

Failure to Thrive (FTT) (weight faltering)

Learning objectives

Evaluation of a child with FTT by history, review the growth chart and physical examination

Managements tools and out come

Failure to thrive : suboptimal weight gain in infants and young children if prolonged and severe it will result in reduction in height and head growth , and may be associated with delayed development. it is a term used to describe a child who is not growing as expected. But, it is not the same as normal growth in a child who is small for his or her age. The exact definition is not completely agreed upon.

weight faltering describes a sustained drop down two centile spaces ,in addition the weight below the second centile the most likely the child has wt faltering (UK)

Other definition **wt at or below the 3rd to 5th percentile for height and weight, or has failed to grow as expected, as shown by dropping two growth percentiles (For example, the child goes from the 75th percentile to below the 25th percentile)**

Types include:

- Organic failure-to-thrive:** caused by some other medical condition
- Non organic failure-to-thrive:** occurs in children with no known medical condition
- Mixed failure-to-thrive:** occurs when the child has features of both organic and non organic failure-to-thrive

Etiology: The causes of insufficient growth include

- (1) Failure of the child to ingest and utilize sufficient calories
- (2) Malabsorption
- (3) Increased metabolic demands

The diagnostic approach focusing on:

- History include a detailed nutritional, family, and prenatal history; documentation of child and caregiver interaction, the quantity, quality and frequency of meals,
- further information regarding the onset of the growth failure
- Physical examination

- Observation of the parent–child interaction in the clinical or home environment
- Deprivation and/or psychological problems neglect (as poverty, social isolation, and caregiver mental health issues)

Selective Differential Diagnosis of FTT

Inadequate caloric intake

- Incorrect preparation of formula (too diluted, too concentrated)
- Unsuitable feeding habits (food fads, excessive juice)
- Behavior problems affecting eating
- Poverty and food shortages
- Neglect
- Disturbed parent-child relationship
- Mechanical feeding difficulties (oro motor dysfunction, congenital anomalies central nervous system damage, severe reflux)

Inadequate absorption

- Celiac disease
- Cystic fibrosis
- Cow's milk protein allergy
- Vitamin or mineral deficiencies (acrodermatitis enteropathica, scurvy)
- Biliary atresia or liver disease
- Necrotizing enter colitis or short-gut syndrome

Increased metabolism

- Hyperthyroidism
- Chronic infection (human immunodeficiency virus or other immunodeficiency, malignancy, renal disease)
- Hypoxemia (congenital heart defects, chronic lung disease)

Defective utilization

- Genetic abnormalities (trisomies 21, 18, and 13)
- Congenital infections
- Metabolic disorders (storage diseases, amino acid disorders)

Physical examination is essential with four main goals:

- (1) Identification of dysmorphic features suggestive of a genetic disorder impeding growth**
- (2) Detection of underlying disease that may impair growth**
- (3) Assessment for signs of possible child abuse; and**
- (4) Assessment of the severity and possible effects of malnutrition.**

The severity of a child's under nutrition can be determined most easily by using the **Gomez criteria**. By comparing the child's current weight for age with the expected weight (50th percentile) at that age, the degree of malnutrition can be assessed. If the weight is less than 60 % of expected weight, FTT is considered severe, 61 to 75 % denotes moderate FTT, and 76 to 90 % is mild.

No routine laboratory tests are ordered in the initial work-up of failure to thrive unless suggested by the history or physical examination.

Obtaining the state's newborn screening results, a complete blood count, and urinalysis represent a reasonable initial screen.

Management Tools

The first rule for treating FTT is to identify the underlying cause and correct it. This requires a stepwise approach that is guided by history and response to therapy. Most cases can be managed by nutrition intervention or feeding behavior modification. Children who do not respond may require further evaluation.

Two principles that hold true irrespective of the etiology are that all children with FTT **need a high-calorie diet for catch-up growth, and close follow-up.** Usually, children should be followed at least monthly until catch-up growth is demonstrated and the positive trend is maintained.

Three-day food diary

It may seem surprising that under nutrition is a common factor in FTT, but with an energy need that is almost triple that of adults (in calories per kg) it becomes easier to understand how quickly infants can fall behind on growth. Having parents write down the types of food and amounts a child eats over three-day period is one way of quantifying caloric intake. In some instances, it can make parents aware of how much the child is or is not eating. Limit fruit juice to 8 to 16 oz per day. Fruit juice is an important contributor to poor growth by providing relatively empty carbohydrate calories and diminishing a child's appetite for nutritious meals, leading to decreased caloric intake.

High-calorie diet: Children with FTT need 150% of their recommended daily caloric intake, based on their expected, not actual, weight. In infants, this increased calorie intake may be accomplished by concentrating formula or adding rice cereal to pureed foods.

Hospitalization: is rarely required, and most children with FTT are managed as outpatients. The lack of benefit to hospitalization in most cases has been apparent for decades. Hospitalization may be necessary when the safety of the child is a concern, outpatient management has failed for 2-3 months, or the FTT is severe.

Outcomes: Children with FTT are at risk for adverse outcomes such as short stature, behavior problems, and developmental delay. FTT is more likely a contributing or associated factor to these adverse outcomes, rather than the exclusive cause.

To decrease the risk of adverse effects, it is important to recognize and treat FTT promptly. Early childhood is a critical period for growth and development, and early intervention for any child with FTT will maximize the potential for better outcomes given the evidence of long-term problems, all children who have been diagnosed with FTT need to be followed carefully for possible later sequel.

Summary

Failure to thrive (FTT) results from inadequate usable calories necessary for a child's metabolic and growth demands. No single set of growth parameters provides the criteria for a universal definition. FTT has classically been grouped into organic and nonorganic types; this is not useful to clinicians seeking to address underlying causes, which are often multi-factorial.

Many would consider a weight for height ratio less than 2 SD (or <3 or 5 percentile) for age and gender diagnostic of FTT; others would use weight crossing 2 major percentiles on the growth curve. Patients with FTT may either have growth deceleration, faltering growth, or even weight loss

Reference

Nelson text book of pediatrics, illustrated text book of pediatrics