An Occupational Therapy Protocol for Assessing Infants and Toddlers Who Fail to Thrive

(Child development disorder, feeding behavior, growth, assessment)

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Failure to thrive (FTT) is a diagnosis associated with children whose rate of growth is deficient for their age. Although both height and weight must be below the third percentile for a determination of FTT, weight is characteristically more deficient than height (1).

FTT may be classified as organic or nonorganic (2). Organic FTT, which occurs as a result of congenital anomalies such as cleft palate, cardiac malformation, or esophageal stricture, may lead to retarded growth and development. Perinatal trauma such as anoxia or asphyxia, and other causes of severe central nervous system damage may also lead to organic FTT. Congenital, neuromotor, and other systemic or metabolic disturbances such as cystic fibrosis, diabetes, or enzyme deficits may lead to mechanical, malabsorption, or utilization deficits that ultimately affect nutritional intake and growth (R. J. Blattner, personal communication, October 22, 1981).

Nonorganic FTT is more difficult to assess (5-4); it accounts for approximately 50% of hospitalized children who are failing to thrive. Those infants and toddlers whose condition is diagnosed as nonorganic FTT do not reveal specific disease states, and their growth retardation is not caused by known structural or functional deficits. Some examples of situations which may result in nonorganic diagnoses include: atypical feeding practices with resultant nutritional deprivation; environmental deprivation; child abuse or parent-infant asynchrony (3-7). A nonorganic diagnosis is confirmed if a measurable increase in weight or developmental status occurs solely as a result of nurturing and improved caloric intake (5, 4).

Upon hospital admission infants and toddlers suspected of having either organic or nonorganic FTT frequently present similar clinical symptoms. These include malnutrition, dehydration, frequent vomiting, diarrhea or constipation, atypical social responses, delayed development, and inadequate or irregular feeding behaviors (6).

Although it is the physician's role to make the final diagnosis of or...
ganic versus nonorganic FTT, the occupational therapist may facilitate the diagnostic process by identifying distinguishing behaviors during the assessment period. For example, an infant with an organic deficit such as CNS damage may exhibit atypical response patterns such as increased irritability, unwillingness to be cuddled, or negative reaction to touch. These responses can lead to anxiety-producing interactions between infant and caretaker; because the caretaker is experiencing frustration during interactions with the baby, he or she may make a subconscious decision to make fewer attempts to interact or show a lack of effort or enthusiasm during encounters. Such behaviors may contribute significantly to the FTT condition (5). Thus, FTT behaviors that appear to result from nonorganic causes (8) must be carefully scrutinized because they may be interactional stresses superimposed on an existing organic deficit. The evaluator who understands the differences and similarities between the organic and nonorganic diagnostic categories can more readily analyze assessment information. Obtaining a thorough birth, neonatal, and family history should “include scrutiny of soothing, crying and other clinical situations which result in mind developmental-behavioral deviations” (p. 65). In addition, the ideal history should “include scrutiny of soothing, crying and other clinical situations which result in mind developmental-behavioral deviations” (p. 65). White and associates (9) recommended that the comprehensive medical management for children who fail to thrive "include a standardized developmental assessment, supplemental stimulation techniques, and evaluation of maternal-child interaction" (p. 114). Drotar, Malone, and Negray (10) describe cognitive deficits in a post-discharge study of FTT children and suggest that current programming for this population lacks intensity, duration, and follow-up. They support Hulton and Oates' (11) earlier assertion that treatment programs have not fully addressed the developmental needs of the FTT population.

Protocol

The occupational therapy protocol presented here is the product of three years of clinical practice during which comprehensive team evaluations were performed with a large FTT patient population. The protocol aims to identify those problems and characteristics of the FTT condition that are observed repeatedly, with uncanny similarity, but have never been addressed in pediatric course work, texts, or continuing education. The protocol enables a comprehensive assessment of FTT children and takes into account the evaluative and treatment suggestions that have been presented in the literature noted above. The protocol can also be used to develop treatment strategies.

The protocol has two sections, one for infants (see Figure 1) and one for toddlers (see Figure 2). The protocols list questions relevant to the child's age group as well as to specific clinical issues commonly observed in the FTT population.

Infant Assessment

To determine the etiology of their growth failure the infants are observed in a variety of situations and undergo a developmental assessment. The occupational therapist provides evaluative information that will help support an organic, nonorganic, or combined diagnosis of FTT.

