

Growth - assessing babies to preschoolers

The easiest way to measure a young child's growth is by plotting their weight and height over a period of time on growth reference charts. Babies and young children who receive good nutrition and are not sick for long periods will have healthy growth and development patterns.

Many things influence growth including genes, nutrition, good health and sickness. Babies and young children do not usually grow in a perfectly smooth way. They usually grow in 'bursts'. A change in height and weight can occur in a short amount of time.

For babies, the first year of life is a time when they grow very rapidly. On average, a newborn baby will more than triple its birth weight by their first birthday. Growth slows down in the second year with, on average, two to three kilos added each year until the next major growth 'spurt' at puberty.

How growth is measured

Doctors, nurses and other health professionals use a variety of ways to assess growth in children. The most common ways include:

- Basic body measurements including weight, height (length) and head circumference for male and female children from birth to three years of age
- Standards called growth references or growth charts are used to help interpret these measurements
- Calculation of BMI (body mass index) and child-specific BMI charts for children over 2 years.

Growth charts in Australia

Growth charts are used to plot children's growth. Your doctor or nurse can track your child's growth from one measure to the next and also compared to the reference. This makes it easier to identify a developmental problem when it occurs and take early action.

Growth charts are taken from studies of the population as a whole and reflect the normal range of measurements for a particular group (The charts are divided into sections, called 'centiles', which show the proportion of the group that is above or below a particular measurement. For example, a baby who is on the 85th centile for weight is heavier than 85 per cent of other babies (of the same age and gender) but weighs less than 15 per cent of other babies. Although babies may be very different in size, the majority are somewhere between the third and 97th centile for weight, length and head circumference.

In 2005, Victoria adopted a recommendation of the National Health and Medical Research Council to use the United States Centre for Disease Control growth charts to assess and monitor the growth of children. There are a number of different charts available. These include weight-for-age, height-for-age and head circumference centile charts for children aged from birth to 36 months and two to 20 years of age. In 2011, the World Health Organisation growth charts for infants from birth to two years were adopted in the Victorian child health record book. These charts are based on the growth of healthy, breastfed infants measured from birth in a growth study from six countries. There are separate charts for boys and girls whichever the growth reference used.

Body mass index (BMI) for children

The BMI is one way to assess whether a child is underweight, healthy weight or overweight. The BMI is a single number that interprets a child's weight in relation to their height. It is calculated by dividing the child's weight in kilos by their height in metres squared.

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m}^2\text{)}}$$

If a BMI calculation is used for a child (or for an adolescent), it must be compared against age and gender centile charts. This is because, as children grow, their amount of body fat changes and so will their BMI. For example, BMI usually goes down during the toddler/preschool years and then increases during the school years and into adulthood.

For children over the age of two, BMI percentile charts can be used to assess weight and obesity. The charts use centile cut-offs as a guide only. BMI above the 85th centile and below the 95th centile suggests the child is overweight. The 95th centile and above indicates obesity.

Growth charts are guides only

Growth charts for children, including the BMI percentile charts, are intended only as guides. Weight and height generally increases during infancy and childhood. If there is a change from the usual growth pattern, this can indicate when to seek further guidance from a doctor, maternal and child health nurse or dietitian.

See your doctor if you are concerned

Always see your doctor if you are concerned about your child's growth. Your doctor can use a range of charts and other measures to help assess whether or not your child is growing at the expected rate.

Where to get help

- Your local doctor
- Maternal and child health nurse
- An Accredited Practising Dietitian, contact the Dietitians Association of Australia
- Maternal and Child Health Line Tel. 13 22 29
- Nurse-on-call Tel. 1300 60 60 24 (24 hours, 7 days)
- The Royal Children's Hospital Tel. (03) 9345 5522

Things to remember

- Most babies and young children will grow and develop normally if they receive good nutrition and are not sick for a long time.
- Growth charts for children, including the BMI centile charts, are intended only as guides.
- Always see your doctor if you are concerned about your child's growth.

This page has been produced in consultation with, and approved by:

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