

## The Transition from Finger Feeding to Utensil

# The Transition from Finger Feeding to Utensil Use A Systems Approach

By Rhoda P. Erhardt

*This is the third article of a three-part series that have examined various elements involved in the self-feeding process, and how occupational therapists can help children improve self-feeding skills. The first two installments appeared in the Aug. 23 and Sept. 6, 1999, editions of ADVANCE.*

The child's progression toward independent feeding is usually viewed as a series of developmental sequences in oral motor and fine-motor skills during finger feeding and utensil use. In fact, this complex task requires developmental readiness in other domain areas as well. Mouth and hand skills are always interwoven with gross motor, visual, cognitive, communicative, and emotional/ social development. When we view independent feeding from both horizontal (across systems) and vertical (developmental sequences) perspectives, the rich context within which these skills develop is more clearly illuminated.

Broad developmental milestones that indicate a readiness for successful utensil use occur during the second year of life. Understanding the relationship of hand development to the use of feeding utensils provides ways for therapists to help young children with disabilities grow toward feeding independence.



### Eating Utensils as Tools

According to anthropologist Jane Goodall, a tool is an object that one holds in the hand, foot, or mouth to achieve a goal. One of the most widely used human tools is the spoon, introduced to a child in the second half of the first year as the infant is fed by an adult. Because the baby often attempts to take the spoon, the parent may provide another one for play at this time. During the second year most children demand to feed themselves entirely, despite their rather clumsy manipulation of this first important tool. The properties of tools (both form and substance) influence their function and their degree of effectiveness.

For example, the spoon's form includes a handle shaped to facilitate grasp and a bowl to contain food. The function of a fork is to stab food, thus the substance of the tines must be hard enough and sharp enough to penetrate specific foods, but not so sharp as to cut the mouth.

### Gross- and Fine-motor Development

The typical toddler's gross-motor development has reached the stage of independent standing and walking as well as sitting. Arm movements are direct and accurate because trunk and shoulder stability has developed during the process of moving up against gravity through kneeling, crawling, and walking with support. A high chair strap provides safety rather than support. But for the child with disabilities, inconsistent head and trunk control interferes with accurate arm and hand movements for self-feeding. Positioning to provide support and symmetry is the first crucial intervention.

Grasping and transporting the cup, spoon, or fork toward the mouth requires a high level of proximal upper-body control to provide a stable base for this distal fine-motor task. Preparation for independent utensil use takes place between 6 and 12 months, when the baby's hands adapt to the varied sizes and shapes of finger foods. Between one and two years, the baby learns to orient the hand even more precisely to the position of objects for which he or she is reaching and grasping.

Improved control will lead to appropriate placement of the hands around a cup and the ability to keep a spoon level, avoiding spillage. In early attempts, the child must rest one or both elbows or forearms on the tray or table for stability, but as shoulder and elbow control improve the working arm is held easily in space.

It is important to remember that for each new and difficult task (managing utensils of different shapes and functions), reversion to more stable postures may occur. Without internal and external stability a child with disabilities may continue to use components of early normal patterns which then block fine-motor development.

For example, the three-month-old baby's wrist is normally flexed, reinforcing finger flexion for early grasp. Wrist extension and flexibility usually replace that restrictive pattern by the time he is 9 or 10 months. But the child with disabilities often recruits excessive muscle tone to use this primitive pattern for function. A combination of stable positioning and neurodevelopmental treatment (NDT) techniques can help reduce spasticity in the entire arm as well as the wrist and facilitate more normal movement.

#### Visual Development

Although the visual and fine-motor systems are well integrated by the age of 1 year, eye-hand coordination continues to expand through experiences that require adaptation to increasingly complex environmental demands. Unless the task is novel or difficult, the baby does not need to visually monitor the hands continually while manipulating food or utensils. There is a more mature sensory-motor awareness.

However, the dynamic, changing relationship between eye, hand, and mouth always exists throughout the feeding process. For example, watching the spoon as it goes from dish to mouth will cease either right before, simultaneously as, or right after the mouth opens in anticipation of the spoon arriving. A younger baby opens her mouth almost immediately as the spoon is lifted from the dish, whereas the older baby waits until the spoon is closer to the mouth.

The child with motor and visual impairments may feel around for finger foods instead of using his eyes to direct his hands, because of poor head control in downward gaze. Therapists can integrate practice in repetitive downward gaze into activities such as transferring a series of blocks from the floor to a table during transitions from kneel to half-kneel to stand and down again.

#### Oral-motor Development

During the transition between dependent and independent feeding, oral-motor skills typically decline temporarily. (Without the parent controlling the flow of liquid, some loss occurs during cup-drinking because of the baby's inexperience in tilting the cup carefully, and because the child still has an incomplete lower lip seal. Similarly, although her lips are active in removing food from a spoon, she will still spill the food because she places it crudely in her mouth.) The child with delayed oral-motor development has not progressed to finely-graded and differentiated movements of mouth structures, and very often this also applies to hand skills. Of course, adapted cups with spouts help decrease spilling, especially during transport, but if the youngster tilts the cup too quickly while drinking, he should be given the opportunity to realize the cause and effect of those actions, in order to learn to grade movements more smoothly. Plenty of practice with spoon and fork can improve orientation to the mouth. Some children benefit from watching themselves eat in a mirror.

