



FAMIPED

Familias, Pediatras y Adolescentes en la Red. Mejores padres, mejores hijos.

Child growth

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In the paediatrician everyday practice, parents and families make us a lot of questions related to their siblings' growth. In the beginning of the previous century, the main causes of changes in growth were hunger, undernourishment and infections. This has changed in the developed society where we live. Nowadays children do not grow well because of chronic diseases of different origins. The great current importance given to tall children makes medium-height children visit us more frequently because they are under the average.

Is child growth always the same? Growth has three stages. The first one, from birth up to 2 years old, the second one until the beginning of puberty and the third one is puberty growth.

What does it happen in each of the three stages? From its birth, there is a stage of rapid growth so that the child has grown 35 cm when it is two. In the second stage, there is a progressive stop in growth speed until the child is 8 years old for girls and 9 years old for boys. Later, puberty grows quickly, as well as a series of body changes which can be easily observed and followed up. During puberty, girls grow 25 cm approximately and boys 28 cm. A person's definitive height is reached when skeleton growth completely finishes.

Which physical changes take place during puberty? Puberty is the life period in which transition from childhood to adult life takes place. Hence, the body reaches its definitive shape and size. In this period there are changes which affect every organ and structure but the most relevant thing is that secondary sexual characters develop.

How does a girl change? When they are 8-9, women have a small lump under their nipples that are called mammary buttons and that are usually asymmetric. Breasts gradually grow in 2-3 years. 6 months after breast growth, pubic hair begins to grow and then underarm hair. The first period takes place among 2-5 years after the beginning of the mammary button, around 11-12 years old.

How does a boy change? When they are 9-10, boys' testicles begin to increase their size. In this moment, the penis still has infant features but it begins to grow a year later. This usually occurs together with an increase in testicle pigmentation and in the appearance of hair in that area. Puberty lasts for 2 years, together with an increase of underarm, face and extremity hair apart from voice changes and increase of muscle mass.

What are the determining factors for a child's height after their growth? If there is nothing in the environment which makes growth difficult, it mainly depends on genetic factors. This is, height will depend on their predecessors' height and also on some factors as food, child illnesses and way of life.

Is it possible to know what the definitive height of a boy will be? Expected height when being an adult can be calculated taking their parents' as a reference. This is called calculation of the target height. A different mathematical formula is used for men and women. This sex differentiation can be explained because of the influence of sexual hormones in growth.

Men= (father's height+mother's height)/2+6,5 cm

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Women= (father's height+mother's height)/2-6,5 cm

This calculation must be estimated in $\pm 8,5$ cm that can vary.

Example: a boy's father is 179 cm and his mother is 163 cm. Hence, this would be the calculation: $(179+163)/2+6,5= 177,5$ cm . Thus, it is to be expected that when the boy turns into adult, his height will be close to 186 cm or 169 cm because to the result of 177,5 we must add and subtract 8,5.

Is it always to be expected that siblings reach a higher height than their parents? This phenomenon is called growth secular acceleration. It can be observed in populations with an ascending life level regarding height as well as for puberty early beginning

What parameters do paediatricians and nurses use to monitor physical development? The most important clinical parameters are weight, height and head perimeter. Your healthcare professional will perform then in the recommended visits by infant healthcare programs or in other occasions which are appropriate.

Why are weight and head perimeter important? Weight is the parameter which early changes in cases of undernourishment. Head perimeter is related to the head size and also an indicator of brain development. Head perimeter is to be measured until when a child is two.

Is height used to assess child growth? Yes, health workers call height measure size. Up to 2 years old, it is done with a rigid horizontal rule. From 2 years old onwards, this is done stood up. It will be necessary to measure growth speed in a year and compare it to reference graphs in order to assess growth.

What are growth curves? A growth curve is a graph that allows to asses a child growth and that is different for boys and girls. They are made from a child height and weight information. What is done is to compare height and head height and size against boys with the same age. Growth measures must be compared to the reference curve of each population. Nowadays we have the WHO growth graphs that were done with children from different countries (India, Brazil, USA, Oman, Norway and Ghana) only fed with breast milk. They can be applied to children all over the world and can be observed in http://www.who.int/childgrowth/standards/curvas_por_indicadores/en/index.html [2]

MORE INFORMATION:

<http://www.aepap.org/familia/crecer.htm> [3]

<http://www.aepap.org/familia/pubertad.htm> [4]