

Failure to thrive (FTT) is defined as a child with deficiencies in weight and height as compared to age related normals. Failure to thrive includes children whose weight and height are less than the 3rd percentile or whose weight or height have decreased more than 2 major percentiles (ex. 50 to 3rd percentile on their growth charts). Below is a chart so that you can understand "normal" growth rates. Failure to thrive children do not experience these "normal" rates.

**Normal growth rates for height children are:**

Age	Growth in Height
0-6 months	7-10 inches/year
6-12 months	6-7 inches/year
1-2 years	4-5 inches/year
2-3 years	3-4 inches/year
3-4 years	2-3 inches/year
4-10 years	2 inches/year

**Normal growth rates for weight in children are:**

Age	Growth in Weight
0-4 months	1 1/2 lbs/month
4-10 months	1 lb/month
10-24 months	1/2 lb/month
2-8 years	3-4 lbs/year

Fifty percent of failure to thrive is non-organic and 50 % is due to organic processes. Head size, motor function and IQ may be affected also. If failure to thrive is seen in the

first year of life, 60-80 % will have an organic etiology.

Primary skeletal growth deficiency has its onset during the pregnancy and growth is slow in height and weight from early life to adulthood. These include children with chromosomal problems (ex: Turner Syndrome, Down's Syndrome), skeletal dysplasias (ex: Achondroplasia, Osteogenesis Imperfecta), and dwarfism syndromes (ex: Russell Silver, Cornelia de Lange, etc.)

Secondary growth deficiency problems are divided into before birth and after birth types. The before birth failure to thrive may be due to maternal malnutrition which causes smaller infants. Maternal high blood pressure, cigarette smoking, alcohol use (fetal alcohol syndrome) will lower birth weight. Maternal drug use, seizure medicine use (Dilantin) or infections/viruses (rubella, cytomegalic inclusions disease, toxo- plasmosis, syphilis) will make the infants smaller.

After delivery, many factors will affect our children's size - malnutrition due to inadequate calories, poor feeding techniques, improper mixing of formula is still seen frequently, even in some of the best families. Emotional deprivation causes failure to thrive. The deprived social and emotional setting of the child may not be apparent from the parental history. This may be seen in early infancy or as late as 2-3 years old. Their developmental delay may be proportionate to their size, not their age. Children with mental retardation often have failure to thrive, which is nutritional in origin.

GI problems such as reflux, malabsorption, parasites, milk intolerance and diarrhea will

cause significant failure to thrive. Complex heart problems, which are cyanotic, have a 40% rate of failure to thrive. Corrective surgery usually allows catch-up growth. Kidney problems or failure will lead to acidosis, rickets and slow growth. Steroid use will inhibit growth. Liver disease (Hepatitis) will cause malabsorption of food and vitamins, thus slowing growth.

Lung problems such as Cystic Fibrosis, severe stridor and severe recurrent infections affect growth. Thyroid hormone deficiency can present from birth all the way through childhood. The thyroid child may have normal growth initially and then develop failure to thrive. Growth hormone deficiency presents with slowing of height more than weight and they grow less than 2.0 inches/yr, have normal body proportions and are often below the growth chart (discussed in another brochure).

In general a child whose height, weight and head size are small has a genetic or chromosomal problem, or the pregnancy was complicated by a serious infection. If the child has a normal head size, but the height and weight are less than the 3<sup>rd</sup> percentile (off the growth curve) consider hormone problems, skeletal deficiencies and delayed puberty. If the child has a normal height and head size, but the weight is below the growth curve think of malnutrition and non-organic failure to thrive.

If your child has failure to thrive by his/her growth chart, have your physician assess and determine which of these etiologies exists. Only then can the failure to thrive be assessed and corrected. Failure to thrive does not occur without an etiology. See your child's doctor.

# Failure to Thrive

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# M A G I C Major Aspects of Growth In Children

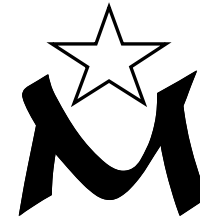
The MAGIC Foundation is a national nonprofit organization created to provide support services for the families of children afflicted with a wide variety of chronic and/or critical disorders, syndromes and diseases that affect a child's growth. Some of the diagnoses are quite common while others are very rare.

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## **Failure to Thrive**



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