

BMI Assessment in Well Visits for School-Aged Children and Adolescents

April 25, 2024



School-Based Health Alliance

Transforming Health Care for Students

Our **Focus**

The School-Based Health Alliance Works to Support & Grow SBHCs

Policy



Establishes and advocates for national policy priorities

Standards



Promotes high-quality clinical practices and standards, including for telehealth

Data



Supports data collection and reporting, evaluation, and research

Training



Provides training, technical assistance, and consultation

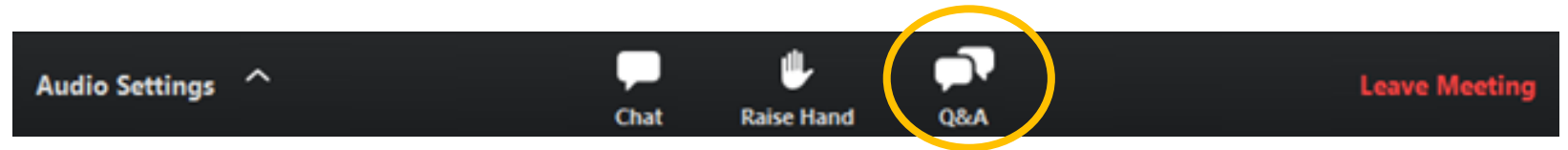
We support the improvement of students' health via school-based health care by supporting and creating community and school partnerships.

www.sbh4all.org

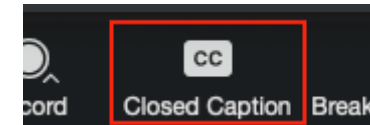
REMINDERS

 All attendees are in listen-only mode.

 To ask a question during the session, use the “Q&A” icon that appears on the bottom your Zoom control panel.



 To turn on closed captioning, click on the “CC” button



 Please complete evaluation poll questions at the end of the presentation.

Learning Objectives

1. Define Body Mass Index (BMI)
2. Explain how to assess BMI at visits
3. Identify a program strategy to increase partnerships with students and families

TODAY'S PRESENTER



Ranbir Bains, PhD, MSN, APRN, CPNP
Certified Pediatric Nurse Practitioner
Barnard Environmental School-Based Health Center



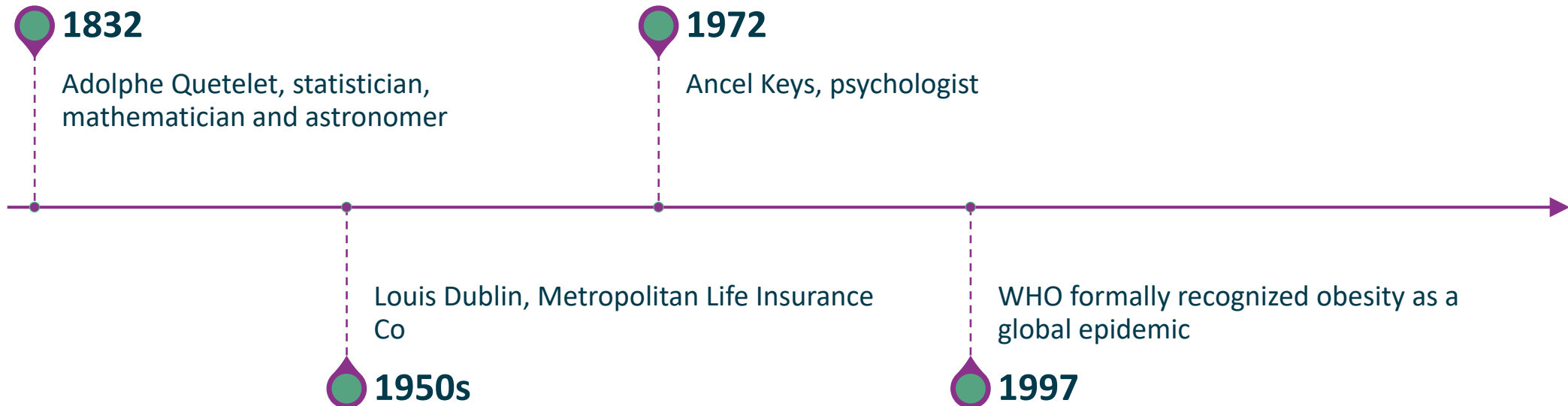
Poll Question

- How would you rate your screening and counseling practices for children and adolescents?
 - Room for Improvement
 - Pretty Good
 - Great

