

## Menopause and Weight Gain

### Description/Etiology

The midlife change that women experience can be divided into three stages: pre- or perimenopause, menopause, and postmenopause. Perimenopause, usually a 3–5 year period, typically begins when a woman is in her 40s but can begin as early as the mid-30s. During perimenopause a woman's ovaries begin to produce less estrogen and progesterone. Menopause occurs when a woman has consecutively missed her period for 12 months without other causes such as illness, use of medications, pregnancy, or breastfeeding. The average age for menopause is 51–52. Perimenopause and menopause lead to changes in levels of hormones including estrogen, progesterone, and testosterone. The decrease in these hormones, particularly estrogen, leads to an increase in the storage of visceral fat around the midsection, which puts women at risk for insulin resistance and impaired glucose metabolism, leading in turn to higher risk for diabetes and cardiovascular disease. Visceral fat is body fat that is stored within the abdominal cavity around the major organs such as the liver, kidney, and pancreas, as opposed to subcutaneous fat, which is the fat that lies just beneath the skin.

The final stage of the midlife change is postmenopause. The transition from perimenopause to menopause to postmenopause typically takes 1–3 years. Research has shown that postmenopausal women have a higher propensity toward storing fat due to greater activity of lipoprotein lipase, an enzyme which helps to break down fat, and adipocyte fatty acid storage factors. It is believed that the loss of estrogen affects the way women's bodies metabolize fat, leading to greater abdominal fat. Weight gain associated with menopause is believed to be multifactorial: hormonal changes, aging, sedentary behavior, lack of physical activity, shift in body composition leading to increased abdominal fat, and reduced muscle mass. Some research, however, has demonstrated that women's midlife weight gain is more related to aging and less a function of hormonal changes (Sternfeld & Dugan, 2011).

Some women may also experience early menopause as a result of hysterectomy and/or oophorectomy or premature ovarian failure—underactive or inactive ovaries often due to genetics, surgery, cancer, or radiation therapy. Women with early menopause will also experience symptoms associated with menopause; a hysterectomy tends to lead to more gradual onset of symptoms whereas an oophorectomy will lead to more sudden onset of symptoms.

Estrogen replacement therapy (ERT) and/or hormone replacement therapy (HRT) may help to mitigate some of the changes associated with menopause such as hot flashes and vaginal dryness. However, ERT and HRT are recommended much more judiciously than in the past as a result of the risks associated with their use such as breast cancer, cardiovascular disease, and dementia.

### Facts and Figures

Average onset of menopause for women is age 51–52 (Women's Health Research Institute, n.d.).

Women on average gain a little over a pound (0.5kg) per year during menopause (Davis et al., 2012).

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Increased weight gain leading to central obesity puts perimenopausal and postmenopausal women at risk for heart disease, high blood pressure, type 2 diabetes, cancer, osteoarthritis, and stroke (Jull et al., 2014).

As many as 61% of postmenopausal women report insomnia and dissatisfaction with their sleep quality (National Sleep Foundation, 2016).

## **Risk Factors**

Risk factors associated with weight gain for perimenopausal or postmenopausal women include increased or excessive caloric intake, decreased physical activity, stress, smoking, and inadequate sleep.

Postmenopausal women in general are at increased risk for heart disease, osteopenia, and osteoporosis.

## **Signs and Symptoms/Clinical Presentation**

Symptoms of perimenopause include irregular periods, hot flashes, night sweats, problems sleeping, vaginal and urinary problems (e.g., vaginal dryness, vaginal infections, urinary tract infections, urinary incontinence), mood changes, changes in feelings about sex, osteoporosis, problems concentrating, increase in weight in the abdominal area, loss of muscle mass, and weight gain.

Symptoms of postmenopause can be similar to those of perimenopause and include hot flashes, night sweats, problems sleeping, vaginal and urinary problems, mood changes, changes in feelings about sex, osteoporosis, problems concentrating, increase in weight in the abdominal area, loss of muscle mass, and weight gain.

