SPECIALIZED KNOWLEDGE AND SKILLS IN FEEDING, EATING, AND SWALLOWING FOR OCCUPATIONAL THERAPY PRACTICE

Introduction

Occupational therapy's long-standing expertise in activities of daily living includes involvement in the feeding, eating, and swallowing performance of individuals across the life span (AOTA, 2002). Both occupational therapists and occupational therapy assistants[1] provide essential services in the comprehensive management of feeding, eating, and swallowing problems. These problems can be wide ranging and may include physical difficulty (e.g., bringing food to the mouth), processing food in the mouth (e.g., motor or sensory deficits), dysphagia, psychosocially based eating disorders (e.g., food obsessions, maladaptive eating habits), dysfunction related to cognitive impairments (e.g., understanding nutrition or food preparation), surgical intervention, and neurological impairments, as well as positioning problems that affect feeding, eating, and swallowing. Interventions focused on occupations of daily living include facilitating an individual's ability to participate in feeding and eating activities that are valued and meaningful to that person, such as learning to eat independently, joining friends for lunch, or feeding a child. Occupational therapists and occupational therapy assistants possess the education, experience, knowledge, and skills necessary in the evaluation and intervention of feeding, eating, and swallowing problems. Physical, cognitive, social, emotional, and cultural elements of feeding, eating, and swallowing are considered in evaluation and intervention.

The purpose of this document is to describe the knowledge and skills that are necessary for occupational therapists and occupational therapy assistants to provide comprehensive feeding, eating, and swallowing management and services. It provides information on occupational therapists' and occupational therapy assistants' roles in feeding, eating, and swallowing; outlines advanced-level knowledge and skills; and defines feeding-, eating-, and swallowing-related terms.

Occupational Therapy's Role in Feeding, Eating, and Swallowing Management

Feeding, Eating, and Swallowing

Feeding and eating occur within the social environment and often include family members and caregivers as part of the process. Thus, when occupational therapy practitioners address feeding, eating, and swallowing concerns, the collaboration with and involvement of family members and caregivers as well as other professionals is paramount.

Feeding, eating, and swallowing are complex activities that require effective, coordinated function of the motor, sensory, and cognitive systems. In recent years, the complexity of occupational therapy services to address these issues has grown. Feeding, eating, and swallowing services now are often provided to clients who have complicated, specialized problems and who may be medically fragile. In addition, new technologies are increasingly available for evaluation

[1] *Occupational therapists* are responsible for all aspects of occupational therapy service delivery and are accountable for the safety and effectiveness of the occupational therapy service delivery process. *Occupational therapy assistants* deliver occupational therapy services under the supervision of and in partnership with an occupational therapist (AOTA, 2004).

and intervention of swallowing or dysphagia management. Thus, in a variety of situations, occupational therapists and occupational therapy assistants demonstrate baseline knowledge in feeding, eating, and swallowing and may provide advanced-level knowledge and skills in the field of dysphagia management.

Feeding, eating, and swallowing are interdependent activities, and definitions of each term overlap in literature sources. For purposes of this paper, broad definitions are noted. *Feeding* is the term used to describe "the process of setting up, arranging, and bringing food [or fluid] from the plate or cup to the mouth; sometimes called self-feeding" (AOTA, 2006a). *Eating* is defined as "the ability to keep and manipulate food or fluid in the mouth and swallow it; eating and swallowing are often used interchangeably" (AOTA, 2006a). Feeding and eating, essential to human functioning for nourishment of the body, is a form of social interaction and is involved in many facets of a person's culture—from leisure to professional activities. S*wallowing* involves a complicated act in which food, fluid, medication, or saliva is moved from the mouth through the pharynx and esophagus into the stomach (AOTA, 2006a).Thus, feeding, eating, and swallowing are strongly influenced by psychosocial, cultural, and environmental factors. As part of the evaluation and intervention process, occupational therapists and occupational therapy assistants under the supervision of an occupational therapist consider comprehensive management of feeding, eating, and swallowing problems; adaptive feeding equipment ranging from modified utensils to sophisticated feeding equipment (e.g., the Winsford Feeder); the physical and sensory difficulty of bringing food, liquid, or medication to the mouth; sensory processing issues in the mouth (e.g., oral defensiveness); management of mechanical devices for feeding; dysphagia; psychosocially based eating disorders (e.g., anorexia, bulimia); behaviorally based eating disorders (e.g., selective eating); dysfunction related to cognitive impairments, neurological impairments, or surgical intervention; and positioning problems that affect feeding, eating, and swallowing.

Feeding, eating, and swallowing are within the domain and scope of practice for occupational therapy. Occupational therapists and occupational therapy assistants have the knowledge and skills necessary to take a lead role in the evaluation and intervention of feeding, eating, and swallowing problems. Further, occupational therapists have the entry-level knowledge and skills to evaluate oral and pharyngeal swallowing function.