Body Mass Index (BMI)

- A person's weight in kilograms divided by the square of height in meters.
- An easy screening method for categorizing weight.
- Does not measure body fat directly but is correlated with direct measures of body fat
- Should be used with further assessments such as skinfold thickness measurements, diet, exercise history, and family medical history.

BMI Background



BMI Calculation

Measurement Units

Kilograms and meters (or centimeters)

Formula and Calculation

Formula: $\text{weight (kg)} / [\text{height (m)}]^2$

With the metric system, the formula for BMI is weight in kilograms divided by height in meters squared. Because height is commonly measured in centimeters, divide height in centimeters by 100 to obtain height in meters.

Example: Weight = 68 kg, Height = 165 cm (1.65 m)

Calculation: $68 \div (1.65)^2 = 24.98$

Pounds and inches

Formula: $\text{weight (lb)} / [\text{height (in)}]^2 \times 703$

Calculate BMI by dividing weight in pounds (lbs) by height in inches (in) squared and multiplying by a conversion factor of 703.

Example: Weight = 150 lbs, Height = 5'5" (65")

Calculation: $[150 \div (65)^2] \times 703 = 24.96$

BMI Interpretation

In adults, it is the same for men and women

BMI	Weight Status
Below 18.5	Underweight
18.5 – 24.9	Healthy Weight
25.0 – 29.9	Overweight
30.0 and Above	Obesity

Height	Weight Range	BMI	Weight Status
5' 9"	124 lbs or less	Below 18.5	Underweight
	125 lbs to 168 lbs	18.5 to 24.9	Healthy Weight
	169 lbs to 202 lbs	25.0 to 29.9	Overweight
	203 lbs or more	30 or higher	Obesity

