

CLINICAL REPORT

Guidance for the Clinician in Rendering Pediatric Care

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Failure to Thrive as a Manifestation of Child Neglect

ABSTRACT. Failure to thrive is a common problem in infancy and childhood. It is most often multifactorial in origin. Inadequate nutrition and disturbed social interactions contribute to poor weight gain, delayed development, and abnormal behavior. The syndrome develops in a significant number of children as a consequence of child neglect. This clinical report is intended to focus the pediatrician on the consideration, evaluation, and management of failure to thrive when child neglect may be present. Child protective services agencies should be notified when the evaluation leads to a suspicion of abuse or neglect. *Pediatrics* 2005;116:1234–1237; failure to thrive, development, child neglect, abuse, nutrition.

ABBREVIATION. FTT, failure to thrive.

INTRODUCTION

Failure to thrive (FTT) in infants and children results from inadequate nutrition to maintain physical growth and development. An infant or child becoming malnourished as the result of parental or caregiver neglect creates concern about child maltreatment.¹ In its extreme form, FTT secondary to neglect may be fatal. This clinical report is not intended to be a thorough review of FTT but serves as a guide for the assessment, management, and support of children with FTT as a manifestation of child neglect.

DEFINITION OF FTT

FTT is a significantly prolonged cessation of appropriate weight gain compared with recognized norms for age and gender after having achieved a stable pattern (eg, weight-for-age decreasing across 2 major percentile channels from a previously established growth pattern; weight-for-length < 80% of ideal weight). This is often accompanied by normal height velocity.^{2,3} Despite these accepted definitions, caution must be applied when diagnosing FTT on the basis of percentile shifts, because growth variants are common.⁴ Actual weight <70% of predicted weight-for-length requires urgent attention. It is recognized now that earlier distinctions between organic and nonorganic FTT are overly simplistic and not clinically

appropriate,⁵ because many patients exhibit components of both. See the *Pediatric Nutrition Handbook*³ from the American Academy of Pediatrics for a thorough discussion of FTT.

INCIDENCE AND CAUSAL FACTORS

The fundamental cause of FTT is nutritional deficiency. Poverty is the greatest single risk factor for FTT worldwide and in the United States.^{6,7} FTT can be unintentional, occurring with breastfeeding difficulties, errors in formula preparation, poor diet selection, or improper feeding technique. FTT can also be caused by organic diseases including but not limited to cystic fibrosis, cerebral palsy, HIV infection or AIDS, inborn errors of metabolism, celiac disease, renal disease, lead poisoning, or major cardiac disease. FTT may result if caregivers who are referred for assistance fail to avail themselves of community resources and/or assistance.⁸ FTT is often multifactorial, involving some combination of infant organic disease, subtle neurologic and/or behavioral problems, dysfunctional parenting behaviors, and parent-child interactional difficulties.⁹ Feeding difficulties, oral-motor dysfunction, food aversion, and/or appetite control often compound the problem.^{10,11} The malnutrition in children with FTT can lead not only to impaired growth but also to long-term deficits in intellectual, social, and psychological functioning.^{12,13}

When FTT is caused by child neglect, certain risk factors are often present. When considering neglect, the pediatrician should assess each risk factor in the context of each family's unique situation. The parent(s) of an infant with FTT may exhibit inadequate adaptive social interactional behavior and less positive affective behavior. The parent may be an adolescent or may have a history of abuse as a child.^{14,15} The infant with FTT is often born preterm or with low birth weight and may have been separated from caregivers because of prolonged hospitalization during the perinatal period. Family and social factors that may contribute to neglect include the lack of available extended family to help with child rearing, social isolation of the family, substance abuse, family violence, single parenthood, and employment instability. Parents in middle-class and affluent circumstances or parents engaged in career development or activities away from home also may lack the emotional strength or maturity to nurture their infants

The guidance in this report does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.
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appropriately.^{14,15} Any of these factors may lead to inconsistent feeding patterns with decreased nutrition, decreased growth, and additional family stress.¹⁶ In toddlers and older children, decrements in the rate of growth in weight and height are more frequently ignored or too easily ascribed to intercurrent illness. Pediatricians should be aware of the potential for neglect of children of any age.