Occupational Therapy Services

Occupational therapy practitioners[2] use their knowledge and skills to provide services over a broad range of ages, medical conditions, and social or cultural situations. For many clients, feeding, eating, and swallowing issues are quite complex. For instance, in populations with complicated feeding problems such as post-surgical cancer patients, patients in intensive care units, or young infants, the interplay of medical and developmental factors is complex and requires advanced-level knowledge to provide safe and effective service. As foundational skills in understanding impairments in feeding, eating, and swallowing, occupational therapists and occupational therapy assistants receive education in the structure and function of the human body, including the biological and physical sciences (e.g., anatomy, physiology, neuroanatomy, kinesiology), human development throughout the life span, and human behavior, including the behavioral and social sciences (Accreditation Council for Occupational Therapy Education,

[2]When the term *occupational therapy practitioner* is used in this document, it refers to both occupational therapists and occupational therapy assistants (AOTA, 2006b).

2006). They develop clinical-reasoning skills to consider the interplay of physical, cognitive, environmental, and sociocultural factors in providing effective services for feeding, eating, and swallowing dysfunction.

As part of therapeutic services, occupational therapists are trained to conduct comprehensive evaluations, which include selecting, administering, and interpreting assessment measures. They also develop specific intervention plans and provide therapeutic interventions.

The occupational therapist assumes the ultimate responsibility for the delivery of occupational therapy services. Occupational therapy assistants are trained to provide services under the supervision of and in collaboration with an occupational therapist (AOTA, 2004). During the evaluation process, occupational therapy assistants may gather data and administer selected assessment tools or measures for which they have demonstrated competence.

During intervention, both occupational therapists and occupational therapy assistants select, administer, and adapt activities that support the intervention plan developed by the occupational therapist. Practitioners must always adhere to state and agency regulatory laws when providing services across these continua of care. Reimbursement for services may be available through various sources, including legislation (e.g., Individuals with Disabilities Education Act, Medicare), private insurance, Medicaid, and private pay. Information on specific entry-level knowledge and skills occupational therapists and occupational therapy assistants should have to serve clients with feeding, eating, and swallowing dysfunction can be found in Appendix A.

For both occupational therapists and occupational therapy assistants, the progression from entry-level knowledge and skills to advanced-level knowledge and skills is individualized. Although practitioners exit their academic program with the basic knowledge and skills to provide occupational therapy services to clients with feeding, eating, and swallowing dysfunction, over time they may develop additional individualized expertise such as in the area of dysphagia. Occupational therapy practitioners ensure advanced competence in feeding, eating, and swallowing by maintaining and documenting competence in practice, education, and research and by participating in professional development, educational activities, and critical examination of available evidence (AOTA, 2005a). In addition, higher level knowledge, skills, and clinical reasoning are developed through experience.

The practitioner's acquisition of advanced-level knowledge and skills as related to intervention with people with feeding, eating, and swallowing difficulties is individualized; thus, a practitioner may possess differing levels of expertise in a wide variety of skill areas and populations served by occupational therapy. For example, an occupational therapist with advanced-level skills in feeding with premature infants may possess only entry-level skills in assessing swallowing function in a client who has had a cerebral vascular accident resulting in hemiplegic weakness. It is the ethical responsibility of occupational therapists and occupational therapy assistants to ensure that they are competent in the services they provide and that they continually seek out new knowledge and techniques that apply to their clinical practice (AOTA, 2005a).

Supervision Considerations

The amount of supervision provided to an occupational therapist or occupational therapy

assistant in the area of feeding, eating, and swallowing should directly relate to their training and experience and state practice acts. Occupational therapy assistants and entry-level occupational therapists should seek supervision and mentoring from a more experienced occupational therapist or an occupational therapist with advanced knowledge and skills in feeding, eating, and swallowing. The occupational therapist and occupational therapy assistant also may supervise other nonlicensed health care aides providing feeding and eating assistance to clients (AOTA, 2004). Most state practice acts mandate the frequency and duration for supervision for entry-level occupational therapists, occupational therapy assistants, and nonlicensed health care aides. The occupational therapist has the primary role in evaluation and intervention planning; the occupational therapy assistant collaborates with the occupational therapist in the provision of specific interventions (AOTA, 2004, 2005b). Occupational therapy assistants who hold an AOTA specialty certification in feeding, eating, and swallowing may have a more active role in collaborating in the evaluation process and in making intervention decisions. However, it is implicit that these tasks are carried out under the supervision of an occupational therapist. The supervising occupational therapist must be experienced in feeding, eating, and swallowing disorders or seek consultation from an occupational therapist who has such experience.

Knowledge and Skills

The progression from entry-level knowledge and skills to advanced-level knowledge and skills is individualized for each occupational therapist and occupational therapy assistant. Although practitioners exit their academic program with the basic knowledge and skills to provide occupational therapy services to clients with feeding, eating, and swallowing dysfunction, over time they may develop additional individualized expertise, such as in the area of dysphagia. Entry-level knowledge and skills for both occupational therapists and occupational therapy assistants, as supported by the 2006 *Standards* (Accreditation Council of Occupational Therapy Education, 2006), are delineated in Appendix A. The advanced-level knowledge and skills necessary to provide a continuum of services in the area of feeding, eating, and swallowing are delineated in Appendix B. These advanced-level skills build on existing knowledge, performance skills, critical reasoning, interpersonal abilities, and ethical reasoning.

