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 (3-4); 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 (3, 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 interactivityal 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 will be beneficial to the occupational therapist and the diagnostic process, particularly when feeding issues and interactional behaviors of the infant and caretaker(s) are emphasized.

**Review of Literature**

The occupational therapy literature does not specifically address the FTT population. However, in the child psychology literature, Roberts and Horner (6) include occupational therapy evaluation and treatment as part of their comprehensive intervention program. Other authors describe recommended intervention methods and advocate the implementation of these methods by varied, yet non-specified, health care providers (7). Low (8), an occupational therapist, briefly referred to her role in the evaluation and treatment of infants diagnosed as having nonorganic FTT, but provided no guidelines to follow. Although most authors advocate a thorough evaluation and treatment, as well as a team approach (1-3, 5-9) few of them specifically address the question of assessment protocols for FTT children, and there are no such guidelines for occupational therapy practice.

**Protocol Rationale**

Several authors have recommended sources for the FTT population that reflect the developmental, psychosocial, and holistic orientation inherent in occupational therapy practice. Casey (5), for example, suggests that a careful history be obtained during the diagnostic evaluation of these children concerning the infants’ early behavioral and feeding style (suck, swallow)” (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,
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†


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 care giver is seen as the result of active involvement by both partners (5, 13, 14). Heightened arousal levels, pleasurable facial expressions, and the absence of vas­sillating mood swings during play are positive signs indicating the infant’s ability to engage in synchronous interactions with the care giver.

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 non-organic diagnoses, the evaluator also needs to utilize observations of posture, play, and interactional behaviors when assessing potential etiological information.

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.
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 toward 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
Occupational Therapy Protocol for Toddlers Who Fail to Thrive

Part I. Clinical Observations
A. Verbal Feeding History from Caretakers
   1. Description of Current and Past Feeding Difficulties
      (a) unusual or exclusive food preferences
      (b) caretaker's perception of poor feeding skills
      (c) infant feeding patterns of the toddler
   2. Feeding Practices Used (infant feeders, bribery, punishment, force feeding)
   3. History of Tube Feeding (gastrostomy, nasogastric tube)
   4. Current Feeding Environment
      (a) who is primary feeder, what are feeding expectations?
      (b) mealtime characteristics, consistency of approach, and consequences for refusal to eat
      (c) caretaker's perceptions of child's favorite foods

B. Parent-Child Feeding Practices
   1. Avoidance Responses (turning head, crying, pushing food away, feigning the need to potty)
   2. Maladaptive Feeding Behaviors (vomiting at sight of food, gagging, spitting, throwing food or utensils, breath holding, negative reaction to soiled hands, and face)
   3. Primitive or Atypical Oral Motor Skills
      (a) deficient feeding skills for age?
      (b) drooling, tongue thrust, hyperactive gag reflex
   4. Social-Emotional Aspects of Feeding
      (a) attitudes toward feeding and hospitalization
      (b) parental contradictions regarding feeding issues

C. Therapist-Child Feeding Strategies (similarities and/or differences in feeding behaviors with nonfamiliar adult)

Part II. Ascertaining Motivational Activities for the Toddler
A. Play
   1. Toys, Objects
   2. Games, Activities

B. People or Places

Part III. Developmental History and Assessment
A. Parent-Reported Developmental History
B. Developmental Assessment (of choice)
   1. Revised Gesell Developmental Schedules*
   2. Vulppe Assessment Battery **
   3. Sewell Early Education Developmental Profile†


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.)

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,
parental frustrations are poignantly expressed during this portion of the interview.

Observation of Parent-Child Feeding Practices

By observing an actual feeding session the therapist can determine the behaviors that are being used by the parent(s) and the child and obtain diagnostic clues or remediation ideas.

Avoidance responses, if present, will be obvious. Children may turn their head when food is presented, push food away, play with the food, or if they are verbal, state their displeasure aggressively. Other avoidance tactics may include throwing a tantrum, feigning the need to "potty," or simply closing the mouth in refusal.

Maladaptive feeding behaviors include breath holding, gagging, choking, 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. The child 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 treatment 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 developmental 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 reflected 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 occupational therapy for oral-motor assessment, but findings suggest behavioral etiologies instead. Appropriate treatment planning is then possible.

The social-emotional atmosphere during feeding is assessed to ascertain the feelings of both parents 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 perceptions of the hospitalization, and other familial conflicts may surface. This information may be beneficial for other team members working with the family, and it provides a more realistic impression of the child's home environment.

The interaction between the toddler and the parent is a two-way process, and psychosocial issues need to be examined with that perspective. A child who exhibits severe maladaptive feeding behaviors in the absence of oral motor dysfunction is telling us that something is very wrong. Parents may appear suspicious of the assessment process and may try to sabotage the therapist's attempts to gain information 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 thoroughness.

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 caretaker; more commonly, they will exhibit similar behaviors with all persons who attempt to feed them. Feeding evaluations are more relevant if they are completed at regularly scheduled mealtimes. Cooperation 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 encouraged not to give in to the child's desire for snacks prior to the evaluation. It is important to evaluate the child when he or she is hungry.

Ascertaining Motivational Activities

Because many toddlers who fail to thrive do so as a result of behavioral feeding problems, motivating play and social reinforcers are identified 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 playground. These reinforcers may
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**