Infant-caregiver attachment issues may be an important component of FTT. Disturbances in attachment may predict several problems in infant and child development.¹⁷ FTT is not synonymous with disturbed attachment; many children fail to thrive without attachment disturbances, and many children with attachment disturbances grow normally. Nevertheless, many factors contributing to FTT (poverty, maternal depression, neglect) also increase the risk of attachment disturbances. Because infants with FTT may be at risk of clinical disturbances of attachment, pediatricians should consider consultation with mental health professionals who can assist in evaluating infant-caregiver attachment.¹⁸⁻²⁰

Psychosocial short stature, a variant of FTT, has been described as short stature out of proportion to the decreased weight. This syndrome is thought to result from major emotional and psychological trauma. It has been associated with pituitary and hypothalamic dysfunction, possibly with interactions with nutrient deficiencies, which is frequently reversible when the child is placed in a nurturing environment.²¹

ASSESSMENT

Most children with FTT can be assessed by a general pediatrician with the help of professionals in other disciplines. The clinical evaluation for FTT should include a comprehensive history, physical examination, feeding observation, and a home visit by an appropriate health professional. For breastfed infants, an observation of feeding should include an evaluation of the mother's breastfeeding technique and the infant's response to feeding and be conducted by a professional specifically trained in lactation counseling and assessment. Laboratory and radiologic studies are frequently unnecessary. A multidisciplinary approach involving nursing, social services, and dietetics personnel is essential when children with FTT fail to recover and sustain normal growth velocity after treatment interventions.^{22,23}

History

A thorough review of the child's family history should include genetic conditions, growth histories, endocrine disorders, caregivers' knowledge of normal growth and development, family function, eating patterns, types of food available in the home, and family stressors. The child's parents should be queried about personal history of abuse, eating disorders, psychopathology, alcohol use, drug use, domestic violence, and stress; their social skills, nutritional beliefs, and positive assets also should be considered in the evaluation.

The child's medical history should include a general review of systems, current medications, allergy

history, feeding history, 72-hour dietary record, gastrointestinal symptoms, travel history, feeding routines, feeding skills, time required to feed, behavior during feedings, sleep patterns, developmental history, daily routine, gestational and prenatal history, and history of organic disease. Information obtained from all child care providers should include a history of eating patterns, interactions, social skills, responses to the providers, and family concerns.

Physical Examination

The physical examination should include documentation of past and present growth parameters, including head circumference, using appropriate growth charts. General examination should include a search for major and minor anomalies, careful neurologic examination, assessment of suck-swallow coordination, and observation of the child's developmental skills and responses and interactive behaviors with parents and examiners.

Feeding Observation

A feeding observation can be performed in the office but is enhanced as part of a home visit. Feeding behavior, the child's oral interest or aversion, and parent-child interactions before, during, and after feeding should be observed and recorded.

Laboratory Testing

When history, comprehensive physical examination, feeding observations, and home visitation do not reveal an obvious cause of FTT, laboratory testing may be performed to rule out organic disease and ascertain nutritional deficits. Testing should be performed if there are concerns arising from the history or physical examination; however, the yield of positive laboratory data are <1%.²³

RECOGNITION OF FTT SECONDARY TO NEGLECT OR ABUSE

The risk factors that should alert the pediatrician to the possibility of neglect as the cause of FTT include:

- parental depression, stress, marital strife, divorce;
- parental history of abuse as a child;
- mental retardation and psychological abnormalities in the parent(s);
- young and single mothers without social supports;
- domestic violence;
- alcohol or other substance abuse;
- previous child abuse in the family;
- social isolation and/or poverty;
- parents with inadequate adaptive and social skills;
- parents who are overly focused on career and/or activities away from home;
- failure to adhere to medical regimens;
- lack of knowledge of normal growth and development; and/or
- infant with low birth weight or prolonged hospitalization.

Moreover, concerns of abuse or neglect should be raised during the course of intervention and monitored if the following become evident:

- Intentional withholding of food from the child;
- Strong beliefs in health and/or nutrition regimens that jeopardize a child's well-being; and/or
- Family that is resistant to recommended interventions despite multidisciplinary team approach.

