



# **Stroke and Nutrition**

## **Fact Sheet 2017**

*Authors: Maureen Whitford PT, PhD, NCS; Heather Hayes, DPT, PhD, NCS; Jamie Haines, PT, DScPT, NCS; Mark Stephens, PT, DPT, NCS*

### **Role of physical therapists in nutrition**

The APTA has a patient care link about Nutrition and Physical Therapy <http://www.apta.org/PatientCare/Nutrition/> The key take home message is that “Nutrition is part of the professional scope of practice for physical therapy”. The APTA’s has a position statement: “the role of the physical therapist to screen for and provide information on diet and nutrition issues to patients, clients, and the community within the scope of physical therapist practice.” (House of Delegates P06-15-22-17).

### ***Clinical Question: How can we facilitate optimal nutrition in our patients post-stroke?***

Evidence estimates that from one fifth to one third of patients post-stroke have dysphagia early in recovery.<sup>1,2</sup> Related to this impairment, many patients develop aspiration pneumonia (a lung infection after inhaling food, liquid or vomit into lungs). Dysphagia and aspiration often lead to secondary conditions in patients after stroke including malnutrition, dehydration, weight loss, decreased quality of life, and increased mortality.<sup>2-4</sup> Beyond these prevalent issues, the incorporation of adequate nutrition in patients post-stroke can decrease skin breakdown and long term skilled nursing placement.<sup>1,3</sup> Despite the evidence supporting the prevalence of malnutrition in patients with dysphagia, current medical standards to support optimal nutrition are not yet well established.<sup>3</sup> For these reasons, it is critical that all team members support conditions that promote nutrition in our patients post-stroke.

### **Dysphagia & Aspiration**

Beyond referral to our colleagues, it is easy to envision how we as physical therapists can try to ensure optimal education, carryover, and implementation of these measures within our

plans of care and treatment sessions. There are a few simple measures we can take as members of the healthcare team to support this goal. Aspiration is not always clinically obvious. Therefore, patients should be monitored closely for signs or symptoms of aspiration and all signs/symptoms should be reported to the appropriate team members immediately. Current guidelines for treatment of patients after stroke recommend that prior to initiation of any oral intake (food, drink or meds), a swallowing assessment should be completed.<sup>3</sup> Furthermore, the current guidelines strongly support use of a valid dysphagia screen (bedside and instrumental in certain cases) for all patients in the early acute phase post-stroke by an expert, typically a speech language pathologist, in dysphagia.<sup>1-3,5</sup> If swallowing deficits are identified, the treatment plan should include swallowing exercises, upright positioning during meals, education about safe swallowing, oral hygiene protocols, and dietary modifications as appropriate.<sup>1,6-10,12</sup>

## **Nutritional Intake**

In addition to the identification of dysphagia and/or aspiration in our patients after stroke, dysphagia may lead to decreased caloric intake and subsequent malnutrition.<sup>1</sup> Recent evidence from the Food or Ordinary Diet (FOOD) trials and Cochrane review support additional measures related to nutritional intake.<sup>8, 13-15</sup> The recommendations include: i.) screening for malnutrition and/or dehydration within 48 hours of admission with scheduled periodic rescreening<sup>1</sup>, ii.) referral to a dietician and/or speech language pathologist as appropriate, iii.) supplements for those with or at risk of malnutrition<sup>14</sup>, and iv.) initiation of early tube feeds (7 days after stroke) for those who cannot safely swallow.<sup>14</sup> Within 2-3 weeks after stroke, tube feeds should be done via a nasogastric (NG) tube, followed by placement of a percutaneous endoscopic gastrostomy (PEG) for those who need ongoing nutritional support.<sup>8, 13</sup> In addition; patients who have comorbidities that put them at risk for malnutrition should be referred to a dietician.<sup>1</sup> Various malnutrition screening tools exist are appropriate.<sup>19</sup> The Malnutrition Universal Screening Tool (MUST) has been shown to be associated with risk of negative outcomes within 6 months of stroke.<sup>11</sup> [http://www.bapen.org.uk/pdfs/must/must\\_full.pdf](http://www.bapen.org.uk/pdfs/must/must_full.pdf)

## **Integration of Principles of Neuroplasticity**

The principles of experience-dependent neuroplasticity should be implemented in our sessions to support optimal nutrition. To integrate these principles, we must practice specific related tasks that are relevant to the patient in an intense repetitive way.<sup>16</sup> Encourage sitting upright for all activities and meals in order to facilitate alertness and muscle tone. Since evidence has shown that the timing of interventions matters (i.e. there are critical periods during which interventions may have more beneficial effects), our carryover of these nutritional principles is critical early on during patients' inpatient stays. Additionally, the potential transference of good nutrition to better motor outcomes is possible, reiterating the importance of carryover of techniques and positioning throughout the day during therapies and nursing. As movement specialists, it is very important that we provide our patients with means to attain our collective goals; namely, we need to make sure that each patient is adequately nourished to support the challenging rehabilitative tasks that we ask them to do.

