

**Supplementary Table S1. Common swallow manoeuvres, exercises and postural strategies.**

Treatment approach	Synonyms (Similar terms)	Deficits	Purpose	Description
<b>Swallow manoeuvre</b>				
<b>Effortful swallow</b> (compensatory and rehabilitative)	Effortful swallow Hard swallow (manoeuvre / technique)	<ul style="list-style-type: none"> <li>- decreased tongue base retraction</li> <li>- decreased oropharyngeal pressure</li> </ul>	<p>To improve pharyngeal bolus propulsion, reducing residue in the valleculae and/or pyriform sinuses and aspiration [1-3]:</p> <ul style="list-style-type: none"> <li>- by strengthening the muscles involved in swallowing (tongue, infrahyoid, suprahyoid),</li> <li>- by increasing tongue base retraction and posterior pharyngeal wall movement during the swallowing,</li> <li>- by increasing orolingual and pharyngeal bolus pressure generation [1,4].</li> </ul>	<p>Voluntary swallow with maximal effort (with or without bolus):</p> <ul style="list-style-type: none"> <li>- achieved by forcefully squeezing the tongue and throat muscles [4] or by pushing the tongue hard against the hard palate [1]</li> </ul>
<b>Mendelsohn manoeuvre</b> (compensatory and rehabilitative)	Mendelsohn	<ul style="list-style-type: none"> <li>- decreased movement of the hyolaryngeal complex</li> <li>- discoordination of swallowing[5,6]</li> </ul>	<p>To enhance bolus propulsion through the pharynx, reducing pharyngeal residue and aspiration [7-9]:</p> <ul style="list-style-type: none"> <li>- by volitional increase in the duration of submental muscle contraction,</li> <li>- by improving the coordination of the swallowing muscles [10,11].</li> </ul>	<p>Squeezing the swallow at the apex [7,8]. Begin swallowing normally. When the larynx reaches its highest point, voluntarily hold that position for a few seconds before relaxing and completing the swallow [12]</p>
<b>Supraglottic swallow</b> (compensatory and/or rehabilitative)	Voluntary airway closure Breath-holding manoeuvre / technique / strategy	Decreased airway protection at the level of glottis [13,14]	<p>To increase airway protection and reduce the risk of aspiration during the swallow [15]:</p> <ul style="list-style-type: none"> <li>- by closing the airway at the level of the vocal folds before swallowing [5,8,13,16,17].</li> </ul>	<p>A voluntary breath-hold technique performed without extra effort: Inhale and hold the breath before and during the swallow. Cough at the end of the swallow (before inhaling) [12,18].</p>
<b>Super supraglottic swallow</b> (compensatory and/or rehabilitative)	As per Supraglottic swallow	Decreased airway protection before and during swallowing at the level of supraglottis [6]	<p>To increase airway protection and reduce the risk of aspiration before and during the swallow [19]:</p> <ul style="list-style-type: none"> <li>- by closing the airway at the level of the supraglottis (laryngeal vestibulum and vestibular folds) before and during swallowing [6,20,21].</li> </ul>	<p>A voluntary breath-hold technique performed with the forceful effort. Inhale, bear down and hold the breath before and during the swallow. Cough at the end of the swallow (before inhaling) [19,22].</p>
<b>Swallow exercise</b>				
<b>Chin tuck against resistance (CTAR)</b> (rehabilitative)	Modified Shaker exercise	<ul style="list-style-type: none"> <li>- reduced movement of the hyolaryngeal complex</li> <li>- abnormal UES opening [23]</li> </ul>	<p>To improve swallowing ability, bilateral vallecular and pyriform sinus residue clearance and reduce post-swallow aspiration:</p> <ul style="list-style-type: none"> <li>- by strengthening the suprahyoid muscles using resistance,</li> <li>- by promoting hyo-laryngeal complex elevation,</li> <li>- by reducing strain on the neck muscles [23-25].</li> </ul>	<p>In a sitting position the chin is tucked downward against a resistance tool (e.g. rubber ball, neckline slimmer device):</p> <ul style="list-style-type: none"> <li>- Isometric CTAR: hold a sustained chin tuck against resistance</li> <li>- Isokinetic CTAR: perform a series of consecutive chin tucks against resistance [23-25].</li> </ul>
<b>Jaw opening against resistance (JOAR)</b> (rehabilitative)	Modified Shaker exercise	<ul style="list-style-type: none"> <li>- reduced movement of the hyolaryngeal complex</li> <li>- abnormal UES opening [24]</li> </ul>	<p>To improve pharyngeal passage, thus pharyngeal residue [26]:</p> <ul style="list-style-type: none"> <li>- by strengthening and increasing the volume of the suprahyoid muscles,</li> <li>- by strengthening the jaw-opening muscles,</li> <li>- by increasing upward movement of the hyoid bone,</li> <li>- by improving both the extent of UES opening and the duration of pharynx passage [24-26].</li> </ul>	<p>Isometric JOAR in a sitting position with holding a sustained jaw opening against resistance: the jaw is opened against resistance, pressing mandible downward as forcefully as possible for 10 seconds [27,28].</p>