TREATMENT AND MANAGEMENT

FTT in the young infant and toddler must be considered a medical emergency if the growth curve documents weight <70% of the predicted weight-for-length.¹⁵ Guidelines on management of less severe cases of FTT are listed in the *Pediatric Nutrition Handbook*³ from the American Academy of Pediatrics. Because early malnutrition can have severe deleterious effects on early brain development, prompt recognition of severe cases is essential.²⁴ After resolution of urgent, life-threatening medical conditions, the priority in an evaluation of FTT is a period of observation of at least several weeks to monitor intake, output, growth, feeding style, interactions, and infant/child characteristics. Historically, this has taken place in a hospital but may be better situated in a home environment, possibly including a foster home, until the cause of the FTT is determined.

Despite current economic and managed care constraints, inpatient care is justified for a child with severe FTT and/or if abuse or neglect is suspected. In contrast to other children, a child with FTT secondary to neglect may eagerly eat in the protective and predictable hospital environment. Liberal intake and above-average weight gain observed in the hospital support a diagnosis of neglect as an underlying cause of the FTT. When appropriate, pediatricians should advocate for inpatient care with managed care plan personnel, because hospitalization has been shown to significantly improve outcome in some cases.²⁵ However, FTT needs to be considered a chronic process, and interventions need to be long-term.

Severely malnourished children may be anorectic and weak. The institution of adequate caloric intake may be difficult. Moreover, institution of increased feedings may initiate significant metabolic problems, known as refeeding syndrome. Guidelines for diagnosis and management of this condition are available elsewhere.²⁶ Nutritional guidance and occupational and/or oral-motor evaluation by a speech therapist regarding effective feeding techniques are invaluable. Parents should be involved in all aspects of the treatment program and should be provided with support and education, empowering them to fulfill the care plan.

Suspicion of child maltreatment must lead to a report to the appropriate child protective services agency. The pediatrician must adequately document interventions that have been attempted, specific instructions to parents, evidence of parental understanding of the instructions, evidence of parental understanding of the potential adverse consequences to the child, and evidence of parental failure to adhere to nutritional and feeding recommendations.

Intervention by child protective services agencies may increase parental compliance or allow for addi-

tional support services such as child care, counseling, and home visitation. If aggressive interdisciplinary intervention fails to correct the weight to safe levels (>80% of predicted weight-for-length) and maintain weight gain, then placement in foster care may be the only alternative. Education and training of foster parents regarding feeding and the importance of close social interaction are mandatory. The involvement of the pediatrician during all phases of protective service intervention is essential.

GUIDANCE FOR THE PEDIATRICIAN

1. Pediatricians are encouraged to recognize that child neglect is among the many causes of FTT.
2. Pediatricians are strongly encouraged to consider child abuse and neglect and to report cases of FTT that do not resolve with appropriate interventions.

CONCLUSIONS

FTT usually can be evaluated by the office-based pediatrician with minimal laboratory tests and medical interventions. However, for infants with FTT who are suspected to be victims of abuse and neglect, aggressive multidisciplinary intervention is required in either an inpatient or outpatient setting. Close follow-up from a multidisciplinary team and home visitors who are respectful and supportive of the family are important components of assessment and treatment. FTT as a consequence of abuse or neglect must be considered in families with profiles indicating a high risk of abuse and in families that consistently fail to adhere to the recommended interventions or are unable to maintain a safe environment for their child.

