

**Station**  
**Diagnosis and treatment of common diseases in children (pediatrics, neonatology, children's infectious diseases)**

**Practice skills:**

**1. Assessment of physical development of a child.**

For example:

The boy is 4 months old. During examination the body mass is 4400, body length is 60 cm.

Task: Assess the physical development of the child according to the nomograms and establish the diagnosis.

**Algorithm of the Practice skills:**

**I. Assessment of physical development of a child:**

1. To find a point on the nomogram of body weight estimation to age and emphasize the result.
2. Estimate the body weight to the age
3. To find a point on the nomogram of body length estimation to the age and emphasize the result.
4. Estimate the body length to age.
5. Calculate using the calculator the body mass index and record the result.
6. To emphasize the result of evaluation of the body mass index to the age.
7. Evaluate body mass index to age.
8. Assessment of physical development of the child on the basis of data obtained.
9. Make a diagnosis based on clinical data.

**Assessment of the child's physical development during the first 5 years**

**Charts of body length / height / age**

1. 1) Set the value of full weeks, months or years and months on the horizontal axis. Point values should be placed on the vertical line (and not between the vertical lines). For example, if a child is 5.5 months, the values are applied on the division for 5 months (instead of between 5 and 6 months).
2. 2) Set the value of body length / height on the vertical axis. Points of importance should be placed between horizontal lines. For example, if the child's body length is 60.5 cm, apply a value in the cell between the horizontal lines.
3. 3) After drawing points based on the results of two or more surveys, you need to connect the points by the straight line in order to construct the curve and see the dynamics.

**Charts of body weight / age**

1. In order to apply the weight value on the body charts for a given age, it should:
2. 1) Set the age value on the horizontal axis in full weeks, months or years and months. Points should be set on a vertical line (but not between vertical lines).
3. 2) Set the body weight to the vertical axis. Point values should be placed on the horizontal line.

4. 3) After drawing points based on the results of two or more surveys, combine them with each other straight line to construct the curve and see the dynamics.

#### **Charts for ratio of body mass / body length / height / age**

1. 1) Set the body length or height on the horizontal axis. Point values should be placed on the vertical line. You need to round the value to the nearest whole centimeter.
2. 2) Apply mass to the vertical axis. Points are set on horizontal lines or between.
3. 3) After applying the body mass / height ratio for two or more surveys, connect the dots to a straight line to construct the curve and see the dynamics.

#### **Charts body mass index (BMI)/ age**

1. The body mass index (BMI) is determined by the formula: body mass value divided by height in square ( $\text{kg} / \text{m}^2$ ). The height indicator must be converted into meters. The result of the calculations is rounded to decimal.

#### **In order apply to the chart the BMI for a given age, it should:**

1. 1) Set the value of age on horizontal axis in full weeks, months or years and months. Point values should be placed on the vertical line (and not between the vertical lines).
2. 2) Put the value of the BMI on the vertical axis. Point values should be placed on the horizontal line or between the lines.
3. After drawing points, follow two or more reviews to combine them with a straight line to construct the curve and see the dynamics.

#### **Interpretation of indicators of physical development**

1. 1) Values between the standard deviation lines -2 and -3 are considered to be lower than the standard deviation line "-2"
2. 2) Values between standard deviation lines "2" and "3" are considered to be the higher standard deviation line "2".
3. If, the indicator is directly on the standard deviation line, it is assumed that this value falls into the category of lesser severity. For example, if the mass index for this age is on the line "-3", it is considered that the child is inadequate, but not extremely inadequate.

#### **Interpretation of standard deviations of physical development indicators**

Standard deviation	Indicators of physical development			
	Body length / height for this age	Weight for a given age	Relative mass to body / height	BMI for the given age
Above 3	See note 1	See note2	Adiposity	Adiposity
Above 2	Norm		Overweight	Overweight
Above 1	Norm		Possible risk of overweight (See note 3)	Possible risk of overweight (See note 3)
<b>0 (median)</b>	Norm	Norm	Norm	Norm
Below -1	Norm	Norm	Norm	Norm
Below -2	Growth delay (See note 4)	Insufficient weight	Depleted	Depleted
Below -3	Excessive growth retardation (See note 4)	Excessive deficiency weight	Very exhausted	Very exhausted

**Notes:**

1. A child whose growth rates fall into this category is very high.
2. High growth rarely presents a problem, except when it may indicate an endocrine disorder (e.g., a tumor that produces growth hormones). If you suspect an endocrine disorder, your child should be referred to a specialist for advice (for example, if a child is too high for his or her age, parents of normal height).
3. A child whose mass index for a given age falls into this category may have a physical development problem, but it is better to do so based on analysis of weight / body / height or BMI for this age.
4. The indicator above the standard deviation line 1 indicates a potential risk. The upward trend toward standard deviation line 2 indicates a risk.
5. There is a likelihood that a child with a delay or severe delay in growth will be overweight.

