

## Menstruation: Dietary Considerations

### What We Know

- › Menstruation is the phase of a woman's ovulation cycle in which the uterus sheds its lining, resulting in vaginal bleeding that typically lasts for 5–7 days. Symptoms that can occur before or during menstruation include abdominal cramping, back pain, bloating, irritability or moodiness, headache, fatigue, and food cravings. When the symptoms of menstruation are especially painful it is referred to as dysmenorrhea, which is believed to be due to an overproduction of prostaglandins, which are the substances responsible for contraction and relaxation of smooth muscle<sup>(6,7,8,12)</sup>
- There is evidence that a woman's diet can affect the symptoms associated with menstruation and the regularity of the menstrual cycle. Overnutrition (i.e., excessive consumption of nutrients and food that can lead to health abnormalities) or undernutrition (i.e., malnutrition) can result in ovulatory and menstrual abnormalities, including amenorrhea (i.e., absence of menstruation) and menorrhagia (i.e., abnormally heavy or prolonged menstruation)<sup>(6,7,8)</sup>
- The symptoms that accompany the menstrual cycle can influence dietary intake. For example, craving chocolate or salty foods is commonly associated with menstruation and can lead to excessive caloric or sodium intake and an imbalance in nutrient consumption<sup>(6,7,8)</sup>
- › **Dietary Considerations**
  - Overnutrition is evidenced by overweight and obesity. More than half of adults in the United States are classified as overweight or obese, which increases risk for many chronic and/or life-threatening diseases. Excess body fat can cause an imbalance of testosterone and estrogen, which can result in irregular menstrual cycles with episodes of both amenorrhea and menorrhagia<sup>(4)</sup>
    - There are many risk factors for obesity, including
      - sedentary lifestyle
      - family history of obesity
      - hormonal disturbances (e.g., polycystic ovarian syndrome)
      - eating disorders (e.g., food addiction)
      - excessive caloric intake
  - Although undernutrition is frequently evidenced by low body weight, undernutrition can occur at any weight. Inadequate energy and/or nutrient consumption and extreme exercise can suppress the hypothalamus and reduce estrogen production, leading to oligomenorrhea (i.e., infrequent or very light menstruation) and amenorrhea<sup>(6,8)</sup>
    - Undernutrition can be the result of many numerous factors, including the following:
      - Eating disorders (e.g., anorexia nervosa or bulimia nervosa)<sup>(6)</sup>
      - Extreme athletics
        - Researchers report that amenorrhea secondary to hypothalamic suppression is common among female athletes and is a serious concern due to the potentially damaging effects of long-term amenorrhea (e.g., infertility, bone mineral loss)<sup>(1)</sup>
      - Food insecurity and hunger
        - A comparative study of the effect of exposure to the 1944–1945 Dutch famine and menstrual disturbance revealed that women who were exposed to severe famine

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prior to menarche (i.e., the first menstrual cycle) were more likely to experience oligomenorrhea and for a longer period of time following menarche than those who were not exposed

- Certain diseases (e.g., cancer, celiac disease[CD], Crohn's disease, diabetes mellitus, type 1 or 2 [DM1 or DM2], acquired immunodeficiency syndrome [AIDS], or alcoholism)
- Signs and symptoms of malnutrition including the following:<sup>(9)</sup>
  - Significant weight loss
  - Listlessness, apathetic demeanor, and/or confusion
  - Fatigue
  - Dry, brittle hair and nails
  - Skin that is pale, pigmented, bruised, has petechiae, or cheilosis
  - Spleen or liver enlargement
  - Bone/joint pain
  - Constipation and/or diarrhea
  - Headaches
  - Night blindness
  - Weak muscles and poor reflexes
- Menorrhagia can result in iron-deficiency anemia, resulting in symptoms such as hair loss, fatigue, pica (i.e., desire to eat ice or non-food items), headaches, and difficulty concentrating. Iron-deficiency anemia can be treated with daily iron supplementation. However, gastrointestinal distress is a common side effect<sup>(5)</sup>
  - Iron-fortified cereals that are not high in sugar; high-sugar cereals should be avoided to prevent dental caries and obesity
  - Red meat, poultry, and fish
  - Green, leafy vegetables (e.g., spinach, collard greens, kale)
  - Dried fruit
  - Beans
- › **Additional Research Findings on Menstruation and Dietary Considerations**
  - Ginger has been studied as a treatment for dysmenorrhea and heavy menstrual bleeding with promising results<sup>(2,11)</sup>
    - A meta-analysis of four randomized controlled trials compared ginger with placebo during the first 3–4 days of the menstrual cycle in 494 women with primary dysmenorrhea; investigators found a significant effect of ginger in reducing pain visual analogue scores<sup>(2)</sup>
    - Results from a 2018 systematic review indicate that drinking ginger tea is associated with the relief of pain that occurs during ovulation and menstruation in adolescent girls<sup>(11)</sup>
  - Results of a randomized controlled trial indicate that taking rhubarb capsules twice daily for 2 days prior to and 3 days into menstruation can alleviate the symptoms of primary dysmenorrhea, without any notable side effects<sup>(10)</sup>
  - Researchers evaluated the impact of using ginger capsules to treat heavy menstrual bleeding for six menstrual cycles in 46 high school girls (with 46 control participants) in Bojnord, Iran. Study results revealed a significant reduction in blood loss per menstrual cycle for the women taking the ginger capsule.<sup>(9)</sup> In a study conducted to determine the effects of skipping breakfast on menstruation in young women (ages 17–22 years), investigators found that menstrual irregularity was significantly increased in women who skipped breakfast when compared to women who ate breakfast regularly.<sup>(3)</sup>

## What We Can Do

- › Learn about the relationship between diet and menstruation so you can accurately assess your patients' personal characteristics and health education needs; share this information with your colleagues
- › Assess your patients' dietary habits and educate regarding the importance of consuming a diet that is high in nutrition and contains a variety of fruits, vegetables, whole grains, nut and seeds, and lean protein as appropriate to individualized patient characteristics
- › Assess your patients' risk for over- and undernutrition, and request referral to a registered dietitian (RD) for patient evaluation and education regarding dietary intake, if appropriate

## Coding Matrix

References are rated using the following codes, listed in order of strength:

<b>M</b> Published meta-analysis	<b>RV</b> Published review of the literature	<b>PP</b> Policies, procedures, protocols
<b>SR</b> Published systematic or integrative literature review	<b>RU</b> Published research utilization report	<b>X</b> Practice exemplars, stories, opinions
<b>RCT</b> Published research (randomized controlled trial)	<b>QI</b> Published quality improvement report	<b>GI</b> General or background information/texts/reports
<b>R</b> Published research (not randomized controlled trial)	<b>L</b> Legislation	<b>U</b> Unpublished research, reviews, poster presentations or other such materials
<b>C</b> Case histories, case studies	<b>PGR</b> Published government report	<b>CP</b> Conference proceedings, abstracts, presentation
<b>G</b> Published guidelines	<b>PFR</b> Published funded report	

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