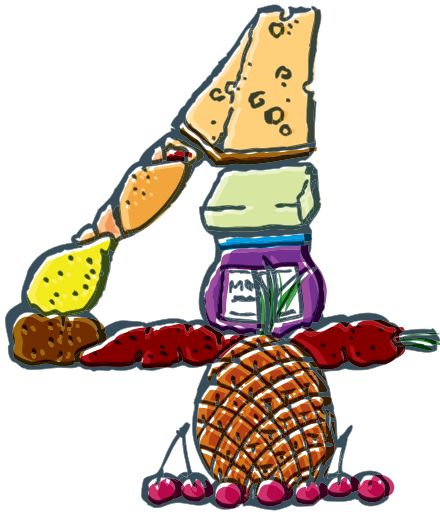


Healthful habits and lifestyles



Healthful habits and lifestyles is about how body weight, physical activity, good personal hygiene and clean surroundings affect our health. It explores what a healthy body size is and how to achieve a healthy weight by keeping energy in balance. It discusses the importance of physical activity and fitness for good health and weight. It explains how protecting ourselves from germs that cause disease is an important part of keeping well and healthy.



Lesson 9
Achieving healthy body size and weight



Lesson 10
Keeping fit and active



Lesson 11
Keeping ourselves, our water and our surroundings clean



LEARNING OBJECTIVES



*By the end of
the lesson, you
will be able to:*

- explain the connection between the energy the body gets from foods and the energy it uses for normal body processes and activity;
- discuss different cultural attitudes and perceptions about body size;
- use standard tools for measuring child growth and adult body weight.

Lesson 9

Achieving healthy body size and weight

LESSON OVERVIEW



This lesson is about achieving and maintaining the right body size and weight for good health. It discusses how attitudes and perceptions of an “ideal” body size vary from one culture to another and explains that the best body size for good health is neither too thin nor too fat. It explains that to keep a healthy body weight, the calories we consume from foods and beverages need to be in balance with the calories we need for normal body functions, daily movements and physical activity. Simple, standardized tools are presented to measure, evaluate and monitor body weight for adults and children.

Part 1

Achieving and maintaining a healthy body size



READING

People have different attitudes and perceptions about body size. The way people think of or perceive body size differs from culture to culture. Some cultures see a plump body and weight gain as a symbol of beauty, health and wealth, while others see excessive thinness as a beautiful and “ideal” body size. In other cultures, thinness is considered a sign of illness or poor health. These perceptions can lead to poor diets and eating habits because they are based on issues other than health and nutrition. In fact, good health for most people depends on a body size that is neither too fat nor too thin. Both extreme fatness and extreme thinness represent poor health and can put us at risk of disease. The ideal body size for good health is in the middle.

Desirable body weight is related to age and sex, as well as to height. For example, men tend to have a larger bone structure and greater muscle mass than women, and therefore, men are generally heavier than women of the same height. Overall, it is best to achieve and maintain a good body weight and avoid extremes of either weight gain or weight loss.

Food is stored in the body in the form of fat that can be used for energy during periods when food is not available. A calorie is defined as a unit of energy supplied by food. This ability to store calories is very important to our survival in times of hunger and low food availability, such as during the hungry season between harvests, food shortages, emergencies and during illness. However, the ability to store fat puts people at risk of overweight and obesity if they do not adjust their food intake according to their needs.

The calories consumed from foods need to be balanced by the calories used in normal body functions, daily activities and physical activity. Using more energy than we take in from food (negative energy balance) over several months or longer can lead to significant weight loss and, in some cases, undernourishment. This is what happens when people continually do not have enough food to eat. This also happens when people intentionally reduce their food intake in order to lose weight. Taking in more food energy than we expend (positive energy balance) over time can lead to significant weight gain. To gain weight, we need to consume more than we use, and to lose weight we need to use more than we consume. To maintain a healthy body weight, we need to balance the energy we take in from the food we eat with the energy that we use.