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REFERENCES

1. Berkowitz CD. Fatal child neglect. *Adv Pediatr*. 2001;48:331-361
2. Zenel JA Jr. Failure to thrive: a general pediatrician's perspective. *Pediatr Rev*. 1997;18:371-378
3. American Academy of Pediatrics. Failure to thrive (pediatric undernutrition). In: Kleinman RE, ed. *Pediatric Nutrition Handbook*. 5th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2003:443-457
4. Mei Z, Grummer-Strawn LM, Thompson D, Dietz W. Shifts in percentiles of growth during early childhood: analysis of longitudinal data from the California Child Health and Development Study. *Pediatrics*. 2004;113(6). Available at: www.pediatrics.org/cgi/content/full/113/6/e617
5. Frank DA, Zeisel SH. Failure to thrive. *Pediatr Clin North Am*. 1988;35:1187-1206
6. Frank DA, Silva M, Needman R. Failure to thrive: mystery, myth, and method. *Contemp Pediatr*. 1993;10:114-133
7. Casey PH. Failure to thrive. In: Levine MD, Carey WB, Crocker AC, eds. *Developmental-Behavioral Pediatrics*. 2nd ed. Philadelphia, PA: WB Saunders; 1992:375-383
8. Kessler DB, Dawson P. *Failure to Thrive and Pediatric Undernutrition: A Transdisciplinary Approach*. Baltimore, MD: PH Brookes Publishing; 1999
9. Bithoney WG, Dubowitz H. Organic concomitants of nonorganic failure to thrive: implications for research. In: Drotar D, ed. *New Directions in Failure to Thrive*. New York, NY: Plenum Press; 1985:47-68
10. Reilly SM, Skuse DH, Wolke D, Stevenson J. Oral-motor dysfunction in children who fail to thrive: organic or non-organic? *Dev Med Child Neurol*. 1999;41:115-122
11. Ramsay M, Gisel EG, Boutry M. Non-organic failure to thrive: growth failure secondary to feeding-skills disorder. *Dev Med Child Neurol*. 1993;35:285-297
12. Drotar D, Sturm L. Prediction of intellectual development in young children with early histories of nonorganic failure-to-thrive. *J Pediatr Psychol*. 1988;13:281-296
13. Skuse D, Pickles A, Wolke D, Reilly S. Postnatal growth and mental development: evidence for a "sensitive period." *J Child Psychol Psychiatry*. 1994;35:521-545
14. Weston JA, Colloton M, Halsey S, et al. A Legacy of violence in nonorganic failure to thrive. *Child Abuse Negl*. 1993;17:709-714
15. Oates RK, Kempe RS. Growth failure in infants. In: Helfer MA, Kempe RS, Krugman RD, eds. *The Battered Child*. 5th ed. Chicago, IL: University of Chicago Press; 1997:374-391
16. Drotar D, Pallotta J, Eckerle D. A prospective study of family environments of children hospitalized for nonorganic failure-to-thrive. *J Dev Behav Pediatr*. 1994;15:78-85
17. Greenberg MT. Attachment and psychopathology in childhood. In: Cassidy J, Shaver PR, eds. *Handbook of Attachment: Theory, Research, and Clinical Applications*. New York, NY: Guilford Press Inc; 2002:469-496
18. Coolbear J, Benoit D. Failure to thrive: risk for clinical disturbance of attachment? *Infant Ment Health J*. 1999;20:87-104
19. Boris NW, Aoki Y, Zeanah CH. The development of infant-parent attachment: considerations for assessment. *Infants Young Child*. 1999;11:1-10
20. Zeanah CH, Boris NW. Disturbances and disorders of attachment in early childhood. In: Zeanah CH, ed. *Handbook of Infant Mental Health*. 2nd ed. New York, NY: Guilford Press; 2000:353-368
21. Krieger I, Mellinger RC. Pituitary function in the deprivation syndrome. *J Pediatr*. 1971;79:216-225
22. Bithoney WG, Dubowitz H, Egan H. Failure to thrive/growth deficiency. *Pediatr Rev*. 1992;13:453-460
23. Sills RH. Failure to thrive: the role of clinical and laboratory evaluation. *Am J Dis Child*. 1978;132:967-969
24. Ramey CT, Ramey SL. Prevention of intellectual disabilities: early interventions to improve cognitive development. *Prev Med*. 1998;27:224-232
25. Fryer GE Jr. The efficacy of hospitalization of nonorganic failure-to-thrive children: a meta-analysis. *Child Abuse Negl*. 1986;12:375-381
26. Solomon SM, Kirby DF. The refeeding syndrome: a review. *JPEN J Parenter Enteral Nutr*. 1990;14:90-97

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Chase M. *Wall Street Journal*. August 29, 2005

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