food cravings, and pain) were significantly reduced by the third treatment cycle.

## *Vitamin E*

Vitamin E is probably not a big play in PMS relief, although two studies have demonstrated a clinically significant effect in relieving pain and tenderness of the breast.

## *Botanicals*

### *Chaste Tree (Vitex agnus castus)*

The single most important plant for the treatment of PMS is chaste tree berry. The effect of this herb is on the hypothalamus-hypophysis axis. It increases secretion of luteinizing hormone and also has an effect which favors progesterone production. Two surveys were done covering 1, 542 women with PMS who had been treated with chaste tree for periods of up to 16 years. Effectiveness as recorded by the patients' doctors was either very good, good, or satisfactory in 92% of the cases.

### *Ginkgo (Ginkgo biloba)*

A double-blind, placebo-controlled study was done in 1993 to determine the effectiveness of ginkgo extract on PMS symptoms. One hundred sixty-five women were studied and received either a ginkgo extract or a placebo from day 16 of their cycle to day 5 of the next cycle. The ginkgo extract was effective against the congestive symptoms of PMS, particularly breast pain or tenderness.

### *Additional Herbs*

Many other herbs that have not been subjected to scientific research have also been used successfully by women and practitioners for decades. These include many species of wild yam, licorice root, dong quai, black cohosh, and more. Angelica ore Dong Quai has been primarily regarded as a "female" remedy and used to treat menopausal symptoms, menstrual cramps, abnormal uterine bleeding, and premenstrual problems. No one knows exactly how Dong Quai works in addressing premenstrual symptoms although we do know that it can aid in uterine relaxation, as is needed with premenstrual uterine cramping. Licorice may be useful in treating PMS because of its ability to raise progesterone levels. Although abnormal hormone levels in women with PMS is not yet a proven finding, many women respond to either more progesterone or herbs that help the body to raise its own progesterone level. Black cohosh has been shown to reduce premenstrual depression, anxiety, tension and mood swings. Other plants are used because of their benefit with specific symptoms; for example, kava extract for anxiety, St. John's Wort for depression, dandelion leaf for water weight gain, valerian for sleep problems, and lemon balm for herpes eruptions.