## Healthy eating habits

Secondary stroke prevention refers to helping persons who have already had a stroke, not have a second stroke. Healthy eating is a key component of this process. It may be that an individual who has had a stroke was not following key modifiable risk factors of stroke to begin with. Providing the education about one factor (nutrition) after the stroke will help in reducing the possibility of a second stroke and the sequelae of poor nutrition related co-morbidities (hypertension, diabetes, hyperlipidemia).

After a stroke, your patients can become overwhelmed by all the information given by their health care practitioners, especially when it comes to healthier living AFTER a stroke. While changing eating habits SOUNDS easy, we all know it can be very difficult to make the life-long diet choices that keep your patients healthier. Here are four easy, practical steps you can take to help your patients improve their nutrition:

1. Help your patients take an honest look at how they eat. Use a short questionnaire to help your patients self-assess what areas in their diet need to attention. Devon Health and Well-being (<http://www.devonhealthandwellbeing.org.uk/wp-content/uploads/2012/10/BHF-How-healthy-is-your-diet-questionnaire1.pdf>) is easy to read and gives immediate ideas of how to improve eating habits.
2. Provide your patients with the recommended diet guidelines. Overall, encourage a diet that **emphasizes** a variety of fruits and vegetables, whole grains, low-fat dairy products, skinless poultry and fish, nuts and legumes, non-tropical vegetable oils. Limit saturated fat, *trans* fat, sodium, red meat, sweets and sugar-sweetened beverages The American Heart Association provides a recommended serving infographic at <https://healthyforgood.heart.org/eat-smart/infographics/what-is-a-healthy-diet-recommended-serving-infographic>
3. Provide your patients with concrete descriptions of portion sizes. Web MD has a wallet-sized portion control guide and a handout graphic about portion size. Being specific about portion size is helpful. For example, 3 oz of meat is the size of a deck of cards. <https://www.webmd.com/diet/printable/portion-control-size-guide>
4. Empower your patients by providing resources about these topics:
  - Nutrition Tips for Stroke Survivors: ([http://www.strokeassociation.org/STROKEORG/LifeAfterStroke/HealthyLivingAfterStroke/Nutrition/Nutrition-Tips-for-Stroke-Survivors\\_UCM\\_308569\\_SubHomePage.jsp](http://www.strokeassociation.org/STROKEORG/LifeAfterStroke/HealthyLivingAfterStroke/Nutrition/Nutrition-Tips-for-Stroke-Survivors_UCM_308569_SubHomePage.jsp))
  - Heart Healthy Grocery Shopping tips ([http://www.heart.org/HEARTORG/HealthyLiving/HealthyEating/Nutrition/Heart-Healthy-Grocery-Shopping\\_UCM\\_470398\\_Article.jsp#.Wfjii1uPLX4](http://www.heart.org/HEARTORG/HealthyLiving/HealthyEating/Nutrition/Heart-Healthy-Grocery-Shopping_UCM_470398_Article.jsp#.Wfjii1uPLX4))
  - Healthy Holiday Eating (<https://healthyforgood.heart.org/eat-smart/articles/holidays-healthy-eating-guide>)

- Great heart healthy recipes (<https://recipes.heart.org/>)
- Good-for-your-heart Dining Out tips ([http://www.heart.org/HEARTORG/HealthyLiving/HealthyEating/DiningOut/Dining-Out\\_UCM\\_304183\\_SubHomePage.jsp](http://www.heart.org/HEARTORG/HealthyLiving/HealthyEating/DiningOut/Dining-Out_UCM_304183_SubHomePage.jsp))

### **Future directions**

Ideally, guidelines for the entire healthcare team, including patients and caregivers, will be better established in the future. In the meantime, it is critical that we add these important domains to our evaluations, even in a cursory way, to ensure that each patient's needs are being identified and addressed. We can no longer afford to isolate nutrition from movement, strength, and overall recovery. A holistic approach to health and wellness will surely incorporate nutrition as our profession moves forward.