TO THINK ABOUT WHILE READING



How do we evaluate body size?

What is meant by good body size?

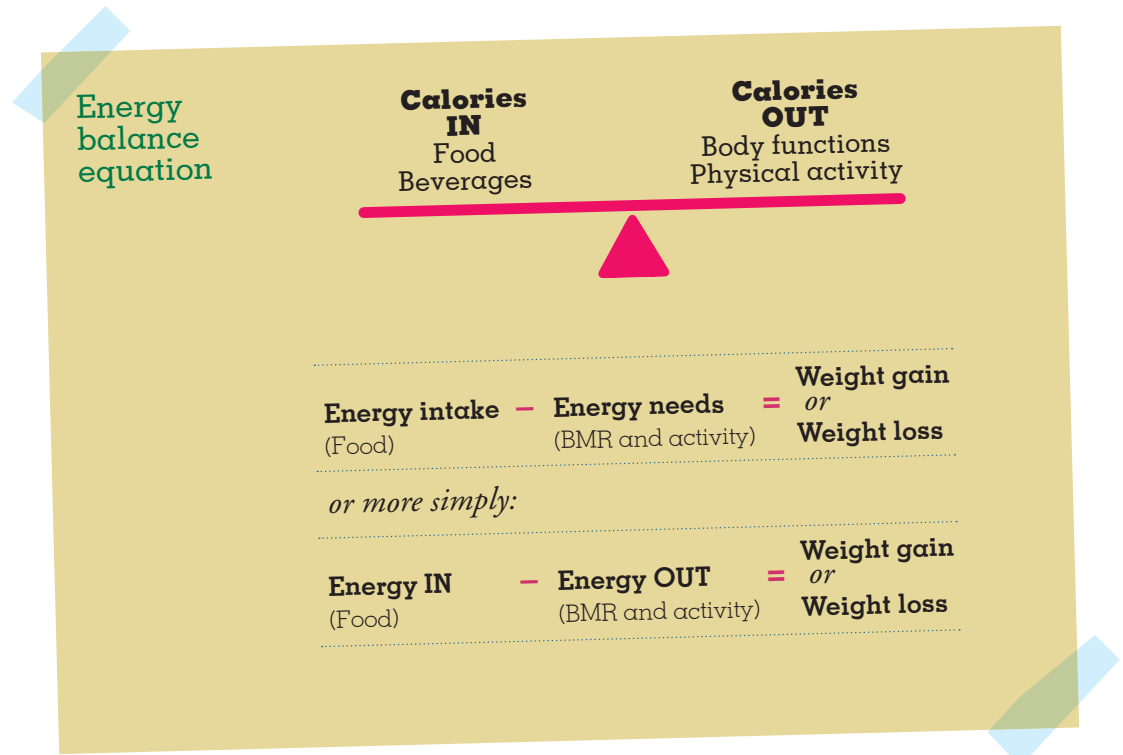
How do we maintain a healthy body weight?



We need energy for our body processes, called **Basal Metabolic Rate (BMR)**. These processes include the energy that it takes for our heart to beat, for our lungs to breathe in and out, for digestion, for our brain to think and coordinate other parts of the body, for growth, and for our cells to metabolize our food. In addition to these essential body processes, we need energy for all of the activities we do throughout the day.

Individual energy needs vary widely. The amount of energy needed to maintain a healthy body weight depends on a person's age, sex, physiological condition and activity level. Whether a person needs to gain weight, lose weight or maintain a healthy weight, it is important to understand the connection between the energy the body takes in through the foods and beverages consumed and the energy the body uses through normal body functions, daily activities and physical activity.

In order for energy to be in balance, the energy taken in needs to equal the energy used. We can think of this as the “Energy Balance Equation”. This means we need to balance the amount of food we eat (in terms of calories) with how much we use up in normal body processes (BMR) and activity. We need more food energy to do vigorous physical activities such as heavy field work or gardening, carrying water, doing heavy household jobs or playing active sports. We need less food energy to do light activities such as reading, sitting or doing office work. The amount of energy we use in an activity also depends on how long we do the activity.





