



## Prevention of Cardiovascular Disease in Children and Teens

### Who is at risk?

- Patients with the following diseases: Diabetes, Kawasaki's Disease, Chronic Kidney Disease, HIV, Chronic inflammatory diseases (Lupus)
- Family history of early cardiovascular disease in Father, Mother, Siblings (<55 in male or <65 in female)
- Abnormal cholesterol panel
- Smoking and/or exposure to second hand smoke
- Elevated blood pressure
- Elevated BMI (<85%)
- Abnormal fasting glucose or HbA1C (low HDL, high LDL, triglycerides)
- Sedentary lifestyle, unhealthy diet

### General Recommendations

- Parents should model healthy lifestyle including diet and regular exercise
- Infants should be exclusively breastfed until 6 months of age and continue until at least 12 months while introducing solids
- Encourage family meal times
- Establish regular family activities incorporating physical activity
- Limit screen time (Video games, TV, and Computer):
  - Under 2 yrs: discourage TV viewing altogether
  - 2 years and up: limit screen time to 1-2 hours of quality programming per day
  - No TV in bedroom
- Moderate to vigorous physical activity 1 hour daily
- Encourage year round participation in organized sports and or physical activity

### Dietary Recommendations:

- Eat breakfast everyday
- Control portion sizes
- Eliminate fast food (or at least limit)
- Skim Milk
- Limit total fat to 25-30% of daily calorie intake
- Saturated fat to 8-10% of daily calorie intake
- Avoid Trans fats altogether
- Cholesterol <300 mg/d
- Avoid fruit juice and sugar sweetened beverages altogether
- Encourage water
- Increase fiber in diet (Age + 5 grams a day)
- Limit salt intake
- Understand portions based on average daily calorie requirements for age, sex and activity level (see chart)
- Follow DASH style eating plan rich in fruits, WHOLE GRAINS, fat-free milk and milk products, and low sugar foods (see table)

## Pediatric calorie needs

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Pediatric daily calorie needs based on age, gender, and physical activity level\*

Gender	Age (years)	Calorie requirements (kcal) for sedentary level of activity*	Calorie requirements (kcal) for moderate activity*	Calorie requirements (kcal) for active activity*
Child	2-3	1000-1200	1000-1400 <sup>Δ</sup>	1000-1400 <sup>Δ</sup>
Female ◊	4-8	1200-1400	1400-1600	1400-1800
Female ◊	9-13	1400-1600	1600-2000	1800-2200
Female ◊	14-18	1800	2000	2400
Female ◊	19-30	1800-2000	2000-2200	2400
Male	4-8	1200-1400	1400-1600	1600-2000
Male	9-13	1600-2000	1800-2200	2000-2600
Male	14-18	2000-2400	2400-2800	2800-3200
Male	19-30	2400-2600	2600-2800	3000

## Improving Nutrition in Young Children

Parents choose meal times, not children

Provide a wide variety of nutrient-dense foods such as fruits and vegetables instead of high-energy-density/nutrient-poor foods such as salty snacks, ice cream, fried foods, cookies, and sweetened beverages

Pay attention to portion size; serve portions appropriate for the child's size and age

Use nonfat or low-fat dairy products as sources of calcium and protein

Limit snacking during sedentary behavior or in response to boredom and particularly restrict use of sweet/sweetened beverages as snacks (eg, juice, soda, sports drinks)

Limit sedentary behaviors, with no more than 1–2 h/day of video screen/television and no television sets in children's bedrooms

Allow self-regulation of total caloric intake in the presence of normal BMI or weight for height

Have regular family meals to promote social interaction and role model food-related behavior

## Parent Responsibilities for Children's Nutrition

Choose breastfeeding for first nutrition; try to maintain for 12 mo

Control when food is available and when it can be eaten (nutrient quality, portion size, snacking, regular meals)

Provide social context for eating behavior (family meals, role of food in social intercourse)

Teach about food and nutrition at the grocery store, when cooking meals

Counteract inaccurate information from the media and other influences

Teach other care providers (eg, daycare, babysitters) about what you want your children to eat

Serve as role models and lead by example; "do as I do" rather than "do as I say"

Promote and participate in regular daily physical activity

## Pediatric DASH-Style Eating Plan

Food Group	1,200 Calories	1,400 Calories	1,600 Calories	1,800 Calories	2,000 Calories	2,600 Calories	Serving Sizes	Examples	Significance
<b>Grains</b>	4-5	5-6	6	6	6-8	10-11	1 slice bread 1 oz dry cereal ½ cup cooked rice, pasta, or cereal	Whole wheat bread and rolls, whole wheat pasta, English muffin, pita bread, bagel, cereals, grits, oatmeal, brown rice, unsalted pretzels and popcorn	Major sources of energy and fiber
<b>Vegetables</b>	3-4	3-4	3-4	4-5	4-5	5-6	1 cup raw leafy vegetable ½ cup cut-up raw or cooked vegetable ½ cup vegetable juice	Broccoli, carrots, collards, green beans, green peas, kale, lima beans, potatoes, spinach, squash, sweet potatoes, tomatoes	Rich sources of potassium, magnesium, and fiber
<b>Fruits</b>	3-4	4	4	4-5	4-5	5-6	1 medium fruit ¼ cup dried fruit ½ cup fresh, frozen, or canned fruit ½ cup fruit juice	Apples, apricots, bananas, dates, grapes, oranges, grapefruit, grapefruit juice, mangoes, melons, peaches, pineapples, raisins, strawberries, tangerines	Important sources of potassium, magnesium, and fiber
<b>Fat-free or low-fat milk and milk products</b>	2-3	2-3	2-3	2-3	2-3	3	1 cup milk or yogurt 1½ oz cheese	Fat-free milk or buttermilk, fat-free, low-fat, or reduced-fat cheese, fat-free/low-fat regular or frozen yogurt	Major sources of calcium and protein
<b>Lean meats, poultry, and fish</b>	3 or less	3-4 or less	3-4 or less	6 or less	6 or less	6 or less	1 oz cooked meats, poultry, or fish 1 egg	Select only lean; trim away visible fats; broil, roast, or poach; remove skin from poultry	Rich sources of protein and magnesium
<b>Nuts, seeds, and legumes</b>	3 per week	3 per week	3-4 per week	4 per week	4-5 per week	1	1/3 cup or 1½ oz nuts 2 Tbsp peanut butter 2 Tbsp or ½ oz seeds ½ cup cooked legumes	Almonds, filberts, mixed nuts, peanuts, walnuts, sunflower seeds, peanut butter, kidney beans, lentils, split peas	Rich sources of energy, magnesium, protein, and fiber
<b>Fats and oils<sup>‡</sup></b>	1	1	2	2-3	2-3	3	1 tsp soft margarine 1 tsp vegetable oil 1 Tbsp mayonnaise 2 Tbsp salad dressing	Soft margarine, vegetable oil (such as canola, corn, olive, or safflower), low-fat mayonnaise, light salad dressing	The DASH study had 27 percent of calories as fat, including fat in or added to foods
<b>Sweets &amp; added sugars</b>	3 or less per week	3 or less per week	3 or less per week	5 or less per week	5 or less per week	≤ 2	1 Tbsp sugar 1 Tbsp jelly ½ cup sorbet 1 cup lemonade	Fruit-flavored gelatin, fruit punch, hard candy, jelly, maple syrup, sorbet and ices, sugar	Sweets should be low in fat