## **Nutritional Assessment**

### › **Patient Medical History**

- Ask about the following:
  - Medical conditions (e.g., diabetes mellitus, hypertension, cardiovascular disease, cancer, overweight, obesity)
  - Vasomotor symptoms associated with menopause (e.g., hot flashes, night sweats, problems sleeping, etc.)
  - Type and frequency of exercise or physical activity
  - Assess any significant social history, including household members and living conditions, and financial or other barriers to access to care or food
  - Prescription medications and compliance with them

### › **Patient Dietary History**

- Conduct a diet analysis by asking the patient to complete a diet history
  - Useful tools for evaluating the patient's dietary strengths and weaknesses include a food frequency questionnaire and a 3-day diet recall (i.e., patient recall of all foods and beverages consumed in a 3-day period) that includes 1 weekend day
  - Assess diet for total energy intake
  - Assess diet for macronutrients: carbohydrate, protein, and fat intake; assess diet for adequate protein and distribution of protein throughout meals
  - Assess diet for micronutrients: calcium, vitamin D, vitamin B6, and vitamin B12
- Ask about personal habits, including alcohol, caffeine, and soda consumption and frequency; smoking; eating at night; and frequenting vending machines or fast food
- Ask about use of nutrition supplements and herbs, especially those associated with menopause such as black cohosh, red clover, evening primrose, ginseng, soy products, wild yam, flaxseed, St. John's wort, dong quai, vitamin E, and vitamin B6
- Assess for anxiety and depression, which can interfere with dietary intake

### › **Anthropometric Data**

- Obtain patient's height and weight
  - If appropriate, obtain patient's waist circumference
- Evaluate weight and calculate body mass index (BMI) by dividing body weight (kilograms) by height (meters squared); or 703 multiplied by weight (pounds) and divided by height (inches squared). Keep in mind that BMI is not a measure of body composition
  - Underweight < 18.5; normal 18.5-24.9; overweight 25-29.9; obese > 30
  - Patients who are overweight/obese are at increased risk for heart disease and inadequate glycemic control

### › **Laboratory and Diagnostic Tests of Particular Interest to the Nutritionist**

- Tests are not routinely used to diagnose menopause but may sometime be done
  - Follicle stimulating hormone (FSH) – increased as menopause occurs

- Estrogen (estradiol) – decreased as menopause begins
- Thyroid stimulating hormone (TSH) – abnormal/decreased due to hypothyroidism symptoms which may be similar to those of menopause

#### › **Other Diagnostic Tests/Studies**

- Complete blood count – within normal limits
- Blood glucose - within normal limits
- A1C – < 5.7% or as directed by clinician
- Vitamin D levels
  - The normal limits can vary from about 20-50nanograms/milliliter

## **Treatment Goals**

Treatment goals for weight gain during menopause include working with the client to lose unwanted weight, prevent further weight gain, and minimize vasomotor symptoms. This can be accomplished through helping the client choose an appropriate caloric level with nutrient-dense foods and increasing physical activity. Emphasis should also be placed on nutrients that are important for aging, preservation of lean body mass, and women’s health after age 50, including protein, calcium, vitamin D, vitamin B6, and vitamin B12.

#### › Choose a diet with a variety of nutrient-dense foods

- Adjust caloric intake as needed for weight loss or management and alter macronutrient composition of the diet
  - Estimate caloric needs based on physical activity and weight loss or weight management goals
  - Avoid high fat, high calorie, and empty calorie foods
  - Encourage consumption of complex carbohydrates and low glycemic index foods to minimize impact on blood sugar, especially for patients with pre-diabetes
  - Consume adequate amounts of protein distributed throughout the day with meals. Encourage 25–30 grams of protein per meal to help with building muscle mass and promote satiety at meals
- Reduce calories from empty nutrient foods such as alcohol, coffee drinks, and smoothies
- Encourage appropriate intake of foods rich in vitamins and minerals and supplementation when needed
  - Calcium: women 51 and over need 1,200 milligrams of calcium per day
    - Good sources of calcium include milk, yogurt, low-fatcheeses, calcium-fortified juices and cereals, canned fish, and green leafy vegetables
    - Clients should be encouraged to consume calcium from food and supplement with calcium as an adjunct. Calcium supplementation should be maximized at about 500–600 mg per day since this is the maximum utilized by the body
  - Vitamin D:
    - Women age 51 to 70 need 600 international units (IU) per day per the Institute of Medicine (IOM) recommended dietary allowances (RDA)
    - Women age 71 and older need 800 IU/day per the IOM’s RDA
    - The safe upper limit for vitamin D from the IOM’s RDA is 4,000 IU although more may be prescribed to correct a deficiency
    - Good sources of vitamin D: salmon, tuna, mackerel; cheese, beef liver, and egg yolks also contain small amounts of vitamin D
  - Vitamin B6 and B12
    - Women age 50 and over need 2.4 micrograms/d of vitamin B12 and 1.5 milligrams of vitamin B6
    - Good sources of vitamin B6 and B12 include protein-rich foods such as beef, fish, chicken, eggs, pork, and soybeans
- If women are experiencing bleeding after menopause because of hormone replacement therapy, iron supplementation may be needed
- If insomnia is a problem, encourage the removal of caffeinated beverages at least 4 hours before bedtime, refraining from alcohol several hours before bedtime, and consuming a light meal in the evening