Appendix A

ENTRY-LEVEL KNOWLEDGE AND SKILLS
ASSESSMENT
CONTEXT

X = able to perform the task
■ = does not perform the task

Occupational Therapists and Occupational Therapy Assistants Will Have Entry-Level Knowledge and Skills to Assess	Occupational Therapist	Occupational Therapy Assistant
		Based on the Establishment of Service Competency and Supervision by an Occupational Therapist
Cultural components that affect feeding: utensils, food types, meanings/symbolism of food, mealtime practices and rituals, dietary restrictions	X	X
Attitudes and values of client, family or caregivers, and friends toward feeding and mealtime	X	X
Settings where feeding/eating take place	X	X
Social opportunities during mealtime that support or interfere with social interaction	X	X
Aspects of the client's developmental status/life phase that support or interfere with eating/feeding	X	
Effect of medical condition/disability status on feeding performance	X	
Factors in the environment that support or interfere with feeding/eating (available: e.g., foods, seating, time, feeders)	X	

ENTRY-LEVEL KNOWLEDGE AND SKILLS ASSESSMENT
PRE-ORAL PHASE

X = able to perform the task
■ = does not perform the task

Occupational Therapists and Occupational Therapy Assistants Will Have Entry-Level Knowledge and Skills to Assess	Occupational Therapist	Occupational Therapy Assistant
		Based on the Establishment of Service Competency and Supervision by an Occupational Therapist
Role of appetite and hunger sensation	X	X
Tactile and proprioceptive qualities of food and equipment in both the hands and the mouth	X	X
Ability to see/locate food/drink/utensils	X	X
Ability to appreciate smell—pleasant/noxious	X	X
Need for use of auditory cues (verbal cues, utensils hitting plate)	X	X
Ability to achieve a position of proximal postural control that allows upper-extremity and oral function for eating	X	X
Nature of communication during feeding/mealtime	X	X
Feeding experience as satisfactory to self	X	X
Ability to bring food to mouth as supported or prevented by factors such as figure ground, depth perception, spatial relations, and motor planning	X	
Neuromotor components that support or interfere with adequate positioning	X	
Upper-extremity function and hand manipulation adequate for self-feeding	X	
Influence of motor activity involved in bringing food to mouth	X	
Ability to orient mouth to receive food (timing, positioning of structures)	X	
Initiation of eating as supported/prevented by level of alertness/arousal, orientation to task, recognition, and memory	X	
Persistence with feeding that is supported/prevented by level of arousal, attention span, initiation of activity, memory, and sequencing	X	
Carryover of skill to future feeding tasks is supported/prevented by level of memory, learning, and generalization	X	
Factors that influence the willingness or unwillingness to eat (self-image, self-esteem, caregiver, family, feeder interaction, eating history, dying)	X	

ENTRY-LEVEL KNOWLEDGE AND SKILLS ASSESSMENT
ORAL PHASE

X = able to perform the task
■ = does not perform the task

Occupational Therapists and Occupational Therapy Assistants Will Have Entry-Level Knowledge and Skills to Assess	Occupational Therapist	Occupational Therapy Assistant Based on the Establishment of Service Competency and Supervision by an Occupational Therapist
Behaviors or reports that indicate pain or discomfort in the oral area	X	X
Behaviors that interfere with the oral phase (spitting foods, pocketing foods, refusing to swallow)	X	X
Level of awareness/sensation in the oral–motor area	X	
Level of reception and perception of tactile (texture), temperature, proprioception, and gustatory qualities of food and utensils	X	
Factors supporting/interfering with secretion management	X	
Respiratory control factors that permit safe and efficient bolus manipulation (mouth breathers, Adult Respiratory Distress Syndrome, bronchopulmonary dysplasia), chronic obstructive pulmonary disease, cardiopulmonary compromise	X	
Structural or neuromotor factors (reflexes, range of motion, muscle tone, strength, endurance) that support or interfere with oral–motor function	X	
Level of coordinated movements (praxis) of oral structures (cheeks, lips, jaw, tongue, palate, teeth) with or without foods	X	
Oral structures' ability to work together to contain, form, and propel the bolus	X	
Bolus manipulation supported/compromised by memory, attention span, orientation, and problem solving	X	
Speed of the oral phase adequate to support sufficient oral intake	X	

ENTRY-LEVEL KNOWLEDGE AND SKILLS ASSESSMENT
PHARYNGEAL PHASE

X = able to perform the task
■ = does not perform the task

Occupational Therapists and Occupational Therapy Assistants Will Have Entry-Level Knowledge and Skills to Assess	Occupational Therapist	Occupational Therapy Assistant
		Based on the Establishment of Service Competency and Supervision by an Occupational Therapist
Behaviors, reports, or symptoms that indicate pain or discomfort localized to the pharyngeal area	X	
Presence of signs and symptoms indicating possible pharyngeal dysfunction or clinical signs indicating possible aspiration (e.g., coughing, choking, tachypnea)	X	