BMI in Children and Adolescents

Calculated the same way but interpreted differently

Screens for potential weight and health-related issues

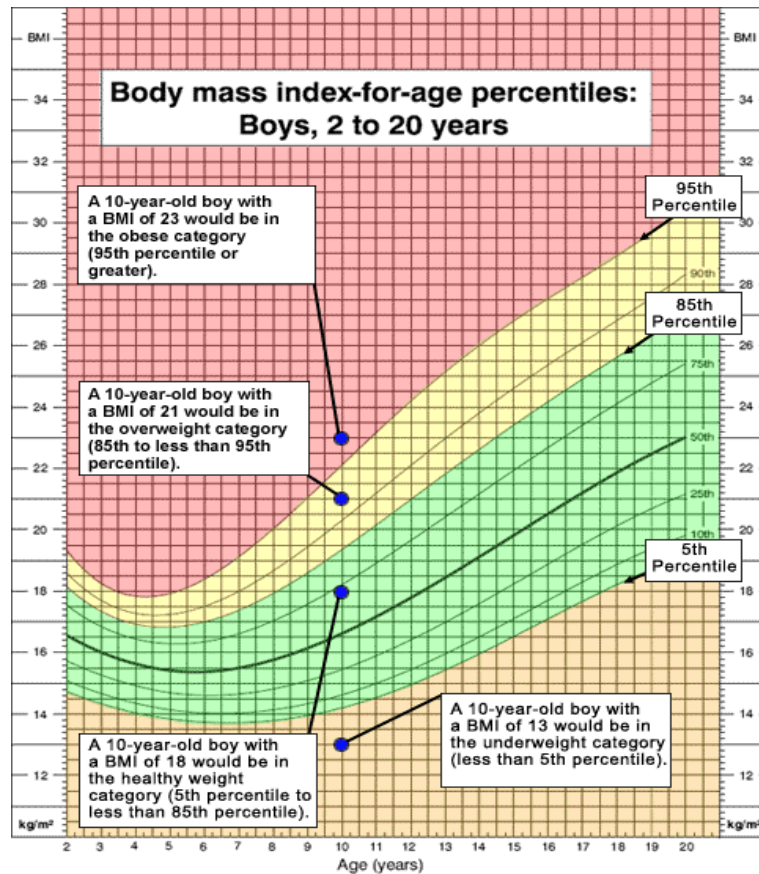
Checked once a year at least

Evaluate the trend of BMI for a child

Skinfold thickness measurements, evaluations of family history, eating patterns and physical activity

AAP recommendations- age 2 years old

BMI in children and adolescents



BMI-for-age weight status categories and the corresponding percentiles

Weight Status Category	Percentile Range
Underweight	Less than the 5 th percentile
Healthy Weight	5 th percentile to less than the 85 th percentile
Overweight	85 th to less than the 95 th percentile
Obesity	Equal to or greater than the 95 th percentile

Defining Childhood Prediabetes Risk Factors

- **Body mass index (BMI) is used to determine childhood overweight and obesity.**
- **Overweight is defined as a BMI at or above the 85th percentile and below the 95th percentile for children and teens of the same age and sex.**
- **Obesity is defined as a BMI at or above the 95th percentile for children and teens of the same age and sex.**
- **Severe obesity is defined as a BMI at or above the 120th percentile for children and teens of the same age and sex**



Prevalence of Childhood Obesity in the United States

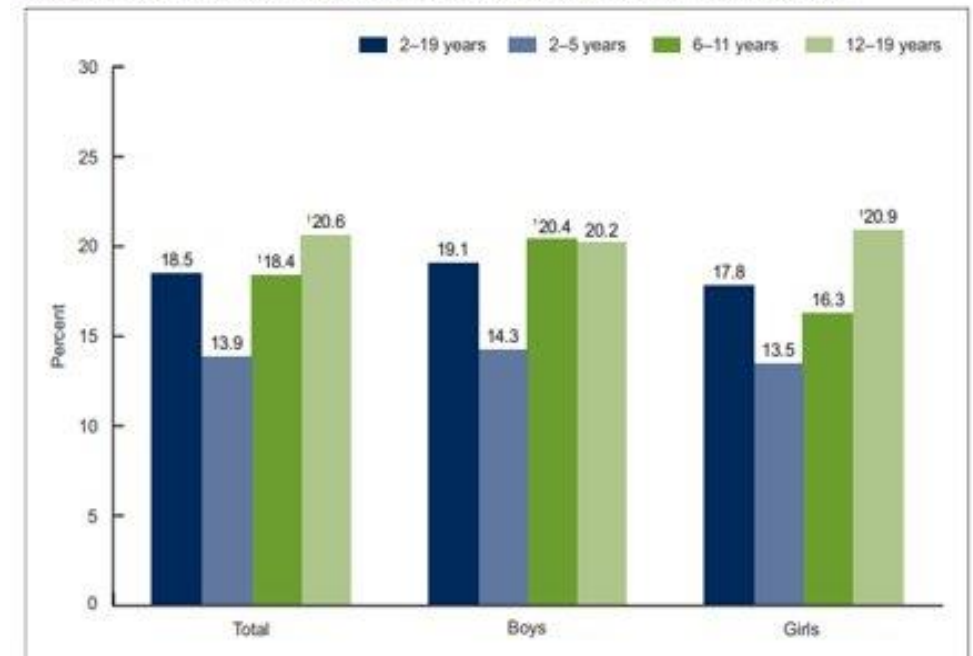
For children and adolescents aged 2-19 years:

- The prevalence of obesity was 19.3% and affected about 14.4 million children and adolescents.
- Obesity prevalence was 13.4% among 2- to 5-year-olds, 20.3% among 6- to 11-year-olds, and 21.2% among 12- to 19-year-olds.

Childhood obesity is also more common among certain populations.