**Equipment:**

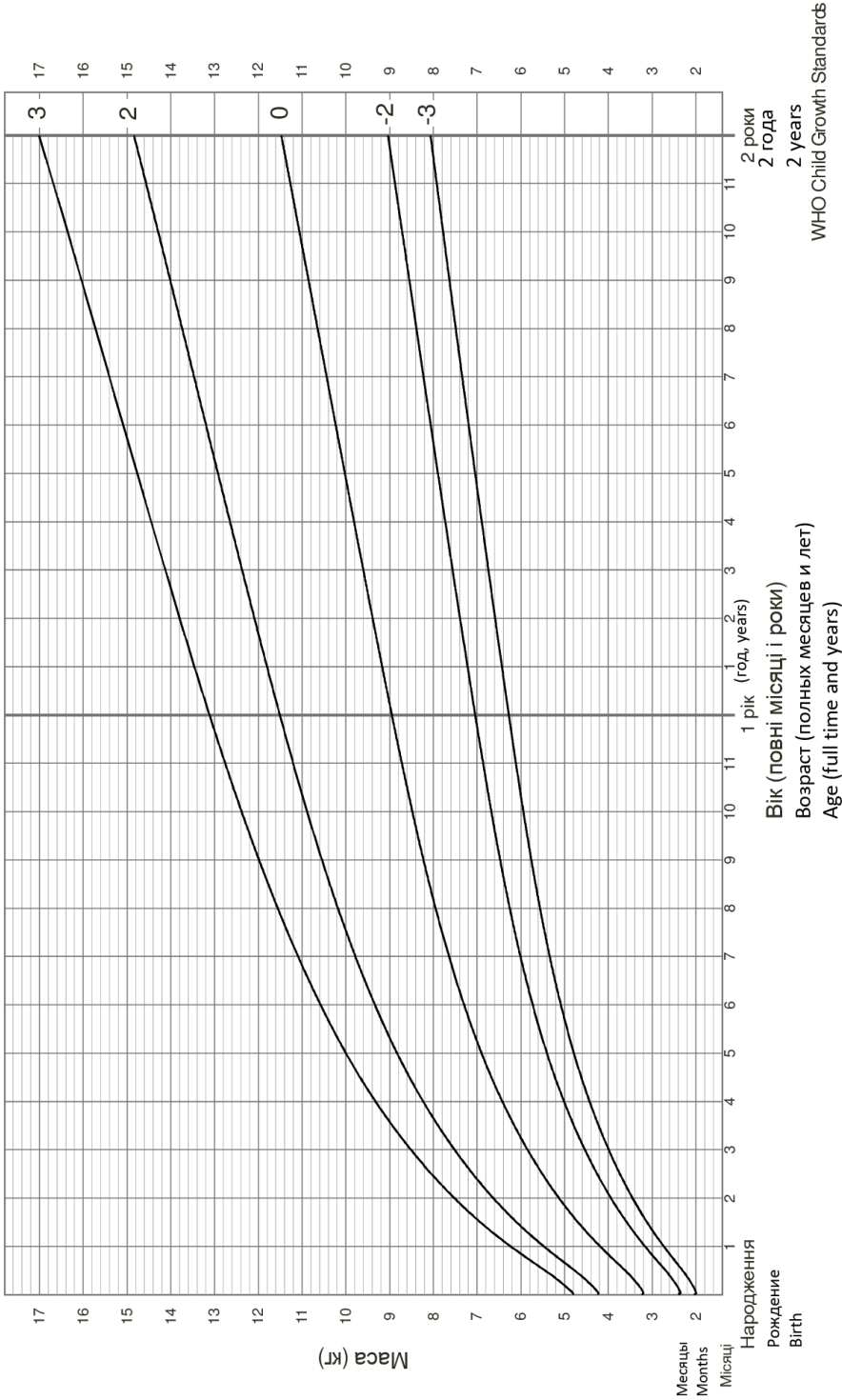
1. Task
2. Signal nomograms
3. Ruler
4. Pencil
5. Calculator