ENTRY-LEVEL KNOWLEDGE AND SKILLS ASSESSMENT
ESOPHAGEAL PHASE

X = able to perform the task
■ = does not perform the task

Occupational Therapists and Occupational Therapy Assistants Will Have Entry-Level Knowledge and Skills to Assess	Occupational Therapist	Occupational Therapy Assistant
		Based on the Establishment of Service Competency and Supervision by an Occupational Therapist
Behaviors, reports, or symptoms that indicate pain or discomfort in the esophageal area	X	
Presence of refluxed material from the stomach into the esophagus, pharynx, or oral cavity	X	

ENTRY-LEVEL KNOWLEDGE AND SKILLS ASSESSMENT
INSTRUMENTATION

X = able to perform the task
■ = does not perform the task

Occupational Therapists and Occupational Therapy Assistants Will Have Entry-Level Knowledge and Skills to	Occupational Therapist	Occupational Therapy Assistant
		Based on the Establishment of Service Competency and Supervision by an Occupational Therapist
Understand formal instrumentation used by therapists or other professionals to evaluate the oral, pharyngeal, and esophageal phase of the swallow, including, but not limited to, videofluoroscopy, ultrasonography, fiberoptic endoscopy, scintigraphy, and manometry	X	

ENTRY-LEVEL KNOWLEDGE AND SKILLS
DISCHARGE PLANNING

(Discharge Planning Is Addressed Throughout the Intervention Process)

X = able to perform the task
■ = does not perform the task

Occupational Therapists and Occupational Therapy Assistants Will Have Entry-Level Knowledge and Skills to	Occupational Therapist	Occupational Therapy Assistant
		Based on the Establishment of Service Competency and Supervision by an Occupational Therapist
Collaborate with client, family, caregivers, and team members to formulate discharge needs	X	
Provide appropriate referrals, follow-up plans, and reevaluation related to discharge needs	X	
Develop and document discharge and follow-up programs and resources in accordance with discharge environment	X	
Provide for educational needs related to feeding, eating and swallowing management and establishment of proficiency of recommendations with client and family	X	
Implement discharge and follow-up plan with client, family, caregivers, and team members to promote transition to discharge environment and integration of intervention management techniques	X	
Terminate intervention when client has achieved maximum benefit from services	X	

ENTRY-LEVEL KNOWLEDGE AND SKILLS
INTERVENTION
CONTEXT

X = able to perform the task
■ = does not perform the task

Occupational Therapists and Occupational Therapy Assistants Will Have Entry-Level Knowledge and Skills to	Occupational Therapist	Occupational Therapy Assistant
		Based on the Establishment of Service Competency and Supervision by an Occupational Therapist
Consider cultural practices in selecting foods, utensils, and mealtime setting	X	X
Provide environmental modifications to promote appetite and feeding/eating performance (e.g., location, timing, seating, lighting)	X	X
Use eating/feeding activities appropriate for developmental status/life phase	X	X
Facilitate social interactions that support feeding performance	X	X
Plan intervention within the context of person's medical condition, particularly considering specific restrictions and limitations, expected progression, and outcome	X	

ENTRY-LEVEL KNOWLEDGE AND SKILLS
INTERVENTION
PRE-ORAL PHASE

X = able to perform the task
= does not perform the task

Occupational Therapists and Occupational Therapy Assistants Will Have Entry-Level Knowledge and Skills to	Occupational Therapist	Occupational Therapy Assistant
		Based on the Establishment of Service Competency and Supervision by an Occupational Therapist
Facilitate olfactory stimulation	X	X
Provide verbal or physical cues	X	X
Use sensitization and desensitization techniques	X	X
Facilitate oral hygiene	X	X
Facilitate visual–perceptual activity, and body schema awareness	X	X
Increase awareness on affected/neglected side	X	X
Facilitate strategies to minimize visual field deficits and enhance acuity	X	X
Modify environment to enhance attention	X	X
Help client/caregiver to develop problem-solving methods	X	X
Use communicative strategies to increase participation in feeding	X	X
Use techniques to attain and maintain optimal level of arousal	X	X
Provide appropriate positioning and seating equipment	X	X
Provide nonnutritive oral stimulation, techniques, and/or exercises	X	X
Facilitate upper-extremity control and hand function (dexterity, strength, coordination)	X	X
Facilitate oral–motor control through exercises, play, and games	X	X
Improve self-esteem to increase engagement in self-feeding	X	X
Structure mealtime habits	X	X
Implement nutritional recommendations	X	X
Manipulate feeding schedule to facilitate hunger	X	
Select, modify, and establish set-up of mealtime equipment	X	
Facilitate postural control	X	
Fabricate upper-extremity orthotics	X	
Use behavior modification	X	