If you are...	your energy status is...
...maintaining your weight	...in balance. You are eating about the same number of calories that your body is using. If you continue to stay in balance, your weight will remain the same.
...gaining weight	...in calorie excess. You are eating more calories than your body is using. Your body is storing these extra calories as fat, so you are gaining weight.
...losing weight	...in calorie deficit. You are eating fewer calories than you are using. Your body is using its fat stores for the energy it needs, so you are losing weight.

Adapted from the CDC "Healthy Weight"

While many quick weight loss "diets" are popularly promoted, quick weight loss has been found to be harmful to the body. Most products that claim to "burn fat" are either ineffective or have dangerous side effects that could cause serious illness and even death. It is important that people who are reducing their food consumption in order to lose weight choose nourishing foods that ensure adequate vitamins and minerals while they are losing weight. The very best advice is gradual weight loss by limiting high calorie foods, increasing consumption of lower calorie fruits and vegetables, controlling portion sizes and increasing activity levels. Not only is this advice the most successful for weight control, it is excellent advice for all-round health and fitness.

The two most common methods of evaluating body weight (body fatness or body leanness) are the "Body Mass Index" (BMI) for adults and the weight-for-height and weight-for-age indices for children. The BMI considers the person's weight in relation to their height and is calculated by dividing their weight in kilograms by the square of their height in metres. BMI is easy to measure and provides an indication of normal weight, overweight or underweight for an adult individual. BMI does not consider body composition (amount of muscle, fat, bone weight or frame size) and therefore it may not correctly categorize very muscular people or children. Separate tables are used for interpreting BMI for adults and children.

For children and adolescents, whose bodies are constantly changing and growing, standard growth charts and tables are commonly used to evaluate their growth compared to other children of the same age and sex. Most countries use the standard charts developed by the World Health Organization (WHO),











although some countries have developed their own, based on the WHO charts. Babies and children need to be weighed and measured regularly and accurately to assess their growth and nutritional status. Regular growth monitoring is important for identifying any growth problems early and for correcting them before related health problems arise. Separate charts are used for males and females and for specific age groups. The four most commonly used charts for evaluating a child's growth are: length/height-for-age; weight-for-age; weight-for-length/height; BMI for age.



More detailed instructions on how to weigh and measure infants and children and on growth charts can be found at:
http://www.who.int/childgrowth/standards/weight_for_height/index.html



MATERIALS

-  Fact sheet *How is BMI calculated and interpreted?*
-  Work sheet *Calculating and evaluating adult body size*
-  Example work sheet *Child BMI and growth charts*
-  Work sheet *Evaluating children's growth and weight*
-  Work sheet *Fill in the gaps*
-  Ask yourself work sheet *Calculating energy balance*
-  Answer work sheet *Calculating energy balance*
-  Fact sheet *Energy balance equation*



ACTIVITIES

Calculating and evaluating adult body size



Body Mass Index (BMI) is a common way of measuring body size for adults. Using the Fact sheet *How is BMI calculated and interpreted?* review the equation and copy it in your notebooks or on the board.



Go to the Work sheet *Calculating and evaluating adult body size* and calculate the BMI of the people listed. Decide which weight group they fit in. Are they at a healthy weight or not?

Discuss: Is BMI a perfect way to measure weight and body size, or are there certain situations where it would be inaccurate?



Evaluating children's growth and weight



Print out the Example work sheet *Child BMI and growth charts*, or draw on the board or on a large sheet of paper a simplified version of the charts. Find the important child information on the chart and review the process of plotting a child's height, weight and age.



Go to Work sheet *Evaluating children's growth and weight*. For each child, choose the correct growth chart and plot their age, weight and height on the chart. Evaluate their growth to determine whether they are in the normal range or not.