## References

1. Ashford J, McCabe D, Wheeler-Hegland K, et al. Evidence-based systematic review: Oropharyngeal dysphagia behavioral treatments. part III--impact of dysphagia treatments on populations with neurological disorders. *J Rehabil Res Dev*. 2009;46(2):195-204.
2. Bingjie L, Tong Z, Xinting S, Jianmin X, Guijun J. Quantitative videofluoroscopic analysis of penetration-aspiration in post-stroke patients. *Neurol India*. 2010;58(1):42-47.
3. Bingjie L, Tong Z, Xinting S, Jianmin X, Guijun J. Quantitative videofluoroscopic analysis of penetration-aspiration in post-stroke patients. *Neurol India*. 2010;58(1):42-47.
4. Cameron JI, O'Connell C, Foley N, et al. Canadian stroke best practice recommendations: Managing transitions of care following stroke, guidelines update 2016. *Int J Stroke*. 2016;11(7):807-822.
5. Dennis M, Lewis S, Cranswick G, Forbes J, FOOD Trial Collaboration. FOOD: A multicentre randomised trial evaluating feeding policies in patients admitted to hospital with a recent stroke. *Health Technol Assess*. 2006;10(2):iii-iv, ix-x, 1-120.
6. Dennis MS, Lewis SC, Warlow C, FOOD Trial Collaboration. Effect of timing and method of enteral tube feeding for dysphagic stroke patients (FOOD): A multicentre randomised controlled trial. *Lancet*. 2005;365(9461):764-772.
7. Dennis MS, Lewis SC, Warlow C, FOOD Trial Collaboration. Effect of timing and method of enteral tube feeding for dysphagic stroke patients (FOOD): A multicentre randomised controlled trial. *Lancet*. 2005;365(9461):764-772.
8. Dennis MS, Lewis SC, Warlow C, FOOD Trial Collaboration. Routine oral nutritional supplementation for stroke patients in hospital (FOOD): A multicentre randomised controlled trial. *Lancet*. 2005;365(9461):755-763.
9. Donovan NJ, Daniels SK, Edmiaston J, et al. Dysphagia screening: State of the art: Invitational conference proceeding from the state-of-the-art nursing symposium, international stroke conference 2012. *Stroke*. 2013;44(4):e24-31.
10. Geeganage C, Beavan J, Ellender S, Bath PM. Interventions for dysphagia and nutritional support in acute and subacute stroke. *Cochrane Database Syst Rev*. 2012;10:CD000323.
11. Gomes F, Emery PW, Weekes CE. Risk of Malnutrition Is an Independent Predictor of Mortality, Length of Hospital Stay, and Hospitalization Costs in Stroke Patients. *J Stroke Cerebrovasc Dis*. 2016 Apr;25(4):799-806.
12. Hinchey JA, Shephard T, Furie K, et al. Formal dysphagia screening protocols prevent pneumonia. *Stroke*. 2005;36(9):1972-1976.
13. Kleim JA, Jones TA. Principles of experience-dependent neural plasticity: Implications for rehabilitation after brain damage. *J Speech Lang Hear Res*. 2008;51(1):S225-39.
14. Lakshminarayan K, Tsai AW, Tong X, et al. Utility of dysphagia screening results in predicting poststroke pneumonia. *Stroke*. 2010;41(12):2849-2854.
15. Langdon PC, Lee AH, Binns CW. High incidence of respiratory infections in 'nil by mouth' tube-fed acute ischemic stroke patients. *Neuroepidemiology*. 2009;32(2):107-113.
16. McCullough GH, Rosenbek JC, Wertz RT, McCoy S, Mann G, McCullough K. Utility of clinical swallowing examination measures for detecting aspiration post-stroke. *J Speech Lang Hear Res*. 2005;48(6):1280-1293.
17. Sorensen RT, Rasmussen RS, Overgaard K, Lerche A, Johansen AM, Lindhardt T. Dysphagia screening and intensified oral hygiene reduce pneumonia after stroke. *J Neurosci Nurs*. 2013;45(3):139-146.
18. Winstein CJ, Stein J, Arena R, et al. Guidelines for adult stroke rehabilitation and recovery: A guideline for healthcare professionals from the American heart Association/American stroke association. *Stroke*. 2016;47(6):e98-e169.
19. Wirth R, Smoliner C, Jäger M, Warnecke T, Leischker AH, Dziewas R. Guideline clinical nutrition in patients with stroke. *Exp Transl Stroke Med*. 2013 Dec 1;5(1):14.