## **Food for Thought**

- › In a study involving 17,500 postmenopausal women ages 50–79, weight loss of 10 pounds or more led to significant decrease in vasomotor symptoms. The study involved a dietary intervention group who followed a reduced fat intake diet with an increased consumption of fruits, vegetables, and whole grains and a control group that did not. A large weight loss of greater than 22 pounds was associated with the resolution of moderate to severe vasomotor changes. The authors concluded

that weight loss, as part of a healthy diet, may help resolve vasomotor symptoms among postmenopausal women (Kroenke et al., 2012)

- › A systematic review of the literature found that more high-quality studies are needed to determine the effectiveness of lifestyle interventions on body weight and composition for women experiencing the transition of menopause (Jull et al., 2014). However, research does indicate that light physical activity is a better determinant of lower adiposity during menopause transition in comparison to moderate and/or vigorous activity (Riou et al., 2014)
- › Women going through menopause are at risk for overweight and obesity and should be preemptively counseled about lifestyle changes as a method of prevention (Teede et al., 2010)
- › Uncertainty exists about the role that physical activity plays in decreasing vasomotor symptoms associated with perimenopause, but it is known that increased activity and strength training can mitigate the effects of lean body mass loss associated with aging (Sternfeld & Dugan, 2011)
- › A recent behavioral weight-loss intervention pilot study for the management of hot flashes involving 48 overweight or obese women found that the weight loss intervention led to significant reductions in hot flashes (Thurston et al., 2015)
- › Twenty-five to 30 grams of high-quality protein are needed per meal to promote muscle-protein synthesis. During their middle-age years, women should be encouraged to obtain about 25–30 grams of protein per meal spread throughout the day to help mitigate sarcopenia associated with aging (Arentson-Lantz et al., 2015)
- › Lack of sleep affects the regulation of appetite by increasing levels of the hormone ghrelin, which is associated with hunger, and decreasing levels of the hormone leptin, which is associated with satiety (Shlisky et al., 2012)

## Red Flags

- › Increased folic acid from the diet and/or supplements has been linked to certain types of cancer, especially lung cancer (Shelke and Keith, 2011). Folic acid supplementation, which is important during the childbearing years to prevent neural tube defects, is no longer important for postmenopausal women

## What Do I Need to Tell the Patient/Patient's Family?

- › Weight gain is common during midlife for women mostly due to factors associated with aging
- › Decreasing estrogen levels impact the distribution of body fat for women during peri- and postmenopause, resulting in more fat deposited in the abdominal area
- › Focusing on appropriate caloric intake with nutrient-dense foods can help manage weight concerns; women require fewer calories as they enter midlife
  - Practice mindful eating, portion control, and choose nutrient-rich foods
- › Include aerobic and muscle-building activity as part of exercise and get adequate protein in the diet to help prevent muscle mass loss
- › Get adequate sleep; avoid known stimulants such as caffeine, alcohol, large meals, and exercising before bedtime if sleep is an issue
- › If a smoker, quit smoking
- › Track menopause symptoms and daily activities to help with managing triggers
- › Use of a fitness tracker may help with activity goals

## Discharge Planning

- › See above

## Related Guidelines

- › [\*American Association of Clinical Endocrinologist Medical Guidelines for Clinical Practice for the Diagnosis and Treatment of Menopause\*](#)
  - › [\*Society of Obstetricians and Gynaecologists of Canada Managing Menopause Guidelines\*](#)
  - › [\*North American Menopause Society Position Statements and Reports\*](#)
  - › [\*National Institute for Health and Care Excellence: Menopause: Diagnosis and Management\*](#)
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