What do people think about body size?

Using the Internet, art, books, magazines or other sources of information, find out what people from different countries, regions and societies around the world think is a good body size for women and men. How should a person's "ideal" body size be? What are the different perceptions and attitudes toward a thin body? What are the different perceptions and attitudes toward a plump body?

Draw or find a picture of how a woman with a beautiful body would look in that society.

Draw or find a picture of how a man with an attractive body size would look in that society.

If you are working as a class, have a discussion of body size based on the questions below.

If you are working individually, see if you can answer these questions:

- How different are these ideals from the body size perceptions in your community?
- Why do different cultures think differently about body size?
- What forms people's opinion of an ideal body size?
- What body size is considered good, beautiful or powerful in your community?
- Are these ideals the same for men and women? For boys and girls?
- Do you think these idealized body sizes and shapes are healthy?
- Could there be any negative consequences of these culturally imposed body sizes?
- Are these body sizes always achievable for most people?
- What problems are caused by an ideal that most people cannot achieve?
- How are young people affected by unrealistic values?
- Have ideas about good body size changed over time in your society? If so, how? What has caused these changes?



Body size and mass media

Look in the popular media for images of body sizes and shapes of males and females of a variety of ages. Suggestions of media include: advertisements in magazines, TV, newspapers, billboards and other forms of publicity. Compare and contrast the ways the female and the male body size and activities are portrayed in the media.

If you are working as a group, bring into class some examples or written descriptions of these images, share with others and discuss the following questions.

If you are working individually, see if you can answer them.

1. How are females of all ages represented in terms of their body size and shape?
2. Do these representations seem to be an accurate portrayal?
3. What activities are they engaged in?
4. How are males of all ages represented in terms of their body size and shape?
5. Do these representations seem to be an accurate portrayal?
6. What activities are they engaged in?
7. What differences in body size and shape are there in how females and males of various ages are portrayed?
8. What differences are seen in the activities that females and males of various ages are engaged in?
9. Do you think these images are consistent with appropriate health and nutrition messages?
10. If not, what suggestions would you make for more appropriate media portrayal of messages?

Achieving energy balance



Go to the Work sheet *Fill in the gaps* and complete the sentences to check your understanding of the energy balance.

Calculating energy balance



Read about Henry, Irene and Marie on the Ask yourself work sheet

Calculating energy balance. For each one, calculate their energy expenditure by adding calories burned through BMR and activities. Then, compare this number to the amount of calories consumed. Determine whether each person is likely to lose weight, gain weight or remain at a constant weight if they continue this lifestyle. Make recommendations for improving each situation. Check your answers and recommendations with the Answer work sheet *Calculating energy balance*.





Healthful ways to control weight

Think about what kinds of things people often do to lose weight. Write your ideas on the board. Some of your responses may be healthful and some less healthful.

Compare them to the recommended weight control strategies, which include:

- gradual weight loss through limiting high calorie foods
- increasing consumption of lower calorie fruits and vegetables
- control of portion sizes
- increasing activity levels.

Discuss: What are the dangers of quick weight loss diets?

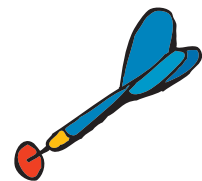


KEY POINTS

Review these three key points to remember about how to achieve and maintain the best body size for good health. Reflect on your perceptions of body size and evaluate your own body weight.

A healthy body size and weight

- Using more energy (calories) than we get from food can result in weight loss. Taking in more calories than we use through body processes and daily activities can lead to weight gain.
- To maintain a healthy weight, we need to keep our energy in balance. The best way to control weight is to limit high calorie foods, increase consumption of fruits and vegetables, control portion sizes and increase activity levels.
- Different cultures and people have different perceptions of the “ideal” body size. The best body size for good health is in the middle - neither too fat nor too thin.



How is BMI calculated and interpreted?