- Hispanics (25.6%) and non-Hispanic blacks (24.2%) had higher obesity prevalence than non-Hispanic whites (16.1%).
- Non-Hispanic Asians (8.7%) had lower obesity prevalence than non-Hispanic blacks and Hispanics.
- Prevalence of obesity among adults was 39.8%

Figure 3. Prevalence of obesity among youth aged 2–19 years, by sex and age: United States, 2015–2016



¹Significantly different from those aged 2–5 years.

NOTE: Access data table for Figure 3 at: https://www.cdc.gov/nchs/data/tables/briefs/d0298_table.pdf#3.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 2015–2016.

Effects of Childhood Obesity

Clinical

- Increased risk of impaired glucose tolerance, insulin resistance, and type 2 diabetes.
- High blood pressure and high cholesterol.
- Breathing problems, such as asthma and sleep apnea.
- Joint problems and musculoskeletal discomfort.
- Fatty liver disease, gallstones, and gastro-esophageal reflux (i.e., heartburn).

Social

- Anxiety and depression.
- Low self-esteem and lower self-reported quality of life.
- Social problems such as bullying and stigma.

Long-Term Health Risks

- Children who have obesity are more likely to become adults with obesity
- Adult obesity is associated with increased risk of several serious health conditions including heart disease, type 2 diabetes, and cancer
- If children have obesity, their obesity and disease risk factors in adulthood are likely to be more severe.



Recommendations

American Academy of Pediatrics

- Assess all children for onset of obesity-related risk factors
- Provide tailored counseling
 - Screening for patient and family stress
 - Disordered eating
 - Social determinants of health

Center for Disease Control and Prevention

- Increase access to evidence-based pediatric weight management programs
- Increase access to food assistance resources

Clinical Screening Guidelines

- Primary Themes
 - Assessment and Diagnosis
 - BMI and BMI percentiles to assess and diagnose child >2 years old
 - Prevention and Management
 - Nutrition
 - Activity
 - Sleep
 - Behavior Modification
 - Parental role
 - Multidisciplinary approach
 - Programs with multidisciplinary teams



WSSCC

CDC framework for addressing health in schools

Student-centered

Emphasizes the role of community in supporting the school, the connections between health and academics, and evidence-based school policies and practices

