

SPEECH THERAPY SWALLOWING

- MASA

MASA INSTRUCTION MANUAL

Alertness

A general lack of awareness to environment and self, insensitivity to stimuli, difficulty focusing thought or attention

Task: Observe and evaluate patient's response to speech, movement, or pain. May incorporate information from medical or nursing staff.

Grade:

- 10 = Alert
- 8 = Drowsy—fluctuating awareness/alert level
- 5 = Difficult to rouse by speech or movement
- 2 = No response to speech or movement

Cooperation

Patient is able to direct his or her attention and interact in activity.

Task: Gain patient's attention and attempt to initiate communication or activity

Grade:

- 10 = Cooperative—engages in some form of exchange (verbal/nonverbal)
- 8 = Fluctuating cooperation—distracted by multiple simultaneous stimuli
- 5 = Reluctant—unwilling to permit interaction
- 2 = Unable to cooperate with interaction or activity

Auditory Comprehension

Ability to understand basic verbal communication

Task: Informally engage patient in conversation; ask patient to follow single- and two-stage commands. Utilize both high- and low-probability instructions.
NB: If formal assessment of language completed, results may be incorporated.

Grade:

- 10 = No abnormality detected on screening
- 8 = Follows ordinary conversation with little difficulty
- 6 = Follows simple conversation/instructions with repetition
- 4 = Occasional motor response if cued
- 2 = No/minimal response to speech

Respiration

Status of the patient's respiratory/pulmonary system

Task: Consult medical officer, physiotherapist, or nursing staff regarding the current condition of the patient's pulmonary system.*

Grade:

- 10 = Chest clear, no evidence of abnormality (clinical/radiographic)
- 8 = Sputum in the upper airway or other respiratory condition, for example, asthma/bronchospasm, chronic obstructive airway disease
- 6 = Fine basal crepitations/self-clearing
- 4 = Coarse basal crepitations, receiving chest physiotherapy
- 2 = Frequent suctioning/chest physiotherapy/suspected infection/respirator dependent

*Note activity level of patient

Respiratory Rate for Swallow

Respiratory—swallow coordination

Task: Observe respiratory rate at rest.
Observe mode of breathing (nasal/oral).
Observe the timing of patient's saliva swallows in relation to inhalation/exhalation. Note pattern of return from swallow, that is, return to exhalation or not.
Observe timing of cough (if present) in relation to swallow. Ask patient to close mouth to breathe and then hold breath (comfortably); record duration.

Grade:

- 5 = Able to control breath rate for swallow. Patient returns to exhalation post-swallow and can comfortably hold breath 5 seconds.
- 3 = Some control/incoordination. Patient can achieve nasal breathing and breath hold for a short period. Patient returns to inhalation on occasion after swallow.
- 1 = No independent control. Patient mouth breathes predominantly. Patient is unable to hold breath comfortably. Rate of breath is variable.

Dysphasia

General language impairment crossing different language modalities: speaking, listening, reading, writing

Task: Informally assess the patient's verbal expression. This information is to be combined with auditory comprehension examination to determine rating for this item.

Diet Recommendations

Dietary recommendations as a response to clinical swallowing evaluation completed as above. This may form an interim dietary management plan until further objective analysis of swallowing function is completed. Careful consideration of the risk to the patient, in the selection of different consistencies of diet/fluids prior to or in the absence of other instrumental assessment techniques is required.

- Grade: (Solids) Nil by mouth (NBM)—Risk too great to feed orally
 Thickened/vitamized diet (puree)
 Modified soft diet (minced/mashed)
 Soft diet *m*
 Normal—no alteration to consistency
- (Fluids) NBM (Nil or Nothing by mouth.)
 Thickened fluid—batter consistency (pudding)
 Thickened fluid—honey consistency
 Thickened fluid—nectar consistency
 Normal fluids—no alteration to consistency

Swallow Integrity

Ordinal risk rating for the two major outcomes of the clinical swallowing assessment: dysphagia and aspiration

- Grades: Definite
 Probable
 Possible
 Unlikely

Trache

Tracheostomy tube to provide ventilatory support, facilitate aspiration of tracheobronchial secretions, and/or to bypass a respiratory obstruction

Task: Observe the presence of tracheostomy tube; identify reason for insertion. Information may be gathered from pulmonary physician, medical officer, physiotherapist, or nursing staff.