BMI is calculated the same way for both adults and children. For adults 20 years old and older, BMI is interpreted using standard weight status categories that are the same for all ages and for both men and women. For children and teenagers, BMI is interpreted by age and sex.

The BMI calculation is based on the following formulas:

Measurement units	Formula and calculation
Kilograms and metres (or centimeters)	<p>Formula: $\text{weight (kg)} / [\text{height (m)}]^2$</p> <p>With the metric system, the formula for BMI is weight in kilograms divided by height in metres squared. Since height is commonly measured in centimetres, divide height in centimetres by 100 to obtain height in metres.</p> <p><i>Example: Weight = 68 kg, Height = 165 cm (1.65 m)</i> <i>Calculation: $68 \div (1.65)^2 = 24.98$</i></p>
Pounds and inches	<p>Formula: $\text{weight (lb)} / [\text{height (in)}]^2 \times 703$</p> <p>Calculate BMI by dividing weight in pounds (lbs) by height in inches (in) squared and multiplying by a conversion factor of 703.</p> <p><i>Example: Weight = 150 lbs, Height = 5'5" (65")</i> <i>Calculation: $[150 \div (65)^2] \times 703 = 24.96$</i></p>

The standard weight status categories associated with BMI ranges for adults are shown in the following table.

BMI	Weight status
Below 18.5	Underweight
18.5 – 24.9	Normal
25.0 – 29.9	Overweight
30.0 and Above	Obese



★ This will help you calculate and evaluate your own Body Mass Index (BMI)

★ You will need to use this to complete the Work sheet Calculating and evaluating adult body size



Calculating and evaluating adult body size

1. Ben weighs 90 kg and is 2 m tall.
2. Robert weighs 100 kg and is 1.6 m tall.
3. Sara weighs 50 kg and is 1.6 m tall.
4. Maria weighs 65 kg and is 1.5 m tall.
5. Walid weighs 45 kg and is 1.7 m tall.
6. Paul weighs 125 kg and is 1.85 m tall.
7. Olga weighs 49 kg and is 1.55 m tall.
8. Chun weighs 82 kg and is 1.7 m tall.
9. Felicity weighs 41 kg and is 1.62 m tall.
10. Stephen weighs 82 kg and is 1.9 m tall.
11. Milagros weighs 64 kg and is 1.68 m tall.
12. Sandra weighs 74 kg and is 1.65 m tall.

Calculate the **BMI** of each of these people. Then, for each one, **evaluate their weight status**. Are they underweight, normal weight, overweight or obese (very overweight)? **Compare the results** with the answers provided. **Create additional examples** if more practice is needed.

Answer key: 1 BMI = 22.5 Normal weight; 2 BMI = 39.0 Obese; 3 BMI = 19.5 Normal weight; 4 BMI = 28.8 Overweight; 5 BMI = 15.6 Underweight; 6 BMI = 36.5 Obese; 7 BMI = 20.4 Normal weight; 8 BMI = 28.4 Overweight; 9 BMI = 15.6 Underweight; 10 BMI = 22.7 Normal weight; 11 BMI = 22.7 Normal weight; 12 BMI = 27.2 Overweight

