

## Nutritional challenges specific to girls and women

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### Introduction

Females face gender specific nutritional challenges that may affect their health and wellbeing, and these must be discovered and adequately dealt with.

-The changes in the anatomy and physiology of females caused by sex hormones throughout their lifetime offer nutritional challenges that may require special care.

-Physical demands on females concerning reproductive function and child-bearing affect nutrition, appetite, and weight regulation. These may have both acute and long-term effects on their health.

-Cultural and social factors stressing gender-specific roles, body shape, and weight in females increases their risk of eating disorders, and the chance that they will seek unhealthy methods to lose weight.

-Neural and hormonal regulation of appetite varies between males and females and even among females at different stages in life, which makes it difficult for them to manage their appetite and weight.

### 1. Body dissatisfaction and its' impact on Nutrition

Girls and women of all ages struggle with body dissatisfaction. This may lead them to seek unhealthy ways to change their bodies. As women age, the self-reported "importance" of their body shape and size declines. Body image can be impacted by body changes during adolescence, and early adulthood, in addition to monthly body changes associated with menstruation, the enormous body changes that occur with pregnancy and delivery, as well as changes in body composition and fat deposition due to midlife hormonal changes. Counseling for these issues may improve nutritional, mental and physical health.

### 2. Weight management problems

Obesity and eating disorders are more common in females than males. The factors responsible for this are not clear. Multiple appetite regulating hormones are currently being investigated for their roles in the energy imbalances seen in females. Appetite regulation in females is complicated by their gender-specific roles

as family meal preparers, menstrual cycle fluctuations, major changes in sex hormone levels at the onset and the end of the reproductive years, and body changes associated with pregnancy and lactation. For example, drinking carbohydrate beverages has been associated with reduced premenstrual symptoms; this effect is linked to carbohydrate craving and is attributed to the promotion of tryptophan and the serotonin system.

Individualized nutrition management programs are more successful than a one-size-fits-all approach. Calorie restriction may lead to eating disorders; therefore, any diet should be done under supervision, also to ensure adequate carbohydrate and protein intake. Perhaps a size acceptance approach that encourages attention to internal eating cues may be more effective than dieting.

### 3. Nutritional challenges related to reproduction

Menses, pregnancy, delivery, lactation, and menopause may all affect, and be affected by nutrition.

Very high or low body mass index (BMI >35 or BMI <20, respectively) is associated with difficulties in conceiving, complications during pregnancy, labor and delivery, and increased risk to the baby. Any disordered eating present must be addressed before weight gain or loss is encouraged. History of dieting is associated with increased weight gain during pregnancy except in underweight women.

Use of hormonal contraceptives increases osteoporosis risk in naturally menstruating women, but may reduce amenorrhea-associated osteoporosis in anorexia nervosa or in the female athlete triad. Also, during pregnancy, calcium will be supplied to the fetus at the expense of the mother. Thus, adequate calcium is recommended for all women, especially adolescents and young women because this is when peak bone mass is being developed.

Because of the common preoccupation of girls and women with weight, they may purposefully consume less calcium-rich foods, for instance, they may replace milk with diet drinks. Three servings of low-fat dairy products to provide both calcium and vitamin D are recommended. If a vegetarian lifestyle or lactose intolerance exists, other calcium-fortified beverages or foods, such as orange

juice, or a calcium and vitamin D supplement maybe useful.

Women are at risk of anemia due to iron loss(15–20 mg) during menstruation, especially heavy or frequent menses with reduced dietary iron intake, and athletic-induced hemolysis and anemia. Heme iron has better bioavailability than non-heme iron. Non-heme iron absorption can be enhanced by the presence of protein and vitamin C. Iron supplementation is recommended in all women of childbearing age.

Adequate periconceptional and pregnancy intake of folate decreases the risk of neural tube defects and may reduce other complications of pregnancy, including preeclampsia and miscarriage. Repeated miscarriages and infertility have been linked to insufficient amounts of vitamin B12 and folate. Unlike iron, folic acid in supplement form has a higher bioavailability (85%) than in food (50%).

Calcium supplementation (1,000–1,300 mg/day) may alleviate some premenstrual symptoms, including irritability and cramping. Vitamin B6 in doses up to 100 mg/day may help reduce premenstrual symptoms and depression. However, the efficacy of using nutrition to improve premenstrual symptoms still needs further study.

#### 4. Menopause and the use of Nutritional supplements

The peri- and postmenopausal period is nutritionally very challenging for women. The use of hormone replacement therapy (HRT) to alleviate symptoms of menopause has declined sharply after it has been shown to pose an increased risk-to-benefit ratio. This led many women to turn to nutritional supplements and, complementary and alternative medicine (CAM) for relief of their symptoms.