Масса к возрасту, Девочки  
(от рождения до 2 лет)

# Маса до віку, дівчатка

Від народження до 2 років (z-scores)

Mass to years, Girls  
(from birth to 2 years)

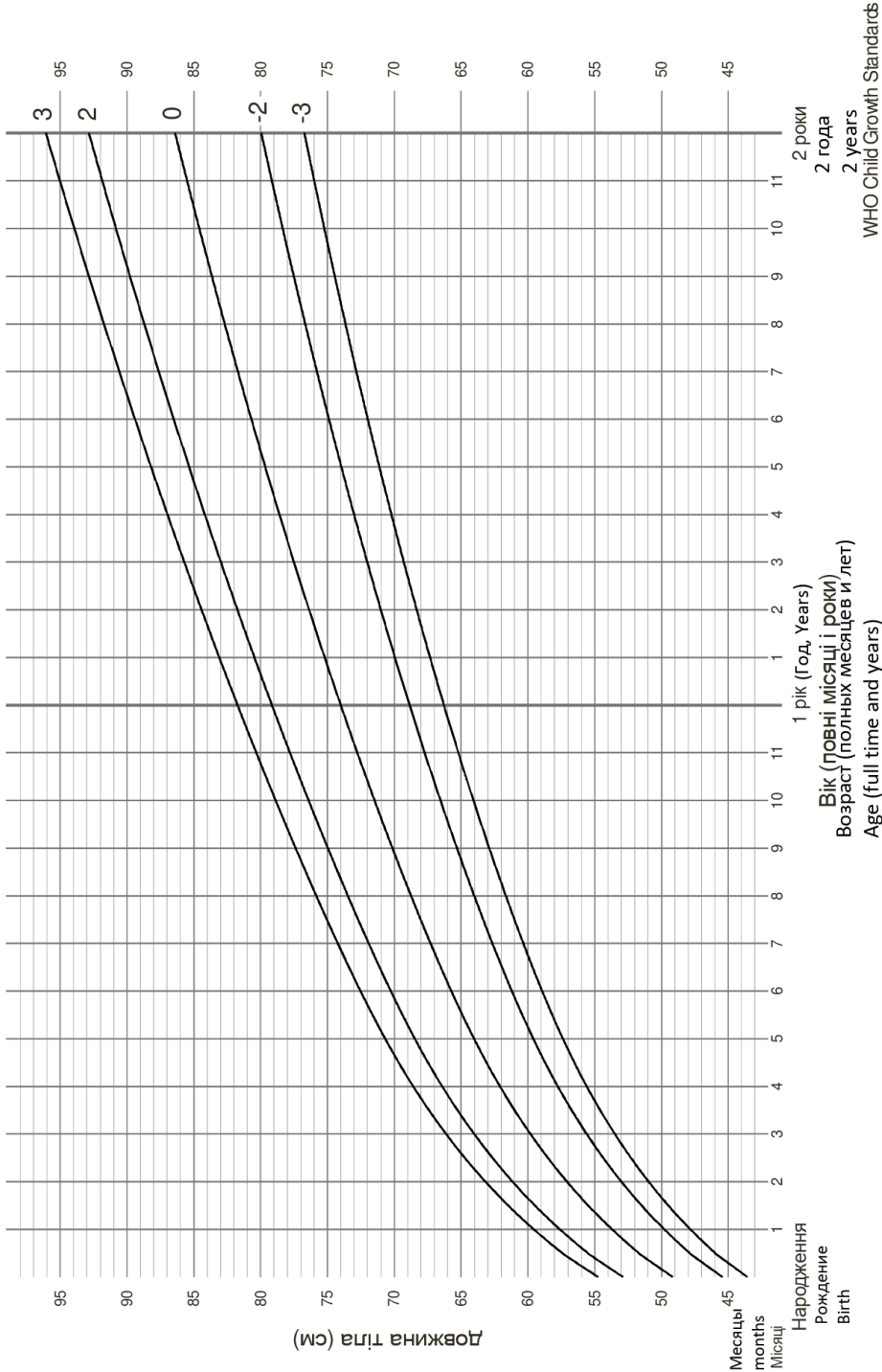


Длина тела к возрасту, девочки  
От рождения до 2 лет .