#### Cognitive Development

Successful manipulation of feeding utensils as tools depends on cognitive as well as motor skills, and is fundamentally a problem-solving exercise. The child is drawn by curiosity about the construction and function of utensils, and enjoys the sensory experience.

For example, toys with many pieces or kitchenware such as pots and pans, plastic containers and covers, large spoons and spatulas provide opportunities for valuable experimentation. This fascination with the interrelationships between objects leads to what Piaget termed "contents to container." Do objects look and act the same when placed in different positions: in and out, above, underneath, tilted, etc.? Can one object be used as a tool to get another? As children grow, their physical and mental capacities expand, improving the level and quality of their performance. They select more efficient strategies with maturity and practice. Of course, the ability to control eating utensils is also related to levels of proficiency across all developmental areas. Correction routines that will refine these skills usually appear toward the end of the second year, at the same time that the adult gradually transfers control of the feeding process to the child.

#### Communication Development

Communication emerges first through development of receptive language (dependent upon intellectual ability), and then expressive language (a complex motor skill). Early in the first year eating, social interactions, mouthing of toys, and body movements stimulate the baby to make sounds. In the second year this sound production becomes even more imitative, with inflections such as "uh-oh" and

other jargon that simulates real conversations because of its variety of intonations. Most toddlers produce several words at this time, and gradually begin to point to and name familiar objects. One word may represent an entire thought. For example, "wa-wa" may mean "I'm thirsty, and I want a drink."

A gesture such as turning both hands palms upward may be accompanied by the typical intonation of "all gone" before the words eventually appear. By going to the refrigerator and pointing to the desired food while she vocalizes an approximation of the word, the young child combines gestures and words to express wants until language is sufficiently developed. This initiation of action and organized behavior contrasts with that of the infant who merely cries, expecting the parent to know he or she is hungry.

#### Emotional/Social Development

Emotional development is the application of mental processes to feelings and relationships, while cognitive development involves the application of those same mental processes to the child's impersonal world (objects in the environment). The baby gradually develops a more complex sense of self and more focused, organized behavior. Parents easily recognize emotions of affection, sympathy, and jealousy as communication through facial expressions, gestures, and words becomes increasingly interactive.

Vocal and gestural imitation as well as pretend play will expand possibilities for feeding independence. For example, the child becomes comfortable separating from a parent only after attachment has been well established. A mother often uses "distal communication" (talking to her child while preparing food in another part of the room). Behaviors that produce attention in the form of negative parental reactions (anger) are also repeated, but even the young child responds to limits set with voice or gestures by the adult.

These social conversations and interactions will gradually change because need for gestures decreases as the child acquires a larger vocabulary.

#### Inter-relationship of Domains

The child who has little or no speech, and whose gestures also are limited, learns to manipulate adults very successfully to achieve some sense of empowerment. These children frequently express their desires or frustrations through negative behaviors. We can access peer motivation to promote independent feeding at school, and at home with siblings. It is important to recognize the value of intrinsic rewards (pride in accomplishment), and not always rely on extrinsic rewards (praise), when children achieve new self-feeding skills.

#### Activities that Help

Early play with utensils includes holding, banging, waving, and mouthing, repetitive actions that serve a number of purposes. Babies learn about the mechanical properties of the object, give both hands experience in maintaining grasp during movement, and familiarize oral structures with the size, shape, and texture of the utensil before skilled function is required.

The child with motor impairments has fewer opportunities than other children to explore the environment and manipulate a wide variety of objects. Caregivers need to provide a therapeutic environment geared to each child's current developmental and chronological levels. Parents can engage their children in simple play to develop skills (especially fine-motor) important for independent eating. Manipulative toys attract the child's attention, arouse curiosity, produce enjoyable sensory qualities, teach new concepts, and stimulate social interaction. Those toys that can be used in different ways stimulate the most learning and creativity, with different degrees of supervision needed at different ages/skill levels. Some examples are:

- \* nesting toys of different sizes for filling, emptying, and pouring water from one to another, in the bathtub or outdoor play pool;
- \* cups, bowls, and shovels or large spoons for filling, emptying and pouring sand, in a playground or home sandbox;
- \* edible Play Doh and plastic forks and knives, for spearing and cutting; and
- \* plastic dishes for pretend domestic play at child-size table and chairs.

#### Conclusion

We have considered the transition to independent self-feeding within a comprehensive developmental perspective. During the second year of life, the typical baby learns to self-feed with cup, spoon, straw, fork and dish. We need to make sure parents of children with disabilities are aware of specific readiness cues in gross-motor, fine-motor, oral-motor, visual, cognitive, communicative, social and emotional areas of growth.

All children learn through sensation, movement and interaction with materials in their environment. We can help parents who have children with disabilities use many natural, enjoyable opportunities to stimulate development, especially hand function, during play as

well as feeding time.

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