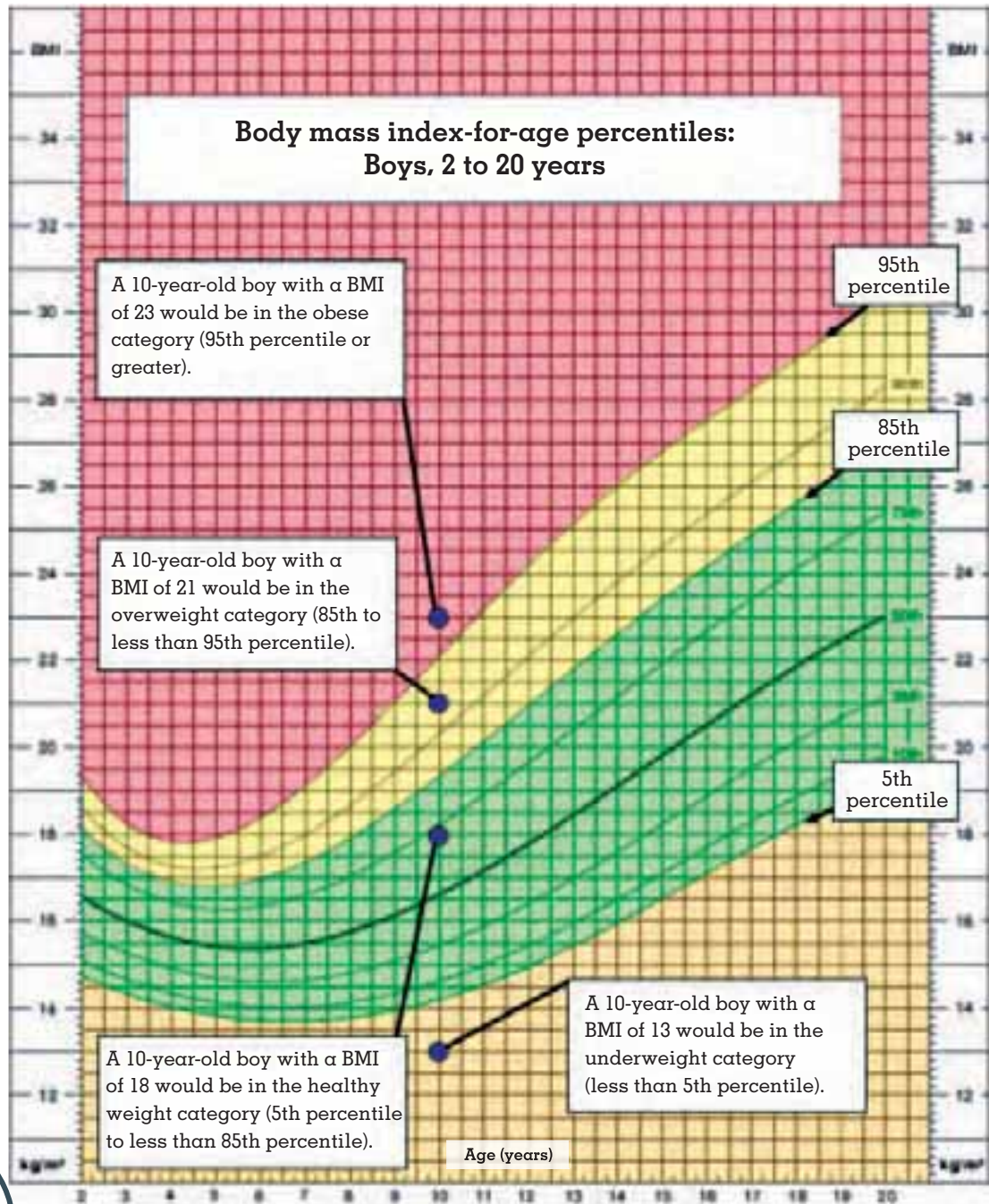


You can create more examples or calculate the BMI of people you know.

Child BMI and growth charts

Review these examples to see if you understand how to evaluate BMI for children.