# Довжина тіла до віку, дівчатка

від народження до 2-х років (z-scores)

Body length to age, Girls  
(from birth to 2 years)



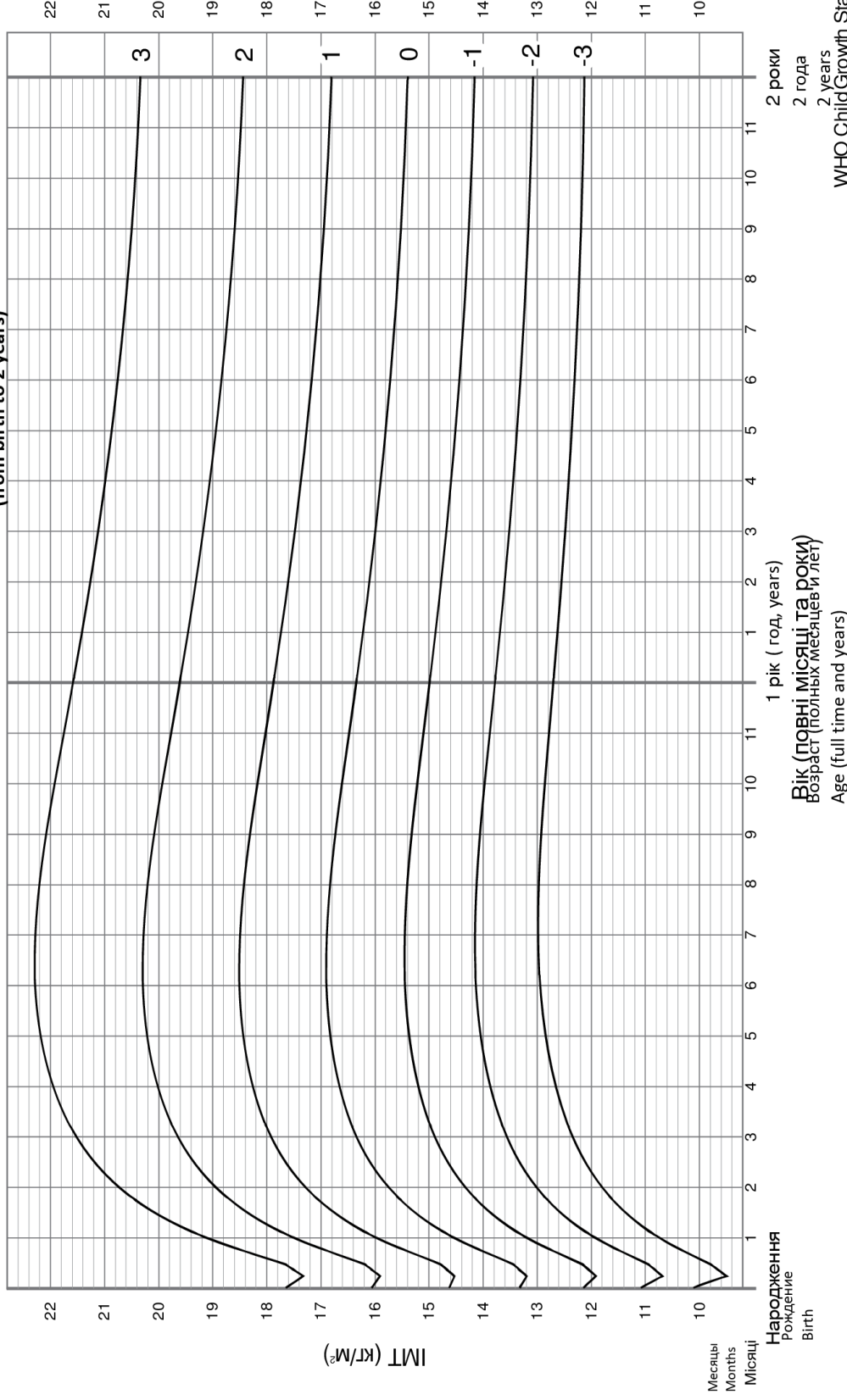
# Індекс маси тіла (ІМТ), дівчатка

Індекс маси тіла (ІМТ), дівочки  
(от рождения до 2 лет)



від народження до 2 років (z-scores)