ENTRY-LEVEL KNOWLEDGE AND SKILLS
INTERVENTION

ORAL PHASE

X = able to perform the task
■ = does not perform the task

Occupational Therapists and Occupational Therapy Assistants Will Have Entry-Level Knowledge and Skills to	Occupational Therapist	Occupational Therapy Assistant
		Based on the Establishment of Service Competency and Supervision by an Occupational Therapist
Provide nonnutritive oral stimulation and exercises (jaw, lip, cheeks, tongue)	X	X
Use desensitization techniques	X	X
Maintain appropriate position during mealtime (facilitate stability or movement)	X	X
Time the introduction of food to facilitate coordinated respiration	X	X
Facilitate placement of food in mouth and use of utensils	X	X
Use verbal, written, tactile cues to initiate, maintain, and follow through (chew, swallow) with feeding/eating task	X	X
Provide an environmental modification program	X	X
Facilitate oral compensatory strategies for altered sensation, structure, or function	X	
Select and modify equipment for feeding	X	
Grade or alter qualities of bolus (e.g., texture, taste, temperature)	X	
Provide a behavior modification program	X	

ENTRY-LEVEL KNOWLEDGE AND SKILLS
INTERVENTION
PHARYNGEAL PHASE

X = able to perform the task
■ = does not perform the task

Occupational Therapists and Occupational Therapy Assistants Will Have Entry-Level Knowledge and Skills to	Occupational Therapist	Occupational Therapy Assistant
		Based on the Establishment of Service Competency and Supervision by an Occupational Therapist
Facilitate head and neck positioning for swallowing (e.g., chin tuck, head turns)	X	
Facilitate compensatory swallow techniques	X	

ENTRY-LEVEL KNOWLEDGE AND SKILLS
INTERVENTION
ESOPHAGEAL PHASE

X = able to perform the task
■ = does not perform the task

Occupational Therapists and Occupational Therapy Assistants Will Have Entry-Level Knowledge and Skills to	Occupational Therapist	Occupational Therapy Assistant
		Based on the Establishment of Service Competency and Supervision by an Occupational Therapist
Modify position before, during, and after feeding task	X	
Refer to gastrointestinal service when appropriate	X	

Appendix B

Advanced-Level Knowledge and Skills

Occupational Therapist	Occupational Therapy Assistant
I. Eating Function—The occupational therapist with advanced-level knowledge and skills has built upon foundational knowledge of the eating process, thus enhancing the depth and specificity of evaluation and intervention. The occupational therapist has developed	I. Eating Function—The occupational therapy assistant with advanced-level knowledge and skills has built upon foundational knowledge of the eating process for the purpose of providing more comprehensive intervention. The occupational therapy assistant has developed
A. Extensive knowledge of anatomy and physiology of the eating for the purpose of assessing structural, neuromotor, and sensory factors that support or interfere with function and of determining intervention strategies	A. Advanced knowledge of anatomy and physiology of the phases of eating
1. Pre-oral phase	1. Pre-oral phase
2. Oral phase	2. Oral phase
3. Pharyngeal phase	3. Pharyngeal phase
4. Esophageal phase	4. Esophageal phase
B. Extensive knowledge of airway functions, including protective responses and respiratory control factors that affect swallowing and eating.	B. Advanced knowledge of airway functions, including protective responses and respiratory control factors that affect swallowing and eating.

Occupational Therapist	Occupational Therapy Assistant
II. Specialized client populations and settings—The occupational therapist with advanced-level knowledge and skills has gained extensive knowledge and experience in the feeding, eating, and swallowing needs of specific client populations or clients in specific settings. The increased depth of knowledge allows the occupational therapist to provide services to clients who are more medically fragile or whose problems/needs are more complex than those addressed by entry-level therapists. By developing expertise with specific client populations, occupational therapists with advanced-level knowledge and skills not only provide services that represent "best practice" but also contribute to the development of new and innovative approaches to evaluation and intervention for that population. Areas of expertise that may be developed include	II. Specialized client populations and settings—The occupational therapy assistant with advanced-level knowledge and skills has gained extensive knowledge and experience in the feeding, eating, and swallowing needs of specific client populations or clients in specific settings. The increased depth of knowledge allows the occupational therapy assistant with advanced-level knowledge and skills to provide services to clients who are more medically fragile or whose problems/needs are more complex than those addressed by the occupational therapy assistant with entry-level knowledge and skills. Areas of expertise that may be developed include
A. Specific medical diagnoses	A. Specific medical diagnoses
1. In-depth knowledge of diagnosis, including potential impact on feeding, eating, and swallowing	1. In-depth knowledge of diagnosis, including potential impact on feeding, eating, and swallowing
2. Common medications used and their interaction with the feeding, eating, and swallowing process; advising regarding oral administration of medications (e.g., crushing meds, through nasogastric tube, or changing to liquid suspension	2. Common medications used and their interaction with the feeding, eating, and swallowing process
3. Dietary needs or restrictions	3. Dietary needs or restrictions
4. Specialized equipment that may be used and can affect feeding, eating, and swallowing (e.g., tracheostomy tubes, ventilators, feeding tubes)	4. Specialized equipment that may be used and can affect feeding, eating, and swallowing (e.g., tracheostomy tubes, ventilators, feeding tubes)
B. Specialized settings such as general intensive care units and neonatal intensive care units (AOTA, 1993)	B. Specialized settings such as intensive care units (AOTA, 1993)

