

## Diagnoses That Can Be Associated With Altered Growth Patterns

- **Brain damage, Brain anomalies** - can reduce bone and muscle mass, alter blueprint for growth.
- **Genetic syndromes** - those that cause brain damage can reduce bone and muscle mass, alter blueprint for growth.
- **Genetic syndromes**- such as cystic fibrosis, alter physiology and can affect growth due to malabsorption problems. In this case, children have normal blueprints for growth but can fail to thrive due to malabsorption.
- **Microcephaly** - especially when head circumference is below the growth chart, usually indicate brain damage or differences- almost always causes reductions in weight and growth.
- **Prematurity** – if born at or before 32 weeks gestation, children may take a longer time to catch up in weight and growth.
- **Intrauterine Growth Retardation (IUGR)** – 2 kinds. Can recover from one kind and catch up to other children in size and growth. Can't recover from the other kind- reduces weight and height and delays growth. Sometimes kids catch up by adolescence. Others will be small adults.
- **Growth Hormone deficiency**- sometimes seen in brain damage, some genetic syndromes and kids with a history of prematurity. When untreated, 2 growth patterns: 1-children will be significantly smaller than normal in all parameters. 2- weight and head circumference may be on the growth chart in the lower percentiles but length or stature will plot below the chart. So these kids are unusually short.
- **Broncho-pulmonary Dysplasia**- depending on severity, can elevate calorie needs due to work of breathing. Can fail to thrive if calorie needs not met. Caused by the breathing treatments used for prematurity, so these kids have a prematurity history which is an independent factor for slow growth and failure to thrive.
- **Other Internal Organ problems**- can affect growth and weight depending on the situation. Internal organ problems can occur independent of other factors or be a symptom of an underlying genetic condition. If part of a genetic syndrome or chromosomal problem, brain damage or differences may also be present and can affect growth and weight as described above.

- **Feeding problems**- usually associated with brain damage or brain differences. Sensory problems can cause children to limit what they will eat. These kinds of usually do NOT affect growth and weight. Physical problems eating DO affect weight and growth- kids may not be able to meet all nutrient needs by mouth, and may require alternate forms of feeding.
  
- **Medications**- Many ADHD medications cause loss of appetite and can lead to major failure to thrive. Topamax (Topiramate) is an anti-seizure medication that can also depress appetite. (On the other hand, other commonly used medications in the special needs population can cause undesirable weight gain: Zyprexa, Risperdal, Depakote).
  
- **Gastro-intestinal problems:**
  - **Constipation** is extremely common in non-ambulatory individuals. It is caused by low activity, high or low muscle tone, monotonous diets (commercial nutrition formula only, for example), medication side effects.
  
  - **Reflux**- very common in individuals with brain damage, prematurity, some cardiac problems, and in food allergies. Serious, chronic reflux can cause failure to thrive. It can also cause chronic ear infections, which in turn can cause failure to thrive. And it can cause chronic aspiration, which can cause failure to thrive.
  
- **Iron deficiency** – always rule out, especially in cases of significant undesirable weight loss.
  
- **Zinc deficiency**- Rare but possible in restricted diets. Zinc deficiency causes short stature or overall small for age and can resemble growth hormone deficiency.