Grade: 10 = No trache required
5 = Fenestrated trache in situ or uncuffed
1 = Cuffed trache in situ (including those with periods of cuff deflation)

Pharyngeal Phase

Integrity of pharyngeal function from triggering of swallow until bolus passes through cricopharyngeal sphincter. It is clinically identified by hyolaryngeal movement.

Task: Observe hyoid and laryngeal movement using manual palpation method (Logemann, 1983). Note smoothness of excursion and maximal elevation point. Following swallow, ask patient to phonate /ah/ for several seconds. Note vocal quality.
Ask patient to pant following swallow then vocalize. Note vocal quality.
Ask patient to turn head to each side and vocalize. Note vocal quality.
Ask patient to lift chin and vocalize. Note vocal quality.

Grade: 10 = Immediate laryngeal elevation and complete clearance of material
8 = Laryngeal elevation mildly restricted, slow initiation of rise, incomplete clearance of material
5 = Incomplete laryngeal elevation, jerking incoordinated progression, pooling/gurgling on phonation
2 = No swallow initiated/unable to assess

Pharyngeal Response

Control of the bolus through the pharyngeal region and management and response to stasis of materials

Task: Observe vocal quality and coughing as a result of swallow. To be completed in association with other assessment tasks

Grade: 10 = No abnormality detected on screening
5 = Coughing before/during/after the swallow has triggered
1 = Not coping, gurgling

Cough Reflex

Spontaneous cough in response to an irritant

Task: Information about the effectiveness of the patient's reflex cough should be assessed in combination with the physiotherapist or other allied health or nursing staff.

Observe any spontaneous coughing during the examination. Cough may be elicited in combination with a respiratory or physical therapist.

Grade: 5 = No abnormality detected on screening, strong reflexive cough
3 = Weak reflexive cough
1 = None observed/unable to assess

Voluntary Cough

Cough response to command

Task: Ask the patient to cough as strongly as possible. Observe strength and clarity of cough.

Grade: 10 = No abnormality detected on screening, strong clear cough
8 = Cough attempted but bovine, hoarse in quality
5 = Attempt inadequate
2 = No attempt/unable to assess

Voice

Evaluation of laryngeal functioning with specific emphasis on vocal quality

Task: Ask the patient to prolong an /ah/ sound for as long as possible.
Ask the patient to slide up and down a scale.
Ask the patient to prolong /s/ and /z/.
Observe clarity of production, pitch, phonation breaks, huskiness, uneven progression, uncontrolled volume (as in previous dysarthria tests), and voice deterioration.

Grade: 10 = No abnormality detected on screening
8 = Mild impairment, slight huskiness
6 = Hoarse, difficulty with pitch/volume control
4 = Wet/gurgling vocal quality
2 = Aphonic/unable to assess

- Grade: 10 = No abnormality detected on screening
 8 = Slight asymmetry noted, mobile
 6 = Unilaterally weak, inconsistently maintained
 4 = Minimal movement, nasal regurgitation, nasal air escape
 2 = No spread or elevation

Bolus Clearance

Ability to move a bolus effectively through the oral cavity

- Task: Observe patient eating/swallowing a bolus.
 Check oral cavity for residue following a swallow.

- Grade: 10 = Bolus fully cleared from mouth
 8 = Significant clearance, minimal residue
 5 = Some clearance, residue
 2 = No clearance

Oral Transit

Time from initiation of lingual movement until bolus head reaches point where lower edge of mandible crosses the tongue base.

In clinical measurement, this duration must be timed from the initiation of lingual movement until the initiation of hyoid and laryngeal rise. Thus, the measurement is a crude estimate of time from tongue movement initiation to the trigger of the pharyngeal swallow. Exact oral transit time cannot be separated.

