

Contributions by Jamie D. Fisher, PhD, CCC-SLP

Introduction: Although there are no reliable data directly associating dysphagia with presence of a tracheostomy tube (trach-tube), patients requiring trach-tubes and mechanical ventilation may have dysphagia due to their medical status (i.e. trauma, severe pulmonary disease, etc.). Patients with a critical illness that requires tracheotomy and mechanical ventilation are at risk for dysphagia (Leder & Ross, 2010; Suiter et al., n.d.). An intervention that speech-language pathologists (SLPs) can utilize to assist critically ill patients requiring trach-tubes for swallowing benefits is a speaking valve.

Why: Effective nutrition and hydration is necessary to sustain life.

In addition to sustaining life, being able to consume food and liquid via oral intake enhances quality of life for many patients. Patients with trach-tubes who present with dysphagia may present with challenges for oral intake. A speaking valve can offer benefits to assist with swallowing function (Suiter, 2005). Before we can assess and offer recommendations for treatment with use of a speaking valve, we need to understand how speaking valves work to provide swallowing benefits.

How: Although there are many brands and designs of speaking valves, generally, the valves all work similarly by “opening” (via a membrane, flap, ball, etc.) allowing air to be inhaled through the speaking valve to the lungs. However, when air is exhaled the speaking valve will “close” keeping air from escaping out of the trach-tube and forcing the air up through the vocal folds and into the pharyngeal, oral, and nasal cavities. The speaking valve thus creates a “closed” system, which resembles the normal physiological function of the upper aerodigestive tract system. This “closed” system with use of the speaking valve can offer some of the following benefits for swallowing*:

- **Increases oropharyngeal sensation:** A trach-tube changes the normal physiological function of the upper aerodigestive tract resulting in reduced ability of sense of taste and smell. However, with a speaking valve in place the physiological function of the upper aerodigestive tract is restored allowing airflow into the pharyngeal, oral, and nasal cavities, thereby increasing the ability of sense of taste and smell.
- **Restores subglottic air pressure and cough reflex:** With a speaking valve in place, air is forced up to the level of the vocal folds creating and restoring the necessary subglottic air pressure necessary for not only voicing/verbalizing, but also for coughing. Coughing, whether reflexive or volitional, is vital in the event of penetration and/or aspiration of food and liquid for clearing and airway protection. Without a speaking valve in place an effective cough for airway protection may not be achieved.

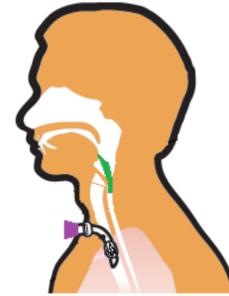


Photo Credit: Dr. Jamie D. Fisher

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Improves secretion management: With a speaking valve in place, patients are able to manage secretions by producing coughs with oral expectoration of secretions. Also, with the speaking valve in place evaporation of secretions can occur due to air being forced to the upper airway during exhalation. This can reduce the amount a patient might require suctioning.

Improves oxygen levels: A normal closed respiratory system allows for adequate oxygen levels. With a speaking valve in place aiding in "closing" the system Positive End Expiratory Pressure (i.e., also known as PEEP; the lung's alveolar pressure above atmospheric pressure that exists at the end of expiration) reestablished which facilitates improved oxygenation.

* It is important to note that while speaking valves can offer benefits for swallowing, not every patient will be able to tolerate speaking valves for various reasons. While it is optimal for patient to utilize speaking valves for swallowing benefits, utilizing a speaking valve is not necessarily a prerequisite or requirement for swallowing. Tolerating or managing the speaking valve is also not indicative of a patient's swallow ability. To insure accurate evaluation of the patient's swallowing ability it is best practice to perform an instrumental assessment. During the instrumental assessment a patient can be examined with and without use of the speaking valve to demonstrate and determine the patient's swallow ability.

Common Manufacturers of Speaking Valves Statements on Swallowing Benefits

Passy-Muir Speaking Valves

www.passymuir.com

Statement on Swallowing Benefits: "The closed position "No Leak" design of the Passy Muir® Valves restores the patient to more normal physiology. This design facilitates increased pharyngeal/ laryngeal sensation and restores subglottic air pressures which improves swallow and may reduce aspiration (What is a Passy Muir Valve?, n.d)."



Passy Muir Speaking Valves & Adapters
Photo Credit: Dr. Jamie D. Fisher

This and related information may be found here: http://passy-muir.com/what_is

Shikani Speaking Valves

www.theairwaycompany.com

Statement on Swallowing Benefits: "The Shikani Speaking Valve allows tracheostomy patients to achieve a more normalized airway system with reduced infections, managed secretions, reduced aspiration, and improved swallowing and olfaction (The Shikani Speaking Valve, n.d)."



Shikani Speaking Valves & Humidity Moisture Exchanger
Photo Credit: Dr. Jamie D. Fisher

This and related information may be found here: <http://theairwaycompany.com/?page=products>.



Speaking Valves and Swallowing Benefits

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Shiley™ Speaking Valves

www.medtronic.com

Statement on Swallowing Benefits: “The Shiley Speaking Valve is designed for use on alert, awake tracheostomy patients who can breathe independently without assisted mechanical ventilation. By directing airflow through the oral and nasal chambers it decreases secretions and improves swallowing and sense of smell (Medtronic, n.d).”



This and related information may be found here: <https://www.healthcare21.eu/wp-content/uploads/2014/06/Shiley-Speaking-Valve.pdf>

References:

Leder, S., & Ross, D. (2010). Confirmation of no causal relationship between tracheotomy and aspiration status: A direct replication study. *Dysphagia*, 25, 35–39. <https://doi.org/10.1007/s00455-009-9226-z>

Medtronic, Inc. (n.d.). [Brochure]. Author. Retrieved June 4, 2018, from <https://www.healthcare21.eu/wp-content/uploads/2014/06/Shiley-Speaking-Valve.pdf>

The Shikani Speaking Valve. (n.d.). Retrieved June 4, 2018, from <http://theairwaycompany.com/?page=products>

Suiter, D. (2005). Speaking valves and swallowing. *Perspectives on Swallowing and Swallowing Disorders (Dysphagia)*, 14, 14-18.

Suiter, D., Brady, S., Dikeman, K., Mandaville, A., Scarborough, D., & Leder, S. (n.d.). Frequently Asked Questions on Tracheotomy and Swallowing. Retrieved June 4, 2018, from <http://www.asha.org/SLP/clinical/Frequently-Asked-Questions-on-Tracheotomy-and-Swallowing/>

This FAQ was developed by affiliates of ASHA's Special Interest Group 13, Swallowing and Swallowing Disorders (Dysphagia). This FAQ does not represent an official position or policy of ASHA.

What is a Passy Muir® Valve? (n.d.). Retrieved June 4, 2018, from http://passy-muir.com/what_is

Website Resources:

www.passymuir.com

www.theairwaycompany.com

www.medtronic.com