Child BMI sample chart



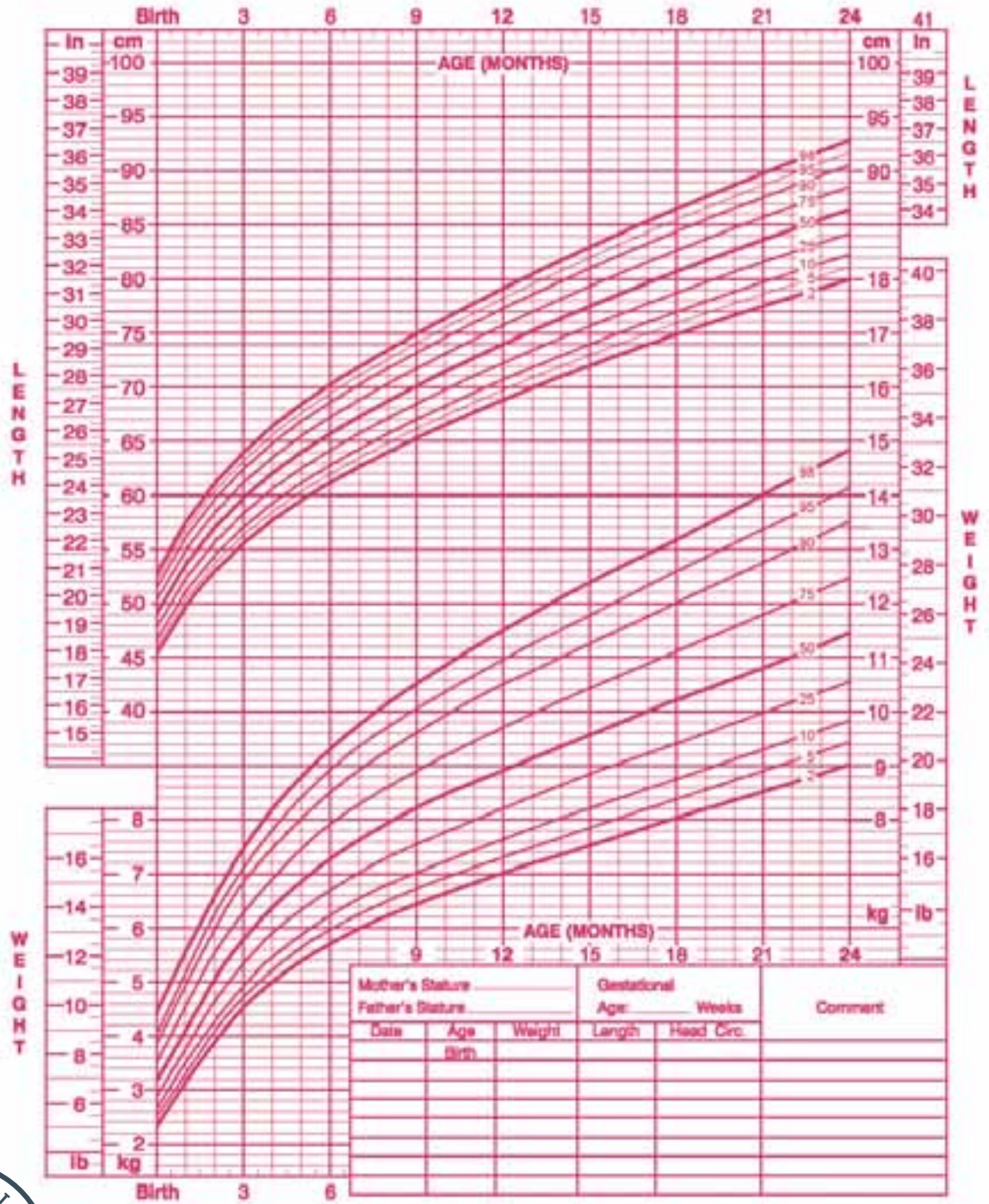
This is the standard chart used to record and evaluate the growth of baby girls up to 24 months old.