<b>Masako manoeuvre</b> (rehabilitative)	Tongue holding / Tongue hold swallow manoeuvre / exercise	<ul style="list-style-type: none"> <li>- decreased tongue base retraction</li> <li>- decreased pharyngeal constriction [3]</li> </ul>	To increase pharyngeal driving pressure, enhance bolus propulsion, and improve pharyngeal transit speed, thereby reducing residue [29]: <ul style="list-style-type: none"> <li>- by increasing tongue base retraction and promoting contact between the tongue base and the anterior bulging of the posterior pharyngeal wall,</li> <li>- by training pharyngeal constrictors during swallowing [3,29-31].</li> </ul>	Tongue hold. Slightly protrude the tongue between the teeth (or gums), gently bite down to secure it in place, and swallow saliva while maintaining this position [29,30,32]
<b>Shaker exercise</b> (rehabilitative)	Head lift exercise Head raise exercise	<ul style="list-style-type: none"> <li>- reduced movement of the hyolaryngeal complex</li> <li>- abnormal UES opening [33]</li> </ul>	To improve swallowing ability, bilateral pyriform sinus residue clearance and reduce post-swallow aspiration: <ul style="list-style-type: none"> <li>- by strengthening the suprahyoid muscles and promoting hyo-laryngeal complex elevation,</li> <li>- by increasing UES opening [33-35].</li> </ul>	Lie in a supine position and lift the head to look at toes. <ul style="list-style-type: none"> <li>- Isometric head lift: maintain a sustained static head lift.</li> <li>- Isokinetic head lift: perform a series of consecutive head lifts [36,37].</li> </ul>
<b>Postural strategy</b>				
<b>Chin tuck</b> (compensatory)	Chin down posture Chin down movement Chin to chest Chin tuck exercise (Forward) flexion of the head Head / Neck / Head and neck flexion Head tilt forward	Delayed: <ul style="list-style-type: none"> <li>- oral control,</li> <li>- swallowing trigger,</li> <li>- tongue base retraction [38]</li> </ul> Deficit in the vocal fold closure [39]	To improve airway protection, reduce laryngeal penetration and aspiration before and during swallowing [40,41]: <ul style="list-style-type: none"> <li>- by keeping the bolus in the oral cavity longer, facilitated by gravity,</li> <li>- by narrowing the laryngeal entrance, improving tongue-base and posterior pharyngeal wall contact, and reducing laryngo-hyoid and hyoid-mandibular distances [16,17,42-45],</li> </ul> by facilitating the opening of the upper esophageal sphincter (UES) [46].	The chin is lowered prior to swallowing (“look down”)
<b>Chin up</b> (compensatory)	Head / Neck extension Extension of the head Head back (posture)	<ul style="list-style-type: none"> <li>- oral &amp; lingual deficits</li> <li>- oral transfer deficits [39,47]</li> </ul>	To facilitate the pharyngeal phase of swallowing [46]: <ul style="list-style-type: none"> <li>- by improving bolus propulsion using gravity,</li> <li>- by mechanically widening the laryngeal entrance and narrowing the valleculae,</li> </ul> by decreasing the duration of the UES relaxation [48,49].	The chin is elevated prior to swallowing (“look up”)
<b>Head tilt</b> (compensatory)	Head tilt (posture) Head tilt to stronger / healthy / intact side Tilting head	<ul style="list-style-type: none"> <li>- Unilateral oral and/or pharyngeal dysfunction, deficits [5,50,51]</li> </ul>	To facilitate poor unilateral oral clearance, reduce unilateral post-swallow pharyngeal residue and aspiration risk [22,52,53]: <ul style="list-style-type: none"> <li>- by directing bolus toward the side of the head tilt (along the healthy side or the side with better function), while closing the weaker side of the pharynx by increasing lower pharyngeal pressure [52].</li> </ul>	The head is tilted toward the healthy or stronger side prior to swallowing (“ear to the shoulder”)
<b>Head turn</b> (compensatory)	Head rotation towards the weak / damaged / affected side Head-rotation posture Head turn (manoeuvre)	<ul style="list-style-type: none"> <li>- Unilateral pharyngeal deficits [54,55]</li> </ul>	To facilitate swallowing, improve bolus flow control, reduce unilateral post-swallow residue and aspiration risk [51]: <ul style="list-style-type: none"> <li>- by rotating the head toward the affected side, reducing the anatomical space of the pyriform sinus and redirecting the bolus to the opposite, stronger, more sensitive side of the pharynx [50,52],</li> </ul> by prolonging the UES opening and lowering its pressure on the opposite side of head rotation [52].	The head is rotated toward the lateral damaged or weak side prior to swallowing (“look over the shoulder”)
<b>Side lying</b> (compensatory)	Side-lying on the stronger side Side-lying posture	Unilateral hypopharyngeal dysfunction or deficit <ul style="list-style-type: none"> <li>- (dysmotility, contractibility deficit) [5]</li> </ul>	To improve bolus flow control and minimize unilateral pharyngeal residue and the post-swallow aspiration risk: <ul style="list-style-type: none"> <li>- by altering gravity to direct residue toward the stronger, more sensitive pharyngeal wall and pyriform sinus, facilitating its clearance with additional swallows [56-58]</li> <li>- by increasing hypopharyngeal pressure and maximum opening of the pharyngoesophageal sphincter</li> </ul>	Lying on the stronger, more sensitive side prior to swallowing

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