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The ABCs for Nutrition Poststroke: An Evidence-Based Practice Guide for Rehabilitation Professionals



Rehabilitation professionals are trained to assist patients to recover and cope with functional limitations after a stroke. However, there are limited resources and medical education geared toward preparing rehabilitation professionals to integrate nutritional care into stroke care. Experts suggest that all rehabilitation professionals should be trained in evidence-based nutritional approaches for patients after a stroke.^{1,2} The purpose of this document is to educate rehabilitation professionals on best nutritional practices poststroke.

Why is nutrition important poststroke?

As many as 40% of patients with stroke experience a recurrent stroke.³ The recurrent stroke risk is even higher in patients with coronary heart disease.⁴ Fortunately, diet is one of several modifiable risk factors for secondary stroke prevention.^{1,2} Dietary changes manage stroke risk factors, such as high blood pressure and high blood cholesterol, resulting in a 19% reduction in recurrent stroke risk.⁵ When combined with exercise, dietary changes significantly improve stroke risk factors.⁶

Who should address nutrition poststroke?

The entire stroke care team has the opportunity to help clients adjust their diet and reduce the risk of secondary stroke. Rehabilitation professionals should recommend that patients make an appointment to see a registered dietitian for meal planning, specific dietary advice, and assessment of dietary compliance. Rehabilitation professionals can help clients implement recommendations into daily life through activities. For example, a client may work on reading and communicating nutritional needs in speech therapy, moving through the grocery store in physical therapy, cooking healthy meals in occupational therapy, and processing the changes to their diet in counseling. To empower rehabilitation teams to address nutrition poststroke, all practitioners should have a general knowledge of recommended nutrition guidelines poststroke.

What sound and evidence-based nutritional suggestions can I give to my patients poststroke?

The Dietary Guidelines for Americans published by the U.S. Department of Health and Human Services and the U.S. Department

of Agriculture Dietary Guidelines for Americans⁷ focus on eating fiber-rich foods (fruits, vegetables, and whole grains) as well as low-fat or non-fat dairy products, and minimizing salt, alcohol, saturated fat, and cholesterol-rich foods. These recommendations mainly stem from the Dietary Approaches to Stop Hypertension diet that has been associated with a reduced risk of stroke in 2 prospective cohorts with over 74,000 people.⁸ Vegetables and fruits are also rich in potassium, which is important for stroke prevention and cardiovascular health⁹ and fiber, which can decrease stroke risk. The recommendations (table 1) can be easily integrated into the stroke recovery plan and can reduce risk factors for stroke such as obesity, hypertension, and hypercholesterolemia.

Patients may have specific questions about the nature and role of dietary fiber and information in the sections below will allow you to build your understanding and assist you to provide clear and brief answers.

What are the benefits of a high-fiber diet poststroke?

High fiber intake has been reported to prevent stroke in 4 population studies that examined over half a million people

Table 1 Daily serving suggestions for specific foods

Nutrition suggestions (www.stroke.org)	Recommended servings/day
Fruits and vegetables	5-7 servings/day
Low-fat or non-fat dairy products	2-3 servings/day
Whole grains	2-4 small servings/day
Lean protein	2 small servings/day
Limit salt intake	Less than 1500 mg/day
Reduce alcohol intake	Less than 1 drink/day for women Less than 2 drinks/day for men

Disclosure: Dr. Phadke reports financial relationships with Allergan and Merz outside the submitted work.