The occupational therapist may support an organic diagnosis by evaluation results that include adequate infant-caretaker interactions but poor feeding behaviors,
Figure 1

**Occupational Therapy Protocol for Infants Who Fail to Thrive**

**Part I. Clinical Observations**

**A. Caretaker-Infant Interaction**

1. **Play**
   - (a) methods and materials used by caretakers
   - (b) mood of infant during play
   - (c) affect, tempo, reciprocity between infant and caretakers

2. **Feeding**
   - (a) history (poor feeder since birth or recently acquired problem?)
   - (b) environmental setup (feeding schedules, nutritional aspects, developmental expectations, and caretaker's perceptions of feeding difficulties)
   - (c) procedures
     - (1) positioning
     - (2) methods (tools used, approaches used during poor feeding episodes, time required for feeding)

**B. Therapist-Infant Interaction**

1. **Overall Responsiveness** (nonresponsive, listless, apathetic, or readily engaged?)
2. **Level of Irritability**
   - (a) situations that cause irritable behaviors
   - (b) ability to be soothed when distressed
3. **Avoidance Responses** (fleeting eye contact, turning head, vacant stares)
4. **Posturing and Movement Patterns**
   - (a) activity level
   - (b) perseveration of midline play and oral play
   - (c) primitive posturing, rigidity, pushing away from adult
   - (d) does not cuddle
5. **Deficient or Atypical Oral-Motor Functions**
   - (a) primitive oral reflexes
   - (b) oral-tactile hypersensitivity
   - (c) suck-swallow pattern

**Part II. Developmental Assessment (of choice)**

A. **Revised Gesell Developmental Schedules**
B. **Sewell Early Education Developmental Profile**
C. **Vulpe Assessment Battery**


which may later be determined to be caused by anatomical and/or physiological conditions such as gastroesophageal reflux or cystic fibrosis.

Because nonorganic FTT is substantiated by an infant’s increased growth due solely to increased environmental stimulation and nurturing, the therapist is often asked to begin an intervention program before the definitive diagnosis has been made.

A combined diagnosis is also quite common, because, as previously addressed, an undetected organic deficit may predispose the infant and caretaker to multiple stressors. Because feeding issues often appear as the presenting problem in both organic and nonorganic diagnoses, the evaluator also needs to utilize observations of posture, play, and interactional behaviors when assessing potential etiological information.

**Caretaker-Infant Interaction**

Caretaker-infant interactions are initially observed during informal play in the patient’s room or in the occupational therapy clinic. The patient’s room permits a view of the ways in which the caretaker independently entertains the infant. Members of a nurturing family who are anticipating a lengthy hospital stay may bring favorite toys such as rattles, mobiles, stuffed animals, and music boxes from home to compensate for the decreased stimulation in a hospital room.

It happens frequently that parents of FTT infants attempt to stimulate their child but cannot express the appropriate affect or achieve the appropriate tempo in the activity (12). Some play with their infants intermittently or teasingly, position them uncomfortably, or have unrealistic expectations of them for their age (i.e., expect them too early to hold their own bottle). Parents may also overstimulate their infant, interrupt brief nurturing episodes with atypical intrusions, and may seem unaware of the cues the infant is giving (5-7, 12). The synchrony of interaction between the infant and the caretaker is seen as the result of active involvement by both partners (5, 13, 14). Heightened arousal levels, pleasurable facial expressions, and the absence of vas- cillating mood swings during play are positive signs indicating the infant’s ability to engage in synchronous interactions with the caretaker.

Observations of interactions in play are followed by an assessment of the interactions during feeding. A verbal feeding history is taken to determine when feeding problems were first noted and what the parents perceive as causing the growth
failure. Some parents deny that feeding problems exist, state that the child eats quite well at home, or believe there is an organic reason for the problem such as esophageal stricture. Frequently the therapist will discover that the parents of an infant who had suck-swallow problems since birth were never instructed in therapeutic feeding techniques. Some caretakers do not know what is normal in terms of feeding amounts, quantities, and frequencies or when to introduce solid foods. Sometimes the introduction of a new nipple may result in a dramatic change in caloric intake, or the caretaker learns how to position or burp the infant more effectively.

The history is most helpful when it is accompanied by an observation of actual feeding procedures. How do the parents get the infant to eat when he or she refuses, displays a weak suck, or cannot swallow? Do they cut holes in the nipple, do they resort to infant feeders that shovel the contents into the child? How much time is involved in the feeding process? Is the infant burning up the few calories consumed during feeding episodes that last an hour or more? It is important to specifically ask if these practices have ever been attempted, as parents will generally not offer this kind of information spontaneously. What are the parents’ and the infant’s responses to each other during feeding? Is feeding tense and uneasy or do the parents attempt to appropriately engage in interactive play? Does the infant respond to the caretaker or is there apathy and disinterest? Is the infant held with its face or with its back to the caretaker? Is the infant fed semi-inclined while supine or in an infant seat with little human contact? All these observations may help substantiate etiological factors in the growth retardation.