Occupational Therapist	Occupational Therapy Assistant
C. Specific developmental, social, or cultural factors	C. Specific developmental, social, or cultural factors
1. In-depth knowledge of age-related expectations, such as feeding processes in infants and children and the effects of aging on feeding	1. In-depth knowledge of age-related expectations, such as feeding processes in children and the effects of aging on feeding
2. Extensive knowledge of particular cultural groups and the influence of their custom on eating, particularly for persons with feeding, eating, and swallowing problems	2. Extensive knowledge of particular cultural groups and the influence of their custom on eating, particularly for persons with feeding, eating, and swallowing problems
3. Extensive knowledge of social or emotional factors that can influence feeding	3. Extensive knowledge of social or emotional factors that can influence feeding
III. Instrumental evaluation—The occupational therapists with advanced-level knowledge and skills may develop the following skills for instrumental evaluations relevant to their area of practice. These assessment techniques require specialized formal training and equipment. They may include, but are not limited to, videofluoroscopy, cervical auscultation, ultrasonography, fiberoptic endoscopy, scintigraphy, manometry, electromyography, and manofluorography.	III. Instrumental evaluation—The occupational therapy assistants with advanced-level knowledge and skills may develop the following skills for those instrumental evaluations relevant to their area of practice.
A. Knowledge and application of instrumental techniques, including purpose, indications for use, limitations, reliability, and validity	A. Knowledge of the instrumentation techniques, including purpose, indications for use, limitations, reliability, and validity
B. Ability to recommend appropriate instrumental evaluation	B. Ability to assist the occupational therapist in carrying out the assessment
C. Collaboration with other professionals in carrying out the instrumental evaluation and interpretation of data	

Occupational Therapist	Occupational Therapy Assistant
D. Ability to independently carry out the assessment, including interpretation of data and implementation of recommendations	
E. Ability to use results effectively in evaluation and intervention	
IV. Specialized interventions—Occupational therapists with advanced-level knowledge and skills have knowledge and skills of all existing intervention procedures in their specialty area and can provide the clinical judgment and rationale for selection of any procedure being used. They are aware of new interventions and potential applications from other fields. Skills may be developed in using specialized interventions that include, but are not limited to	IV. Specialized interventions—Occupational therapy assistants who have advanced-level knowledge and skills of specialized intervention procedures in their specialty area in order to implement intervention recommendations made by the occupational therapist. Skills may be developed in implementing specialized interventions that include, but are not limited to
A. Interventions to facilitate oral performance, improve pharyngeal swallow, and potentially reduce the risk of aspiration, if present. Use of these interventions is based on the results of instrumental evaluation of function, with safety to the client as a primary concern. Examples include	A. Interventions to improve pharyngeal swallow and esophageal function. Use of these interventions is based on results of instrumental evaluation of function by the occupational therapist
1. Compensatory swallowing techniques/strategies	1. Compensatory swallowing techniques
2. Thermal or tactile stimulation	2. Thermal or tactile stimulation
3. Grading or altering the bolus size/texture/changing consistency of liquids/route of administering medications orally	3. Grading or altering the bolus size/texture
4. Specialized positioning	4. Specialized positioning
B. Enteral feeding	B. Enteral feeding
1. Knowledge of purpose, types, indications, limitations, and precautions	1. Knowledge of purpose, types, indications, limitations, and precautions
2. Ability to integrate enteral feeding systems into occupational therapy intervention plan	

Occupational Therapist	Occupational Therapy Assistant
3. Ability to make recommendations regarding use of or need for enteral feeding systems	
C. Oral appliances (prosthodontics)	C. Oral appliances (prosthodontics)
1. Knowledge of purpose, indications, limitations, and precautions	1. Knowledge of purpose, indications, limitations, and precautions
2. Ability to fabricate or collaborate on fabrication	
3. Client training and education	
V. Training and education—Occupational therapists who have advanced-level knowledge and skills that should be disseminated to others. Through formal and informal methods, occupational therapists with advanced-level knowledge and skills should provide training and education to other occupational therapists, occupational therapy assistants, students, staff members, and professionals from related fields.	V. Training and education—Occupational therapy assistants with advanced-level knowledge and skills provide training and education to clients, family, and staff members, in collaboration with an occupational therapist.