Table 2 General dietary suggestions

Tips for a healthy diet after a stroke (www.stroke.org , my.clevelandclinic.org)	
Eat breakfast	Eat breakfast to manage hunger
Avoid salt	Use spices as an alternative to salt, and monitor and limit salt in prepared foods
Eat high-fiber foods	Beans, peas, nuts, and whole grains are high in fiber
Limit sugar intake	Avoid sweets and beware of desserts and drinks with added sugar
Eat foods high in potassium	Potassium is found in fruits, vegetables, and low-fat dairy products
Eat whole grains	Eat whole grains (breads and cereals)
Keep healthy food in your kitchen	Keep clean and easy-to-eat fresh fruits and vegetables, low-fat yogurt, unsalted nuts, and whole grain snacks handy
Track what you eat	Use a pen and paper or an app on your phone to monitor what you eat
Manage portions	Avoid overeating by using smaller plates, only eating when hungry, and stopping eating when you are full

from around the world.^{8,10-12} Benefits of a high-fiber diet include reduction in blood cholesterol and glucose concentrations¹⁰ and arterial stiffness,¹³ which are thought to be the underlying mechanisms for the reduction in stroke risk. Fiber is found in whole plant-based foods such as whole fruits and vegetables and whole grains which are also rich in antioxidants and vitamins important for cardiovascular health. Additionally, the risk factors for stroke such as obesity, diabetes, and cardiovascular disease, can also managed by a high-fiber diet.¹⁰

What is dietary fiber and where is it found?

Dietary fiber is a type of carbohydrate that is primarily obtained from plant foods and is not digestible by human digestive enzymes.^{14,15} Fiber is broken down by colonic bacterial enzymes into molecules that can then be absorbed in the colon.¹⁵ Dietary fiber can be considered a marker for nutrient

rich plant-based whole foods such as whole grains, fruits, and vegetables.¹⁵

What does whole in whole grains and whole-grain foods mean?

The word whole refers to grains or whole-grain foods when they consist of all edible parts of the grain¹⁶ after removal of inedible parts such as the hull and husk.¹⁷ Refinement of grains to produce refined flour and refined grain products leads to loss of nutrients and fiber content and hence it is considered beneficial to eat whole grains or whole-grain foods. **Table 2** lists general dietary suggestions that you can provide to help your patients understand general evidence-based dietary principles they can follow to prevent a secondary stroke.

How can high cholesterol and triglyceride concentrations be reduced?

It is recommended to reduce saturated fat intake, predominantly found in animal foods such as meat fat and full-fat dairy products, as well as in coconut and palm oil, trans fatty acids, found in fried food products (especially if the oil used for frying is used more than once), and hidden in biscuits, cakes, savory snacks, and other processed foods containing fat.

Raised triglyceride blood concentrations can be lowered by limiting sugar intake (eg, soda, fruit juices, and desserts) and consuming oily fish 2-3 servings per week or by talking to a dietitian about alternate sources of omega-3 fatty acids. Oily fish with lowest mercury levels include Atlantic mackerel, salmon, sardine, and black sea bass (**table 3**).

Additionally, consumption of unsalted nuts (eg, walnuts and almonds), a high-fiber diet, and 5 portions of fruits and vegetables per day can aid in improving cholesterol profile and increasing the body's antioxidant defenses.

What resources can I refer my patient to?

There are number of online resources for dietary recommendations available for the general population, as well as websites that offer nutritional recommendations to persons poststroke primarily focused on preventing a second stroke. See **table 3**.

Table 3 Useful resources for patients

	Resources
Dietary Guidelines for Americans	https://health.gov/dietaryguidelines/2015/guidelines/
World Health Organization	http://www.who.int/features/qa/27/en/
Academy of Nutrition and Dietetics	https://www.eatright.org/
National Stroke Association	http://www.stroke.org/we-can-help/stroke-survivors/living-stroke/rehabilitation/diet-and-nutrition
American Stroke Association (American Heart Association)	http://www.strokeassociation.org
National Institutes of Health, National Heart, Lung, and Blood Institute	https://www.nhlbi.nih.gov/health/educational/lose_wt/eat/calories.htm
United States Department of Agriculture	https://www.choosemyplate.gov/
Cleveland Clinic	https://my.clevelandclinic.org/health/articles/eating-well-after-a-stroke
Food and Drug Administration	www.FDA.gov/fishadvice

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