- Task: The clinician will position a hand under the patient's chin, with fingers spread as per manual palpation method (Logemann, 1983). Use only a light touch. Ask the patient to swallow. Compare time elapsed between the initiation of lingual movement until the initiation of hyoid and laryngeal rise. (Normal time for triggering of the pharyngeal swallow is approximately 1 second.)

- Grade: 10 = No abnormality detected on screening, triggers rapidly within 1 second
 8 = Delay greater than 1 second
 6 = Delay greater than 5 seconds
 4 = Delay greater than 10 seconds
 2 = No movement observed/unable to assess

Oral Preparation

Ability to break down food, mix with saliva, and form a cohesive bolus ready to swallow

Task: Observe patient while eating or chewing. Ask to observe how bolus is prepared prior to swallowing. Check for loss from mouth, position of food bolus, spread throughout oral cavity, and loss of material into lateral or anterior sulci.
Note chewing movements and fatigue.

Grade:

- 10 = No abnormality detected on screening
- 8 = Lip or tongue seal, bolus escape
- 6 = Minimal chew/tongue thrust bolus projected forward/limited preparation gravity assisted/spread throughout mouth/compensatory head extension
- 4 = No bolus formation/no attempt
- 2 = Unable to assess

Gag

Reflex motor response triggered in response to noxious stimuli. It measures response of surface tactile receptors and afferent information travels by way of CN X (and possibly some portion of IX).

Task: Using a laryngeal mirror (size 00) (introduction of cold is optional), contact the base of the tongue or posterior pharyngeal wall. Note any contraction of the pharyngeal wall or soft palate.

Grade:

- 5 = No abnormality detected, strong symmetrical response/hyperreflexive
- 4 = Diminished bilaterally
- 3 = Diminished unilaterally
- 2 = Absent unilaterally
- 1 = No gag response noted

Palate

Function of the velum in speech and reflexively

Task: Ask the patient to produce a strong /ah/ and sustain for several seconds.
Ask the patient to repeat /ah/ several times. Note action of elevation.
Observe any hypernasality from earlier speech tasks.
Test palatal reflex—make contact with cold laryngeal mirror at juncture of hard and soft palates.

Elevation—With mouth open wide, have patient raise tongue tip to alveolar ridge. Alternate elevation and depression in this way.

Posterior Aspect

Elevation—Have patient raise back of tongue to meet palate and hold the position.

Grade: 10 = Full range of movement/no abnormality detected
 8 = Mild impairment in range
 6 = Incomplete movement
 4 = Minimal movement
 2 = No movement

Tongue Strength

Bilateral lingual strength on resistance tasks

Task: Have patient push laterally, against a tongue depressor or gloved finger.
 Have patient push anteriorly, against a tongue depressor or gloved finger.
 Have patient push during elevation and depression of the tongue.
 Ask patient to elevate back of tongue against a tongue depressor or gloved finger.
 Note tone and strength to resistance.

Grade: 10 = No abnormality detected on screening
 8 = Minimal weakness
 5 = Obvious unilateral weakness
 2 = Gross weakness

Tongue Coordination

Ability to control lingual movement during serial repetitious activity or speech

Task: Ask patient to lick around lips, slowly and then rapidly, touching all parts.
 Have patient rapidly repeat tongue tip alveolar syllables /ta/.
 Repeat a sentence including tongue tip alveolar consonants (e.g., Take Tim to tea).
 Ask patient to rapidly repeat velar syllables /ka/. Repeat a sentence including velar consonants (e.g., Can you keep Katie clean?).

Grade: 10 = No abnormality detected on screening
 8 = Mild incoordination
 5 = Gross incoordination
 2 = No movement/unable to assess

Saliva

Ability to manage oral secretions

Task: Observe the patient's control of saliva. Note any escape of secretions from the side of mouth, and check corners of mouth for wetness. Ask the patient if he or she has noticed undue saliva loss during the day, at night, or while side lying.