Body mass index (BMI), girls  
(from birth to 2 years)

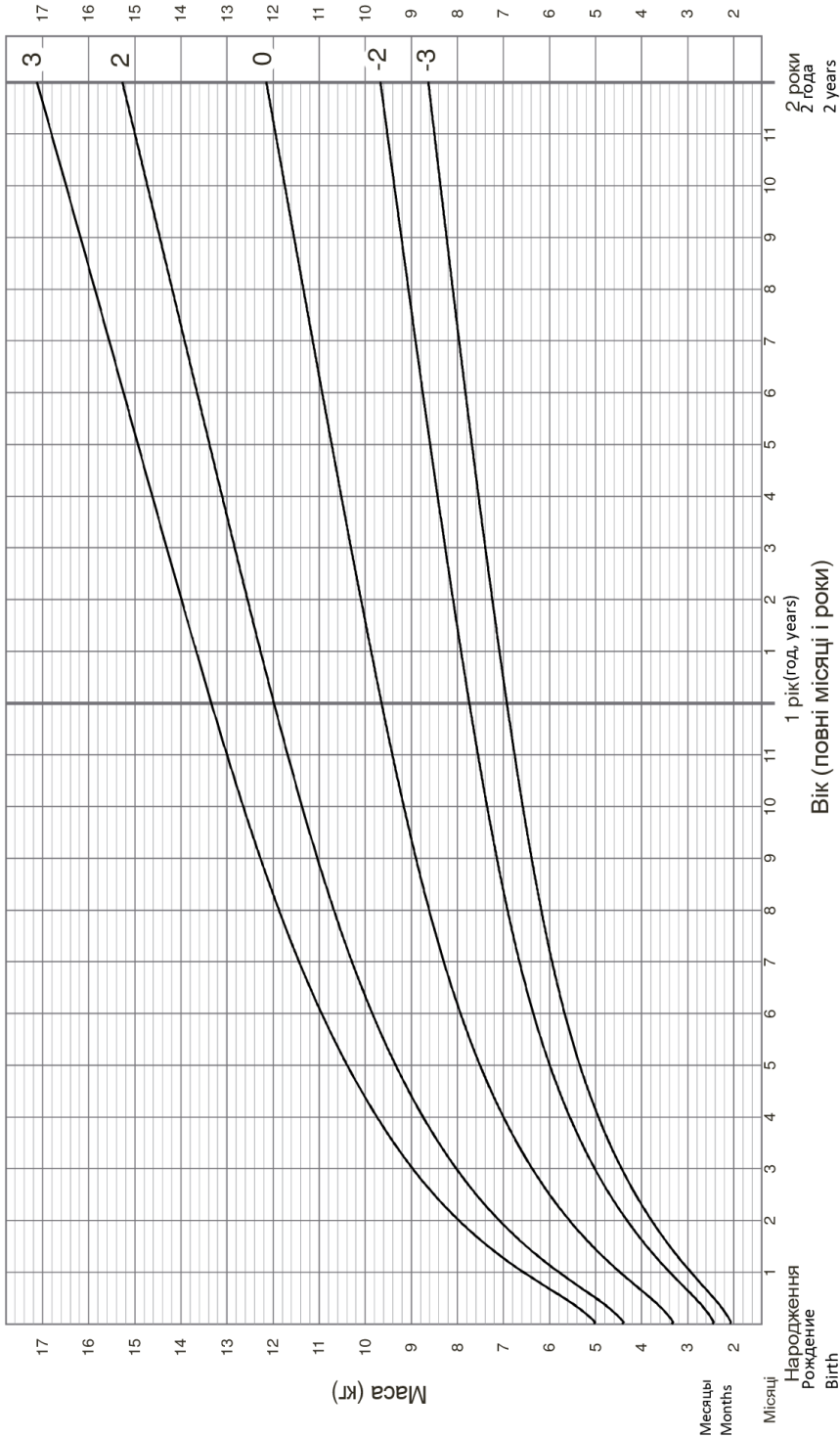


# Маса до віку, хлопчики

Масса к возрасту, Мальчики  
(от рождения до 2 лет)

від народження до 2 років (z-scores)

Mass to years, Boys  
(from birth to 2 years)



WHO Child Growth Standards

Возраст (полных месяцев и лет)  
Age (full time and years)