Therapist-Infant Interaction

Interacting with the infant alone will allow the therapist to observe similarities and differences in interactional patterns between the infant and nonfamilial adults. It may also help the therapist to assess behavioral, movement, and oral manifestations more closely.

The behaviors and postures of FTT infants have been discussed by several authors (3, 5, 6, 8, 15). Careful observations need to be made of the infant’s overall responsiveness, level of irritability, and blatant avoidance maneuvers. FTT infants characteristically appear listless and apathetic, do not respond to human interaction, and cannot be soothed when they are distressed. It may also be noticed that they avoid eye gaze by turning the head or make only fleeting eye contact. Atypical posturing and movement patterns are characterized by generalized inactivity, persistent and primitive lower extremity flexion postures at hip and knees, and an asymmetrical posturing of one arm (elbow and shoulder are flexed with the hand resting on or above the forehead). There may also be a tendency toward perseveration of midline play of the hands with concomitant adduction of the arms against the trunk. Excessive visual or oral fixation is also commonly observed: These infants exhibit prolonged vacant stares and/or perseveration of sucking on hands or fingers. The infant’s unwillingness to be cuddled—the infant seems rigid, is hard to hold, or actually pushes away from the adult—also indicates atypical posturing.

In addition to assessing the frequent appearance of excessive oral self-stimulation the therapist also assesses other oral domains, including the existence of primitive reflexes, tactile hypersensitivity, or the infant’s aversion to oral input by anyone other than himself or herself. Finally, the effectiveness and strength of the suck-swallow pattern are determined.

Developmental Assessment

Development is assessed to identify overall delays and to establish a baseline for determining treatment effectiveness. The Gesell, Sewell, and Vulpe assessments (16–18) are recommended because they have sufficient test items per category to obtain reliable diagnostic information. The Vulpe and Sewell are especially helpful because they include environmental factors, feeding behaviors, and personal-social components.

Toddler Assessment

The clinical picture of the FTT toddler is characterized by poor feeding skills, which appear to be the result of behavioral deficits. A thorough assessment of past and present feeding abilities is beneficial in determining whether the feeding problem is a result of environmental factors alone or whether undetected (or untreated) neuromotor deficits are partially responsible.

Because the therapist evaluating the FTT toddler may encounter maladaptive behaviors (e.g., vomiting at the site of food) and because the assessment of infants is focused on interactional behaviors or feeding problem identification, a separate protocol for toddlers is used.

Verbal Feeding History From Parents

A verbal feeding history from the parents will give insight into
Parents describe, sometimes painfully, their attempts to get their child to eat. These attempts may include cutting holes in nipples or using infant feeders during infancy, bribery, physical assistance, spanking, or giving in to their toddler by offering nonnutritious food substitutes. Some parents have force-fed their noncompliant child. The therapist must discuss this practice in a nonjudgmental way, because most parents feel guilty about having used it. Parents often report having been encouraged to force-feed their child by a relative, friend, or health care provider, as a last resort.

A history of tube feedings (with nasogastric or gastrostomy tubes) provides both assessment insight and meaningful treatment implications. Oral hypersensitivity is common with children who have experienced oral deprivation for an extended period of time (19).

The history concludes with a parent's description of the current feeding environment in the home. Who is the primary feeder? How is the child approached at feeding time? Is the approach consistent and what are the consequences when the child refuses to eat? What is expected of the child? Does the child sit in a high chair or at the table? Is he or she coaxed into eating with a permission to eat in front of the TV, for instance? Knowing the child's favorite foods is helpful because it enables the therapist to offer during the actual feeding evaluation those foods the child (reportedly) is most likely to consume. Discrepancies are noted when the toddler refuses to eat the foods or liquids described as favorites. What is the general tone of the feeding environment? Is feeding always a struggle? What does a typical mealtime look like? Often, current problem areas. Parents are often exasperated by the futility of their attempts to get their child to eat. They may state that their child will eat sweets or certain preferred textures but gag at the sight of meat. Many parents believe their child's feeding problems are organically based and will describe their child's difficulties with swallowing, chewing, or drinking in great detail. The task is to determine if the toddler has had feeding problems since birth or if these appeared only recently. (It is unusual for a toddler to have organic FTT without having a history of previous feeding difficulties.)
The finding that parents were overly assertive in their attempts to
organize their child's extreme chewing, squirreling food in the
desire of messy hands and a messy reaction toward being messy.