Phytoestrogens, particularly soy isoflavone extracts, are taken to relieve symptoms such as hot flashes, though they may not be effective. They have been claimed to have cancer-preventing properties, although recent studies have attributed this to their consumption earlier in life. Isoflavones are not recommended in women who lack childhood exposure to isoflavones due to their inconsistent effects on the mammary gland and uterus, which may increase the risk of developing malignancies. Women who are at increased risk of cancer should never be given these supplements.

Black cohosh is another nutritional supplement that has been used by some woman to reduce menopause-related hot flashes and improve mood.

Other supplements commonly used include flaxseed, Ginkgo biloba, and red clover.

St. Johns Wort is mildly effective for mood improvement.

Few high-quality studies have been completed on the safety and efficacy of these treatments. A major problem is that up to 70% of women taking supplements may not report them to their doctor, and may thus risk drug interactions or unrecognized adverse reactions.

#### 5-Control of osteoporosis, and weight during menopause

Eighty percent of those affected by osteoporosis are women. During menopause, bone losses of 3–5% occur per year. Adequate calcium and vitamin D intake during childhood and the early reproductive years promotes bone build up that will extend the time until postmenopausal signs of osteoporosis appear. Consuming fortified dairy products has been shown to have better effects on bone metabolism and bone mineral density (BMD) in postmenopausal

women than taking the same amount of calcium in supplement form. Greater bioavailability of calcium from dairy products may be due to the role of milk protein and magnesium in bone metabolism.

A healthy diet, weight-bearing exercise, avoiding smoking, and limiting alcohol intake can further prevent bone loss.

Calcium supplements and low-fat dairy products have been associated with reduced postmenopausal weight gain or increased weight loss in overweight women.

#### 6. The female athlete triad

The female athlete triad (TRIAD) involves three interrelated conditions: amenorrhea, disordered eating (usually restricted), and osteoporosis. The prevalence of the TRIAD has been reported in 12 to 27% of women, especially in female athletes, due to activity-associated pain and stress fractures, but it also occurs in sedentary girls and women.

Presence of any one of the TRIAD components with screening, or a patient presenting with amenorrhea, stress fractures, or low body weight indicates assessment of the other two components.

Following diagnosis, these cases need careful assessment of nutritional intake, social history, and body image; administration of a screening tool, such as EAT-26; measurement of bone mineral density (BMD) and body composition; and laboratory assessments to rule out other causes of amenorrhea. Restoration of normal eating patterns, energy balance, menses, and BMD are the aim of treatment. Adequate calcium and vitamin D consumption should also be monitored. Severe cases may need medical treatment with hormonal replacement therapy (usually oral contraceptives), activity restrictions, and/or more intensive family or even inpatient supervision.

#### 7. Polycystic ovarian syndrome

Polycystic ovarian syndrome (PCOS) is associated with five clinical features: hyperandrogenism, small ovarian cysts, menstrual dysfunction, android-pattern overweight or obesity, and insulin resistance with the resulting glucose intolerance.

It affects 5–10% of women of reproductive age and there is often a family history.

Signs of hyperandrogenism include hirsutism, acne, dysmenorrhea, and alopecia.

The presence of insulin resistance and hyperinsulinemia are suggested by episodic hypoglycemia and related carbohydrate craving, acanthosis nigricans (dark patches on the skin), and unexplained weight gain.

There may also be significant mood disorder, body image disturbance, and disordered eating, secondary to attempts to lose weight.

Dietary management of PCOS focuses on the consumption of low saturated fats and high fiber, and low glycemic-index carbohydrate sources spread throughout the day in 4–6 meals/snacks. Also, omega 3 fats, cinnamon, and chromium rich foods or supplements may improve metabolic status.

Orlistat or metformin help reduce testosterone, improve insulin sensitivity, and aid weight loss and maintenance. Oral contraceptives and androgen-reducing medications, such as spironolactone, may

also be helpful to stabilize sex hormone levels and improve menses.

Regular strength and endurance exercise can be helpful for weight loss, improvement of insulin sensitivity, and self-esteem. Counseling may also be indicated.

Early detection of PCOS can improve outcomes and reduce the risks of chronic diseases and infertility later in life.

#### Conclusion

Special care and attention must be provided to meet the unique nutritional needs of girls and woman. Annual physical examinations of females must routinely include anthropometrics, diet pattern analyses, and questions about body image and satisfaction, especially during puberty, pregnancy and postpartum and peri-menopausal periods, so that appropriate nutritional, medical, and/or exercise interventions may be undertaken.