Grade:

- 5 = No abnormality detected on screening
- 4 = Frothy/expectorated into cup
- 3 = Drooling at times, during speech while side lying, when fatigued
- 2 = Some drool consistently
- 1 = Gross drooling. Unable to control drooling, open mouth posture, needing bib protection

Lip Seal

Ability to control labial movement and closure

Task: Observe lips at rest. Note tone at corners of mouth.
 Ask patient to spread lips widely on the vowel /i/ and round for the vowel /u/.
 Ask patient to alternate lip movement between the two vowels. Observe bilabial function on earlier sound repetition and speech tasks.
 Observe patient's ability to close mouth around an empty spoon.
 Ask patient to blow air into cheeks and maintain closure.

Grade:

- 5 = No abnormality detected on screening
- 4 = Mild impairment, occasional leakage
- 3 = Unilaterally weak, poor maintenance, restricted movement
- 2 = Incomplete closure, limited movement
- 1 = No closure, unable to assess

Tongue Movement

Lingual mobility in both anterior and posterior aspects

Task: *Anterior Aspect*
 Protrusion—Have patient extend tongue as far forward as possible and then retract similarly.
 Lateralization—Have patient touch each corner of the mouth, then repeat alternating lateral movements.
 With tongue, have patient attempt to clear out lateral sulci on each side of mouth.

repeating sounds, words, sequences
 naming objects, numbers, body parts
 answering simple questions, Yes/No
 functional naming

- Grade: 5 = No abnormality detected on screening
 4 = Mild difficulty finding words/expressing ideas
 3 = Expresses self in a limited manner/short phrases or words
 2 = No functional speech—sounds or undecipherable single words
 1 = Unable to assess

Dyspraxia

Impairment in the capacity to order the positioning of the speech musculature or sequence the movements for volitional production of speech. Not accompanied by weakness, slowness, or incoordination of these muscles in reflex or automatic acts.

Task: Informally assess as above. Include repetition of phrases of increasing syllabic length and performance of a range of oral movement to command. Record accuracy, agility, and spontaneous versus imitative productions.

- Grade: 5 = No abnormality detected on screening
 4 = Speech accurate after trial and error, minor searching movements
 3 = Speech crude/defective in accuracy or speed on command
 2 = Significant groping/inaccuracy, partial or irrelevant responses
 1 = Unable to assess

Dysarthria

Impairment of articulation characterized by disturbance in muscular control over the speech musculature. Includes features such as paralysis, weakness, or incoordination of the speech musculature.

Task: Informally assess as above. Include articulation tasks of increasing length, that is, sentence repetition, reading, and monologue. Engage in conversation. Request patient count to 5, whispering and increasing volume. Diadochokinetic rate may be utilized.

- Grade: 5 = No abnormality detected on screening
 4 = Slow with occasional hesitation and slurring
 3 = Speech intelligible but obviously defective in rate/range/strength/coordination
 2 = Speech unintelligible
 1 = Unable to assess