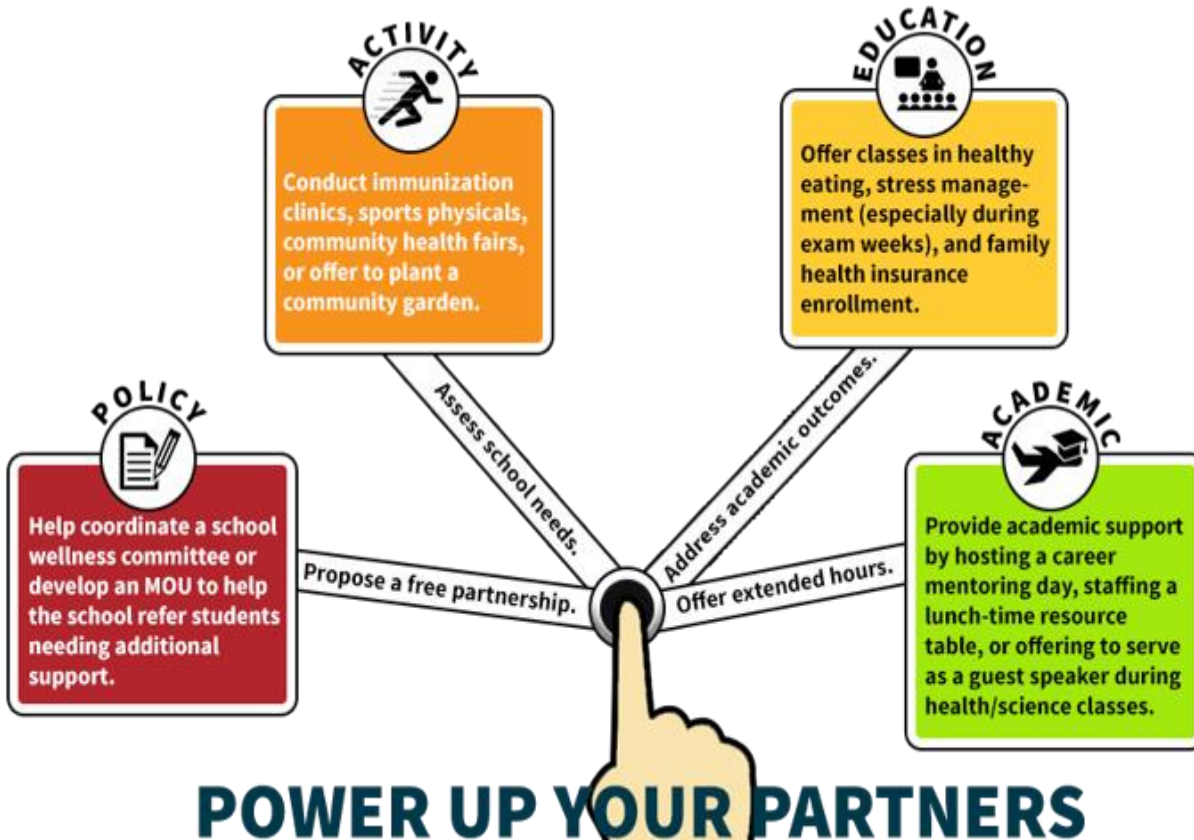
10 components

Whole School, Whole Community, Whole Child (WSCC)



Promoting wellness in SBHCs

Innovating Practice: Partnerships



Look to partnerships to expand your reach and impact!

- Walking Groups
- Family education through newsletters and school/community wide events

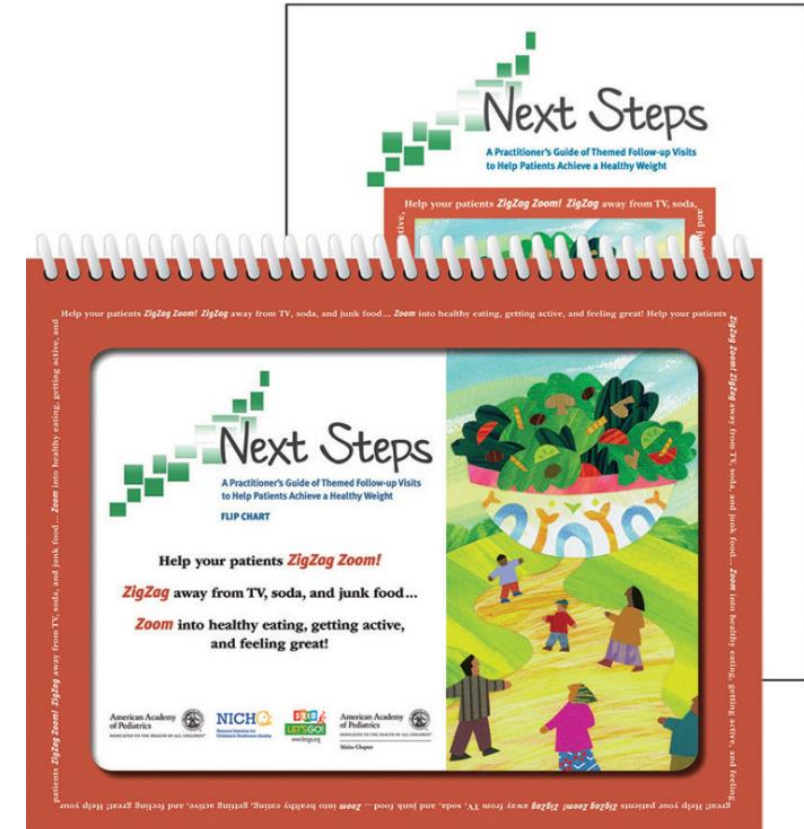
Next Step Program

Goals

- To increase knowledge of nutrition and exercise among selected 6th and 7th grade students with a BMI of 85% and higher
- To maintain consistent engagement in the nutrition and exercise program among selected 6th and 7th grade students with a BMI of 85% and higher

