

Adolescent

Adolescence, like infancy, is a time of rapid growth and development. Even after teens reach their adult height, their bodies continue to grow and develop. Genes will ultimately determine how tall a teenager will be, but eating a healthful diet and keeping the HgbA1c in target will maximize height potential.

Good nutrition, not specific foods, will ensure that teens get enough Calcium for bone growth, protein for muscle, carbs and fats for energy and vitamins and minerals to make it all happen. Good nutrition means eating a variety of foods, eating meals and snacks regularly and balancing food intake with insulin and physical activity to achieve a healthy body weight and avoid complications of high blood sugar.

Puberty begins sometime between 11 and 13 for girls and a little later for boys. Calorie needs increase, from 2000 to 2500 for an 11 to 14 year old boy and 2800 for a 15 to 18 year old boy-more if they are involved in sports like football, soccer, swimming, basketball, track and other strenuous activities. Girls needs increase from about 2000 to 2200 when they are 11 to 18, more if they are involved in sports.

Since teens need more energy, the extra calories should come from extra servings of wholesome carbs such as whole grains, beans, vegetables and fruits, from lean protein such as meat, chicken and fish or tofu and healthy fats such as that found in fish, olives, nuts and avocado instead of high fat, processed foods.

Calcium and Iron are both essential minerals that can be lacking during the teenage years, usually because of poor food choices. Bones grow stronger and denser and almost half of an adult's bone mass is formed during adolescence. Teenagers who don't consume enough Calcium can put their bones at risk. Before age 10, children need 800 mg, which can easily be supplied with 3 servings of dairy choices like 8 oz milk or yogurt. During adolescence, Calcium requirements go up to 1200 to 1500 mg daily. One extra serving or two of Calcium rich foods is needed to meet demand. In addition to milk, yogurt and cheese, fortified beverages like soy, rice and almond milk, orange juice with Calcium, canned salmon and sardines, tofu and green leafy vegetables and broccoli can provide extra servings.

Iron demand is also increased during adolescence, from 10 mg from childhood to 12 mg for boys and 15 mg daily for girls. Females need more Iron because of blood loss during menstrual periods, boys because of increased muscle mass and a greater blood supply. Low Iron intake causes anemia, which makes adolescents feel chronically tired. If the diabetes is out of control, it will also contribute to feelings of fatigue. Foods rich in Iron are meats, poultry and seafood, eggs, beans, enriched breads and cereals and some vegetables like spinach. The body can absorb more Iron if there is a source of vitamin C with the meal, such as a hamburger with a tomato slice, eggs and orange juice, spinach salad with mandarin oranges.

During the adolescent years, parents have little control of what their children eat outside of the home. Even though teenagers may have some knowledge of healthful eating, independence, peer pressure and busy schedules may make it difficult for them to make good food choices. Many teens tend to skip meals, particularly girls who tend to skip breakfast or lunch to save calories. An occasional skipped meal is not a problem if the teen is on a pump or on a basal/bolus regimen but even if the insulin regimen can accommodate it, skipping breakfast or lunch means that many essential nutrients like Calcium from dairy foods, Vitamin C from fruits and Iron from fortified cereals will be missed. In fact, teens will make up the

missed calories later in the day eating mostly high calorie, high fat snacks which will contribute to weight gain but not to health.

Breakfast can be as simple as a toaster waffle with almond butter, toasted whole grain bread with ricotta cheese and honey, high fiber cereal with milk or a smoothie prepared with yogurt, frozen fruit and protein powder. Other on the go options can be a protein bar (choose bars with 10 gms of protein and at least 3-5 gms of fiber), toasted English muffin with peanut butter and sliced bananas, yogurt and low fat granola, small tortillas wrapped around a slice of ham or turkey and a slice of cheese or a hardboiled egg and a Kashi GoLean bar.

Choosing low fat, nutritious snacks is a way to balance higher fat foods that are eaten away from home. Snacks should be made up of at least two food groups and a moderate amount of low glycemic carbs (30 to 45 gms) to avoid spiking the blood sugar. Try to keep it to about 250 calories, at least 3 grams of fiber and no more than 12 grams of fat. A snack is a mini-meal, just enough to hold hunger until the next main meal.

Here are some suggestions for snacks:

- Apple wedges, 1 oz cube of cheddar cheese and 7 walnuts
- Mix ¼ cup applesauce, ¼ cup plain yogurt, 1 tbsp ground flax seed and ¼ tsp cinnamon. Serve with 4 graham cracker squares
- Hummus with ½ whole wheat pita wedges and baby carrots
- ½ egg salad sandwich on whole grain or pumpernickel bread with a glass of V8 juice
- 3-4 cups popcorn sprinkled with parmesan cheese
- 1 cup hot chocolate (made with milk) and 8 animal crackers
- 1 Kashi Trail Mix soft baked cookie and 8 oz low fat milk
- 2 Laughing Cow cheese wedges (light) and 30 grapes
- 1 Kashi GoLean bar (1.3 oz) and ½ cup low fat milk
- 2 VitaTops muffin tops and ½ cup low fat milk
- ¼ cup soy nuts mixed with ¼ cup dried fruit and ½ cup shredded oat squares
- 4 oz cottage cheese with 4 dried apricots
- 1 English muffin with melted cheese
- 1 whole grain soft pretzel and a hardboiled egg