Mann Assessment of Swallowing Ability (MASA) Scoring Sheet

Alertness	2 no response to speech	5 difficult to rouse	8 fluctuates		10 alert
Cooperation	2 no cooperation	5 reluctant	8 fluctuating cooperation		10 cooperative
Auditory comprehension	2 no response to speech	4 occasional motor response if cued	6 follows simple conversation with repetition	8 follows ordinary conversation with little difficulty	10 NAD
Respiration	2 chest infection suctioning	4 coarse basal crepitations chest physiotherapy	6 fine basal crepitations	8 spurious upper airway other condition	10 chest clear
Respiratory rate (for swallow)	1 no independent control	3 some control/uncoordinated	5 able to control breaths rate for swallow		
Dysphasia	1 unable to assess	2 no functional speech sounds/single words	3 expresses self in limited manner short phrases/words	4 mild difficulty finding words or expressing ideas	5 NAD
Dyspraxia	1 unable to assess	2 groping/inaccurate/partial or irrelevant responses	3 speech crude/defective in accuracy or speed on command	4 speech accurate after trial and error, minor searching movements	5 NAD
Dysarthria	1 unable to assess	2 speech unintelligible	3 speech intelligible but obviously defective	4 slow with occasional hesitation or stalling	5 NAD
Saliva	1 gross drool	2 some drool consistently	3 drooling at times	4 frothy/expectorated	5 NAD
Lip seal	1 no closure unable to assess	2 incomplete seal	3 unilaterally weak poor maintenance	4 mild impairment occasional leakage	5 NAD
Tongue movement	2 no movement	4 minimal movement	6 incomplete movement	8 mild impairment in range	10 full ROM
Tongue strength	2 gross weakness	5 unilateral weakness	8 minimal weakness		10 NAD
Tongue coordination	2 no movement unable to assess	5 gross incoordination	8 mild incoordination		10 NAD
Oral preparation	2 unable to examine	4 no bolus formation no attempt	6 minimal chew thrust gravity assisted	8 lip or tongue seal bolus escape	10 NAD
Gag	1 no gag	2 absent unilaterally	3 diminished unilaterally	4 diminished bilaterally	5 hyperreflexive NAD
Palate	2 no spread or elevation	4 minimal movement nasal regurgitation/air escape	6 unilaterally weak	8 slight asymmetry mobile	10 NAD
Bolus clearance	2 no clearance	5 some clearance/residue	8 significant clearance/ minimal residue	10 fully cleared	
Oral transit	2 no movement observed	4 delay > 10 sec	6 delay > 5 sec	8 delay > 1 sec	10 NAD
Cough reflex	1 none observed/unable to assess		3 weak reflexive cough		5 NAD
Voluntary cough	2 no attempt/ unable to assess	5 attempt inadequate	8 attempt hoarse	10 NAD	
Voice	2 aphonic unable to assess	4 wet/gurgling	6 hoarse	8 mild impairment slight hoarseness	10 NAD
Trache	1 trache/cuffed		5 trache/fenestrated		10 no trache
Pharyngeal phase	2 no swallow unable to assess	5 pooling/gurgling laryngeal elevation incomplete	8 laryngeal elevation mildly restricted slow initiation incomplete clearance	10 immediate laryngeal elevation clearance of material	
Pharyngeal response	1 not coping/gurgling		5 cough before/during/after swallow		10 NAD
Diet recommendations	NBM risk too great	thick viramized diet	modified soft	soft	normal
Fluid recommendation	NBM	thick fluid (batter)	thick (honey)	thick (nectar)	normal
Swallow integrity	definite	probable	possible	unlikely	
Dysphagia	dysphagia	dysphagia	dysphagia	dysphagia	
Aspiration	aspiration	aspiration	aspiration	aspiration	

Total =

Additional Problems: _____

Summary: _____

Recommendations: _____

Diagnosis: _____

Date: _____ Signature: _____

The Mann Assessment of Swallowing Ability

The highest possible score is 200.

The Examiner is able to allocate a diet recommendation and a swallow integrity or risk rating for dysphagia and aspiration (definite, probable, possible, or unlikely).

Definite = strong evidence for disorder requiring immediate action or additional instrumental assessment

Probable = Moderate evidence for disorder requiring intervention or further investigation

Possible = Lowered probability of disorder, requiring ongoing review and monitoring

Unlikely= Little evidence for disorder, or within normal limits

The Examiner makes Diet Recommendations on the scoring form, based on the completed dysphagial eval.

MASA Score Cutoff for Severity Groupings of Dysphagia and Aspiration

Severity Grouping	MASA Score - Dysphagia	MASA Score - Aspiration
No abnormality detected	Less than 178 - 200	Less than 170 – 200
Mild	Less than 168 - 177	Less than 149 – 169
Moderate	Less than 139 - 167	Less than 148
Severe	Less than 138	Less than 140

Mann, Giselle: *The Mann Assessment of Swallowing Ability*. 2002. Delmar Cengage Learning