Definitions

Common Terminology

adaptive feeding equipment—Equipment used to support optimal feeding performance and to compensate for associated deficits related to coordination, strength, praxis, range of motion, or positioning.

airway protection—Methods designed to prevent accidental loss of food, medications, or liquids into the airway while eating or drinking.

aspiration—The entry of secretions, fluids, food, or any foreign substance below the vocal cords and into the lungs; may result in aspiration pneumonia, which may be fatal.

bolus—The mass of food or liquid that is orally processed and swallowed.

cervical auscultation—A method of assessing the pharyngeal swallow by listening to stereotypical sounds using the stethoscope.

chin tuck—An intervention strategy where the head is flexed (chin tucked downward toward the chest) during the swallow allowing the anterior structures of the pharynx posteriorly resulting in a smaller entrance to the larynx; this strategy reduces the chance of food or liquid to fall into the airway.

clearing techniques—Strategies used to clear the mouth or pharynx of food or liquid residue.

clinical evaluation—The observation of feeding, eating, and swallowing, including client/caregiver interaction, positioning, food consistencies, method of intake, food preferences, oral structures, oral–motor patterns, tone, tactile responses, strength, fatigue, time required for mealtime activities, oral reflexes, sucking, coordination, labial, lingual, velar, facial, mandibular, dentition.

clinical feeding, eating, and swallowing evaluation—A comprehensive evaluation, not including instrumentation, that examines the client's ability to feed, eat, and initiate the swallowing process; also referred to as "bedside dysphagia evaluation."

cranial nerves—Nerves that provide motor and sensory innervation to the head and neck.

diet liberalization—The relaxation of standards of accepted diets as ways to treat illness or decrease symptoms related to dsyphagia.

double/multiple swallows—A swallow strategy whereby 2 or more attempts are used to swallow the food, medications, or liquid.

dysphagia—Difficulty with any stage of swallowing (oral, pharyngeal, esophageal); dysfunction in any stage or process of eating; includes any difficulty in the passage of food, liquid, or medicine during any stage of swallowing that impairs the client's ability to swallow independently or safely.

eating—"…the ability to keep and manipulate food or fluid in the mouth and swallow it; eating

and swallowing are often used interchangeably" (AOTA, 2006a).

eating disorders—Dysfunction in eating and nutrition related to complex biological, psychological, and sociocultural factors that may result in a life-threatening illness, such as anorexia and bulimia nervosa.

effortful/hard swallows—A swallow strategy whereby the tongue muscles are volitionally contracted with increased effort while swallowing; results in the base of the tongue moving posteriorly during the pharyngeal swallow, which helps to clear food material from the valleculae during swallow.

electromyography (EMG)—A procedure by which skeletal muscles are electrically stimulated and changes in electrical activity are recorded. Paralysis of the pharyngeal constrictors and vocal cords can be determined.

enteral feeding—Feedings that use the intestinal tract for absorption of nutrients; often called gastrostomy tube feedings.

esophageal phase—The phase of swallowing in which the bolus travels through the esophagus into the stomach.

esophageal state function—Includes upper esophagus/cricopharyngeal function, esophageal motility.

feeding—"…the process of setting up, arranging, and bringing food [or fluid] from the plate or cup to the mouth; sometimes called self-feeding" (AOTA, 2006a).

feeding, eating, and swallowing history—Includes medical diagnoses, past medical history, food allergies, gastrointestinal disorders, current medications, developmental level (as appropriate), nutritional status, neurological status, respiratory status, pertinent diagnostic studies, feeding history including progression of solids and liquids, alternate/supplemental feeding interventions, positioning, cognition, behavior, communication, eating habits/patterns, methods of feeding, dietary restrictions.

fiberoptic endoscopic evaluation of swallowing (FEES)—Process of passing a flexible fiberoptic endoscope through the nose and positioning it to observe structures and function of the swallowing mechanism to include the nasopharynx, oropharynx, and hypopharynx. The procedure is also known as fiberoptic endoscopic examination of swallowing and videoendoscopic swallowing study.

food and liquid consistencies—Includes thin liquids, nectar-thick liquids, honey-thick liquids, puree, chopped, soft, solid food consistencies.

gastrostomy tube—A tube placed surgically or endoscopically into the stomach through which fluids and nutrition are provided.

graded tactile pressure—Includes deep touch, light touch, sustained touch, pulsing touch, symmetrical touch, asymmetrical touch.

grading/altering bolus—Manipulation of the food or liquid to change its properties related to

temperature, size, or texture.

instrumental assessment—An assessment of swallowing using radiological or imaging procedures; may include but is not limited to modified barium swallow, fiberoptic endoscopy, ultrasound, scintigraphy, electromyography, and manometry.

jejunostomy tube—A tube placed into the jejunum of the small intestine during surgery through which enteral feedings are provided.

manofluorography—Simultaneous videofluoroscopy and manometry by which oropharyngeal and esophageal pressure and bolus information are recorded. This procedure is also known as pharyngeal manofluorography and videomanometry.

manometry—A procedure by which the strength, timing, and sequencing of pressure events in the esophagus are measured by a catheter with pressure transducers. Alone, it is an ineffective tool for the diagnosis of oropharyngeal dysphagia (Bastian, 1998).