Maladaptive feeding behaviors include breath holding, gagging,
spitting, or volitional vomiting at the sight of food. Other behaviors
frequently observed are perpetual chewing, squirreling food in the
cheeks, or attempts to hide food when the examiner is not looking.
Children may readily eat favorite foods such as candy, chips, or soda
pop, but refuse to eat vegetables, fruits, meats, or milk.

The child's reaction to his or her own soiled face and hands is noted,
because this may help distinguish between maladaptive behavior and
organic deficit. A child's extreme dislike of messy hands and a messy
face may reflect the parents' negative reactions toward being messy.
The finding that parents were overly assertive in their attempts to
make their children "clean eaters" provides direction for the treat-
ment planning, which may include parent education regarding the
normal sensory aspects of feeding.

The observation of primitive or atypical oral-motor skills during
the parent-child feeding assessment will help define the areas
needing further investigation. The evaluation focuses on the develop-
mental aspects of feeding, keeping the child's age in mind. Is the child
drinking from a cup and using utensils, or is he or she still being
bottle-fed and using fingers? Is there profuse drooling, a tongue
thrust, or poor lip closure? Subtle neuromotor delays may be re-
lected in the oral area, but findings should be identified as either
neuromotor deficits or behavioral manifestations. Many toddlers with
a diagnosed FTT condition appear to have a tongue thrust, dysphagia,
or a hyperactive gag reflex; they are frequently referred to occupa-
tional therapy for oral-motor assessment, but findings suggest be-
avioral etiologies instead. Appropriate treatment planning is then
possible.

The social-emotional atmosphere during feeding is assessed to
ascertain the feelings of both par-
ents and the child surrounding
feeding issues. How do the parents
feel about being observed and
about the fact that the child needs
to be hospitalized? Parents may
contradict each other in their per-
ceptions of the hospitalization, and
other familial conflicts may sur-
face. This information may be ben-
eficial for other team members
working with the family, and it pro-
vides a more realistic impression of
the child's home environment.

The interaction between the tod-
der and the parent is a two-way
process, and psychosocial issues
need to be examined with that per-
spective. A child who exhibits se-
vere maladaptive feeding behav-
iors in the absence of oral motor
dysfunction is telling us that some-
ting is very wrong. Parents may
appear suspicious of the assessment
process and may try to sabotage the
therapist's attempts to gain infor-
mation or to treat effectively. It is
important to remember that FTT
can occur in children from all socio-economic levels and that for
this reason, all families must be evaluated with equal thorough-
ness.

Therapist-Child Feeding Strategies

After the parent-toddler feeding observation has been completed, a
feeding evaluation with the child alone is scheduled to determine
similarities and/or differences in the feeding skills and behaviors of
the child when parents are absent. In some instances toddlers will eat
more effectively with a nonfamiliar adult than with the primary care-
taker; more commonly, they will exhibit similar behaviors with all
persons who attempt to feed them. Feeding evaluations are more rel-
levant if they are completed at regularly scheduled mealtimes. Coop-
eration from dietary and nursing services is needed so that the child
is not fed prior to the therapist's arrival. Toddlers often prefer non-
nutritious foods over the nutritious foods that are served at mealtimes.
Hence the parents must be encour-
aged not to give in to the child's desire for snacks prior to the eval-
uation. It is important to evaluate the child when he or she is hungry.

Ascertaining Motivational Activities

Because many toddler who fail
to thrive do so as a result of behav-
ioral feeding problems, motivating
play and social reinforcers are iden-
tified during the evaluation. These
reinforcers may be favorite toys
such as stuffed animals or books,
favorite games such as piggyback,
or activities such as going to the
zoo, on a picnic, or to a play-
ground. These reinforcers may

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eventually be used in the treatment phase as rewards for improved eating behavior (20). When taking a play history (21), the therapist includes information about people or places that are important to the child. Some children are especially attached to a grandparent or have favorite playmates who may serve as effective reinforcers during the treatment phase.

Developmental History and Assessment

Finally, a developmental history (a simple checklist) is obtained from the parents and a developmental examination of the toddler is performed. As with the infant assessment, this information may be used (a) to substantiate delays that are organically based or (b) to determine whether delays are products of the growth failure itself. The developmental examination gives a baseline from which to assess future progress (16–18).

Summary

This paper reviewed the possible etiologies of FTT and the distinctions between organic and nonorganic diagnoses. Guiding questions helpful in evaluating FTT infants and toddlers were presented in an assessment protocol. Most of the evaluative questions used in the protocol have been derived from clinical experience. Feeding issues and interactional behaviors commonly observed in FTT children and their parents were reviewed to facilitate problem definition during the assessment process. The protocol attempts to define the interrelationships of factors that may influence growth retardation.

REFERENCES