Growth chart girls birth-24 months

Name

Length-for-age and weight-for-age percentiles

Record



Published by the Centers for Disease Control and Prevention, November 1, 2009
SOURCE: WHO Child Growth Standards (<http://www.who.int/childgrowth/>)



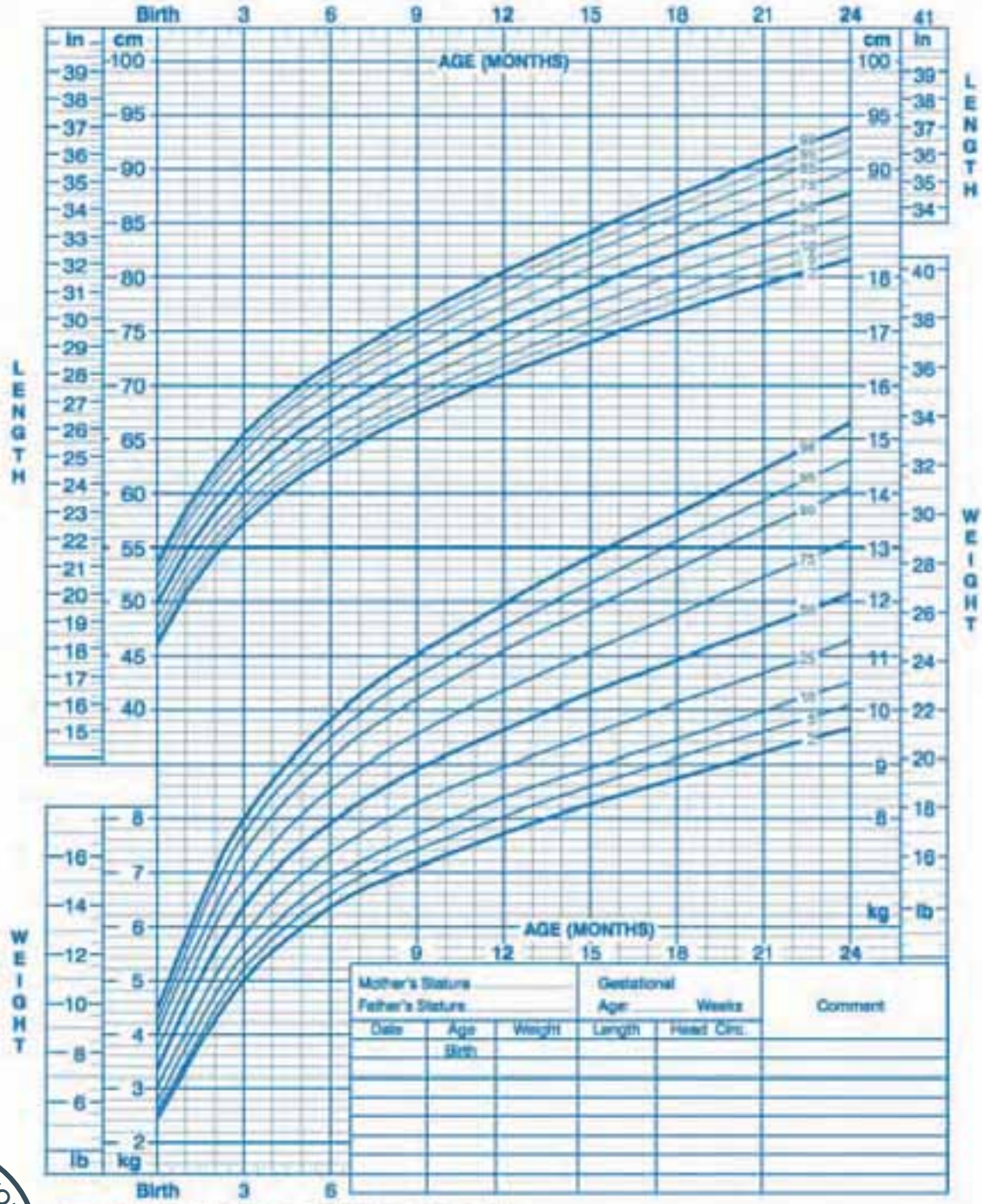
This is the standard chart used to record and evaluate the growth of baby boys up to 24 months old.

Growth chart **boys** birth-24 months

Name

Length-for-age and weight-for-age percentiles

Record



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SOURCE: WHO Child Growth Standards, <http://www.who.int/childgrowth>