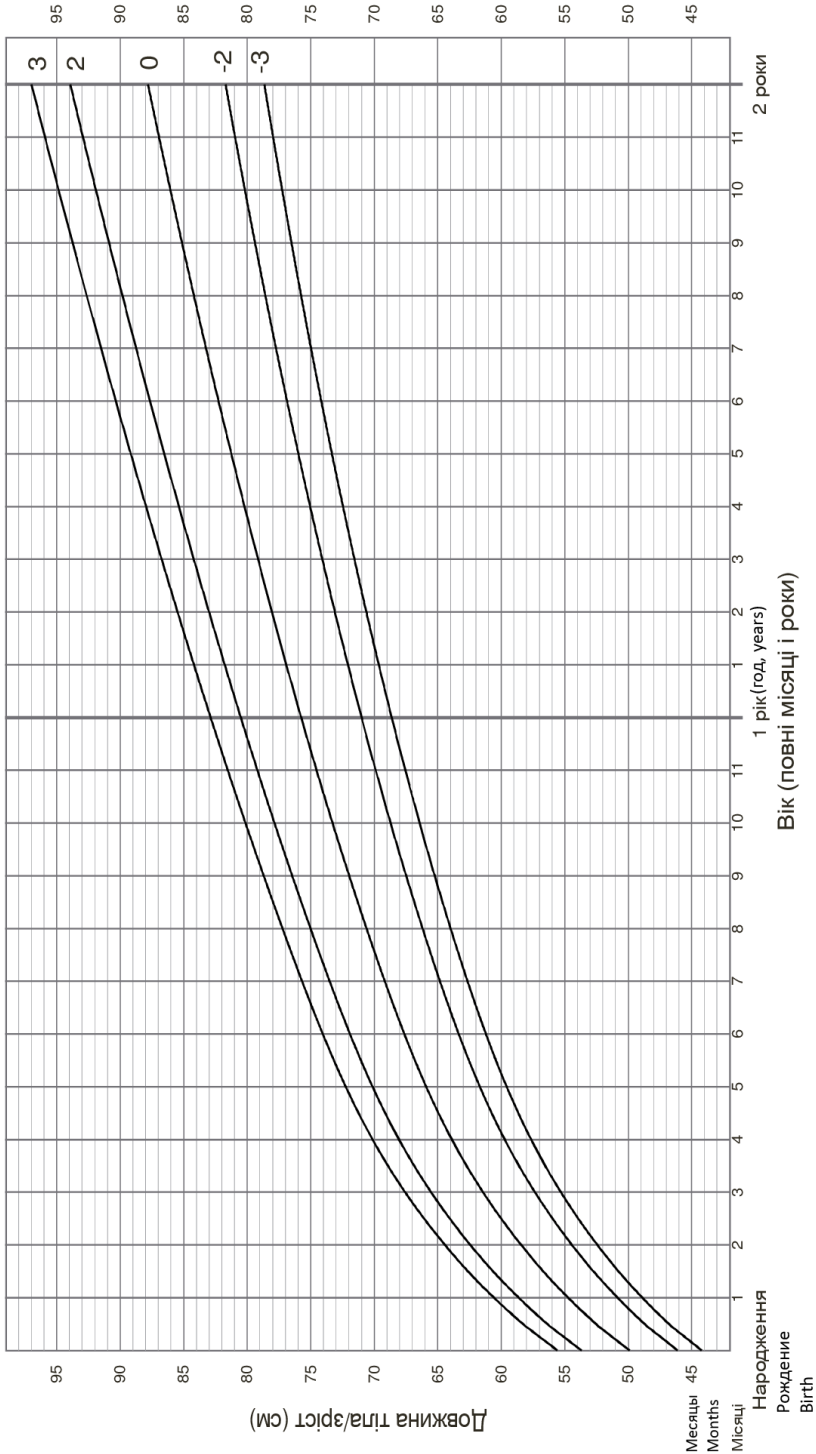


Длина тела к возрасту, мальчики  
От рождения до 2 лет .

# Довжина тіла/зріст до віку, хлопчики (from birth to 2 years)



від народження до 2-х років (z-scores)



WHO Child Growth Standards

Возраст (полных месяцев и лет)  
Age (full time and years)

# Індекс маси тіла (ІМТ), хлопчики

Від народження до 2 років (z-scores)

Індекс массы тела, мальчики  
(от рождения до 2 лет)

Body mass index, Boys  
(from birth to 2 years)