Program Design

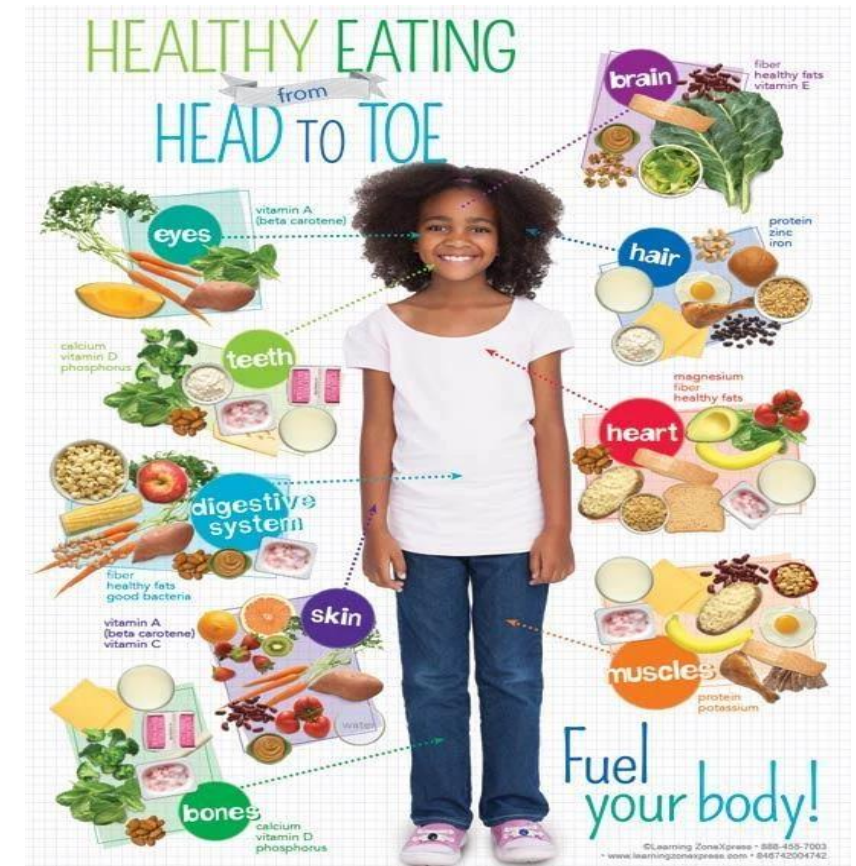
- 6 sessions
- Each session 20-30 minutes
- Each student meets 4 out of 5 engagement criteria
 - Attendance
 - Student initiates questions
 - Shared handouts with parent/guardian
 - Summarizes key points from the session
 - Documents one behavior change after the previous session



American Association of Pediatrics: <https://shop.aap.org/next-steps-a-practitioners-guide-for-themed-follow-up-visits-for-their-patients-to-achieve-a-heel/>

Next Step Program Phases

- Introduction to program and outreach phone call to parent
- Baseline BMI
- Pre-test
- Education
 - How nutrition effects your body
 - Introduction to MyPlate and basic food groups
 - Understanding Healthy Foods
 - Reading Food labels
 - Healthy Beverages
 - Healthy Exercise
 - Guide to Eating Out
 - Smart Snacks
- Post test
- BMI
- Wrap up and review
- Questions
- Goal Setting



Education Material

Portion Size Wise

for children ages 6-12

Portion Size:
portion size often served



1150 calories
62 grams fat

Portion Wise:
appropriate portion size



694 calories
36 grams fat

Encourage children to eat MORE fruits and vegetables by not limiting their portion sizes.