Mendelsohn maneuver—A swallowing technique to facilitate prolonged laryngeal elevation during the swallow; results in keeping the upper esophageal sphincter open longer to allow passage of the bolus.

nasogastric tube—A tube used to provide feedings directly into the stomach through a tube inserted in the nose into the stomach.

National Dysphagia Diet (NDD)—From the National Dysphagia Diet Task Force (2000) of the American Dietetic Association, these diet levels aim to establish standard terminology and practice applications of dietary texture modification in dysphagia management. Diet levels include the following:

- *NDD Level I:* Dysphagia–Pureed (homogenous, very cohesive, pudding-like, requiring very little chewing ability)
- *NDD Level II:* Dysphagia–Mechanical Altered (cohesive, moist, semisolid foods, requiring some chewing)
- *NDD Level III:* Dysphagia–Advanced (soft foods that require more chewing ability)
    - Regular: all foods allowed
    - Proposed levels of liquid viscosity are

        Thin
        Nectar-like
        Honey-like
        Spoon-thick.

oral phase—The phase of swallow in which the bolus of food or liquid is propelled to the pharynx by the tongue.

oral preparatory phase—The phase of swallowing during which the bolus of food or liquid is masticated by the teeth and gums and manipulated by the lips, cheek, and tongue to create a bolus of appropriate texture for swallowing; this phase also allows for sensory appreciation of bolus qualities.

oral reflexes—Abnormal and primitive reflexes include hyperactive gag, tonic bite, tongue

thrust, jaw jerk, rooting, sucking.

oral stage function—Includes bolus intake and containment, bolus formation, bolus transit and clearing time, velar function, behavioral components, base of tongue contact to pharyngeal wall, residue post swallow.

orogastric tube—Used to lavage or decompress the stomach; it must be removed prior to assessment.

penetration—The entry of secretions, fluids, food, medications, or any foreign substance into the laryngeal vestibule at or above the level of the true vocal cords.

pharyngeal phase—The phase of swallow when the swallowing response is initiated.

pharyngeal state function—Includes nasopharyngeal insufficiency and reflux, vallecular function, pyriform sinus function, epiglottal function, timing of swallow response, initiation of pharyngeal swallow, timing of clearance, pharyngeal competence, pharyngeal wall residue, laryngeal elevation, laryngeal penetration, or aspiration risk.

pleasure/recreational feedings—Meals or snacks that provide enjoyment and stimulation but that are not depended on to provide nutrition.

pocketing—Retention of food between the teeth and cheek.

pre-oral phase—The process in which food, medication, or drink is brought to the mouth either by the person engaged in eating or by the feeder.

presentation—Includes temperature, texture, size, placement, utensil choice, flavor, rate, method of delivery.

prosthodontics—Prosthetic appliances used to facilitate oral and/or pharyngeal function either inside or outside of the oral cavity. May also be used for cosmesis.

reflux—Reflux of food, medication, liquids, and gastric juice from the stomach into the esophagus; also called gastroesophageal reflux disease (GERD).

scintigraphy—A procedure by which a radioactive bolus is monitored during and after ingestion to assess and measure bolus transit and aspiration (Bastian, 1998).

secretion management—The ability to retain, manipulate, and swallow one's own saliva.

self-feeding—The process of setting up, arranging, and bringing food from the plate or cup to the mouth; sometimes just referred to as feeding.

silent aspiration—Aspiration that occurs without coughing or overt choking, indicating motor and/or sensory deficits (if present) that inhibit protective responses.

supraglottic swallow—A swallowing technique used for airway protection where the client is told to take a breath and hold it while swallowing and then coughs after the swallow; results in the voluntary closure of the vocal folds before, during, and after the swallow.

swallowing—A complicated act where food, fluid, medication, or saliva is moved from the mouth through the pharynx and esophagus into the stomach (AOTA, 2006a).

therapeutic feedings—Controlled delivery of food, medication, or liquid used to facilitate therapeutic outcomes to improve feeding, eating, and swallowing ability; not used as a primary source of nutrition or hydration.

thickening agent—Substances used to increase the viscosity of liquids.

total parenteral nutrition—A formula providing nutrients through an intravenous tube.

ultrasonography—The use of high frequency sound waves to provide ultrasonic images of the upper digestive tract structures and motilities, bolus transit, and vallecular stasis. It is not effective to detect penetration or aspiration (Bastian, 1998).

upper aerodigestive tract—The combined organs and tissues of the respiratory tract and the upper part of the digestive tract (including the lips, nose, mouth, tongue, pharynx, larynx, upper trachea, and upper esophagus).

VitalStim—An FDA-cleared method to promote swallowing through the application of neuromuscular electrical stimulation to the swallowing muscles to strengthen and re-educate muscles and to facilitate motor control/function of the swallowing mechanism.

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Note: This list of selected readings is not meant to be exhaustive but to suggest current resources for library building pertinent to eating and dysphagia treatment. Key words that are helpful in accomplishing a literature review search of this topic may include *dysphagia, feeding, eating, swallowing disorders, deglutition disorders,* and *dysphagia rehabilitation.*

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