



# Premenstrual Syndrome

PATIENT EDUCATION SERIES

## What is it?

Premenstrual syndrome (PMS) is the name of a group of physical and emotional symptoms that start 7 to 14 days before your menstrual period begins. The symptoms usually resolve within a few days after bleeding starts. At least 75% of all menstruating women have some symptoms of PMS. Symptoms may vary from cycle to cycle and may be mild to severe. 3% to 8% of women suffer from a very severe form of premenstrual syndrome known as Premenstrual Dysphoric Disorder (PMDD) that seriously impacts their daily lives.

## What symptoms are common in PMS?

Physical symptoms may include

- Breast engorgement and tenderness
- Abdominal bloating
- Constipation or diarrhea, nausea, vomiting
- Acne
- Headache
- Alcohol intolerance
- Fluid retention and weight gain
- Clumsiness
- Crampy pain in the lower abdomen
- Joint or muscle pain

Emotional symptoms may include

- Anxiety and panic attacks
- Insomnia
- Change in sexual interest and desire
- Irritability
- Depression and crying spells
- Lethargy and fatigue
- Mood swings ranging from bursts of positive creative energy to anger/paranoia
- Inability to concentrate and some memory loss
- Increased appetite with specific food cravings (especially salt and sugar)
- Withdrawal and trouble in relationships with family and friends

Other conditions may need to be ruled out as a cause of the symptoms above. Among the possible diagnoses that could mimic PMS are anxiety disorders, eating disorders, thyroid disorders, and chronic medical conditions such as diabetes. Side effects of oral contraceptive pills (OCPs) can sometimes cause similar symptoms, although many women find OCPs helpful in PMS symptoms. If symptoms such as breast pain or depression do not follow a cyclical menstrual pattern, they may be due to other conditions and should be evaluated.

## What causes premenstrual syndrome?

Researchers are still uncertain about the causes of premenstrual syndrome. It may be caused by a combination of physiological, psychological and cultural factors. In any case, we know that PMS is real and causes genuine distress in many women, preventing them from functioning at full capacity.

Physiologic factors that may play important roles in PMS include reproductive hormones and neurotransmitters. Progesterone, one of the female hormones, converts to pregnenolone, a compound that enhances the effect of the neurotransmitter GABA. This neurotransmitter has properties that protect against anxiety. Some studies have detected lower levels of progesterone and pregnenolone in some women with PMS. Estrogen, another female hormone, may play a role by maintaining sufficient levels of the neurotransmitter serotonin. Low levels of serotonin are associated with depression and carbohydrate cravings. Some studies have suggested that some women with PMS may have abnormal response to estrogen fluctuations.

Another possibility being investigated is the role of minerals such as calcium and magnesium. Hormonal swings during the premenstrual phase may cause variations in the levels of these minerals. Calcium supplements appear to reduce PMS symptoms in some women. Taking magnesium supplements has not been found to have any effect.

Researchers have also noted that “stress response” in women with PMS may be more intense than in those without PMS. This response is regulated by hypothalamic-pituitary-adrenal system. After a stressful event, neurotransmitters called catecholamines (such as dopamine and epinephrine) cause the production of cortisol, the primary stress hormone. Low levels of cortisol are associated with depression. One study found that women with PMS-related depression had lower cortisol levels during the premenstrual phase and higher levels in the menstrual phase compared to women with few PMS symptoms.

Cultural and psychological factors may also augment physiologic responses. Women in different cultures experience premenstrual events differently. For example, a study of Chinese women in Hong Kong reported that pain was the most significant PMS symptom, while depression predominated in Western women.

## **How is premenstrual syndrome diagnosed?**

Your medical provider may ask you to keep track of your symptoms on a calendar over a 3 to 4 month period. If your symptoms always appear 1 to 2 weeks before your periods, that may mean you have PMS. It is also important to see a medical provider to rule out other possible causes for your symptoms. The diagnosis of more serious PMDD is usually made in consultation with mental health professionals.

## **How can I ease my PMS symptoms?**

For many women with mild PMS symptoms, a lifestyle adjustment may be sufficient to control symptoms. Dietary recommendations include drinking plenty of fluids such as juice to reduce bloating; eating frequent small meals including whole grains (breads, pasta and cereals), fresh fruits and vegetables; and avoiding saturated fats and high salt snack foods. Complex carbohydrates as found in whole grains may increase levels of serotonin. Avoid alcohol at this time as it may increase depression. Cut back on caffeine to feel less tense, irritable and to ease breast soreness. In one study, taking 1200 mg. of calcium daily reduced PMS symptoms by nearly half after 3 months. Calcium-rich foods include dairy products, dark green vegetables, nuts, grains, beans and canned salmon and sardines (with bones). Calcium supplements may also be used (See Bone Health handout).

Limited clinical evidence suggests that certain vitamins may be useful in reducing PMS symptoms. Vitamin B6 in doses of 50mg daily may be helpful. Food sources of B6 include meats, oily fish, poultry, whole grains, dried fortified cereals, soybeans, avocados, baked potatoes with skins, watermelon, plantains, bananas, peanuts and brewer's yeast. Vitamin B1 (thiamin) may also help menstrual pain. Thiamin is found in pork, B-fortified dry cereals, oatmeal and sunflower seeds. Vitamin E is also being studied. Caution should be used because excess doses of vitamin B6 and E can be harmful.

Aerobic exercise such as walking may help. Get plenty of sleep: 8 hours a night is ideal. Keep to a regular schedule of meals, bedtime and exercise. Keep a daily diary for a few months to help you identify your own cycles and sources of stress. Try to restructure your priorities so that you plan ahead for pleasurable activities during your premenstrual phase and try to avoid stressful events at that time.

Anti-inflammatory drugs such as over-the-counter ibuprofen and naproxen can help most premenstrual cramping and headaches. If you get severe cramps, you may need to start the anti-inflammatory 1 to 2 days before you expect cramps to begin.

## **What are drug treatments for premenstrual syndrome?**

If your symptoms of PMS are not reduced with lifestyle modifications, consult with your medical provider. Certain antidepressants called SSRIs (selective serotonin reuptake inhibitors) help with depression, fatigue and relationship problems during the premenstrual time phase. Anti-anxiety medications are sometimes prescribed. For very severe symptoms, a gonadotropin-releasing hormone agonist (GnRH) is sometimes prescribed. These medications suppress hormonal fluctuations that produce PMS. For some individuals, oral contraceptives may help prevent PMS symptoms. Occasionally diuretics, which increase urination, are prescribed to reduce bloating, food craving and breast tenderness. All the above medications can have serious side effects and should be prescribed only under a medical provider's care and management.

6/13