Common Food Portions

Portion Size: Individual oven chicken noodle soup (2.5 cup) 216 calories, 14 grams fat	Portion Size: Soybean & Meatballs (14.5 oz.) 506 calories, 18 grams fat
Portion Size: Instant chicken noodle soup (1 cup) 80 calories, 1 gram fat	Portion Size: Soybean & Meatballs (7.5 oz.) 232 calories, 7.5 grams fat
Portion Size: 6 roundfish cookies 320 calories, 14 grams fat	Portion Size: Orange juice (4 oz.) 110 calories, 0 grams fat
Portion Size: 2 roundfish cookies 160 calories, 7 grams fat	Portion Size: Fruit juice box (8 oz.) 110 calories, 0 grams fat
Portion Size: Yogurt (8 oz.) 180 calories, 2.5 grams fat	Portion Size: Ice cream cone (1 scoop*) 140 calories, 7 grams fat
Portion Size: Soft-serve ice cream (1 oz.) 80 calories, 2.5 grams fat	Portion Size: Ice cream cone (1 scoop*) 140 calories, 7 grams fat
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Healthy Snack Portions

Portion Size: Yogurt (8 oz.) 180 calories, 2.5 grams fat	Portion Size: Soft-serve ice cream (1 oz.) 80 calories, 2.5 grams fat	Portion Size: Soft-serve ice cream (1 oz.) 80 calories, 2.5 grams fat
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Portion Size Guide

1.5 oz. meatball = 1 baby sock	Just under 1 oz. cheese = 2 AA batteries
1/2 cup cooked rice, pasta or potato = 1 hockey puck	1 powder = 1 CD
1 cup cereal = 1 baseball	1 tsp. margarine or spread = 1 penny
2 oz. meat or poultry = small computer mouse	1/4 cup dried fruit = 1 large egg

A Healthy Habit: Read Food Labels

Scan the Nutrition Facts panel on packages to evaluate what's inside and compare the nutrient value of foods.

Start Here

Serving Size is the amount of food the nutrition information is based on. Calories is the amount of "energy" in that serving. Adjust the amount of calories and nutrients if your serving size is different.

Limit all types of fat, especially saturated and trans fat which are linked to health problems.

Most of the fat you eat should be unsaturated.

In general, the greater the difference between "total carbohydrate" and "sugars," the more nutritious the carbohydrate.

Most people should get 58-75 grams of protein daily.

Percent Daily Values are based on eating 2,000 calories a day.

Active teens may need more. Most children, women and older adults need less.

2,500 calorie diets for more active teens and adults.

Nutrition Facts

Serving Size: 6 crackers (28g)
Servings Per Container: About 13

Amount Per Serving

Calories 120 **Calories from Fat 40**

% Daily Value*

Total Fat 4.5g **7%**

Saturated Fat 0.5g **4%**

Trans Fat 0g

Polyunsaturated Fat 2.5g

Monounsaturated Fat 1.5g

Cholesterol 0mg **0%**

Sodium 180mg **7%**

Total Carbohydrate 19g **6%**

Dietary Fiber 3g **13%**

Sugars 0g

Protein 3g

Vitamin A 0% Vitamin C 0%

Calcium 0% Iron 8%

Calories: 2,000 2,500

Total Fat	Less than	65g	80g
Sat. Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

If food gets a lot of its calories from fat, eat sparingly. Total fat intake should be no more than 30% of total calories.

Percentages show whether the nutrients in one serving contribute a lot or a little to your total daily intake—5% or less is "a little," and 20% or more is "a lot."

Limit These

Too much fat, cholesterol and sodium contribute to health problems (refer to "less than" recommendations in footnotes).

Get More of These

Carbohydrates should be 55-60% of total daily calories. Get more natural than added sugars (check ingredients).

Get enough of nutrients beneficial to good health, such as vitamins A and C, minerals calcium and iron, and fiber.

Footnotes

Not specific to the food, and not required on label.

The amount of each nutrient recommended daily.

The amount of calories in fat, carbohydrate and protein (fat has more than double).

Iterating on Innovative Practices

Building on Innovative Practices

Integration of health into science education:

- Nutrition and exercise integrated into the school health program
- Small grant
- Food science program integrating academics into healthy nutrition and exercise.



Questions?

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“Q & A” box of the Zoom control
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