

Stroke Rehab

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Every year, more than 700,000 people in the United States have a stroke, and about two-thirds of them will need some type of rehabilitation.¹ The severity of stroke complications and each person's ability to recover lost function varies widely.

Traditional post-stroke rehabilitation has included weight training, gait training, balance re-education, speech/swallowing therapies, activities of daily living training and mobility training.

The brain has a great capacity to change in response to demands, so repeating task-specific activities is the basis of stroke rehab.

PRACTICE MAKES PERFECT

Repeating movements creates neuroplastic change. Since repetition leads to boredom, use goals as motivation and develop a post-stroke therapy program around repetition of functional tasks. Break down tasks to optimize success. Once patients attain goals, add to the tasks to keep them challenging. If you aren't challenging the brain, you aren't remodeling it.

Challenging the activity may mean adding weight, making the activity more dynamic or adding distraction. For example, if a patient's goal is to put his shoes on independently, challenge the task by asking the patient to put on different styles of shoes, put them on in a crowded/noisy room or put them on while sitting on a dynamic surface, such as a ball.

CONSTRAINT-INDUCED THERAPY

CI therapy helps improve the function of the involved limb by promoting the use of the uninvolved limb. Previous to the CI concept, patients would get frustrated with—and ultimately stop using—the affected limb, leading to learned non-use. CI therapy combats this by actually producing gray-matter changes in the brain, leading to brain remodeling.

Only use this therapy when the patient has some use of the affected limb, specifically wrist extension and partial arm and finger active movement. To perform CI, restrain the uninvolved limb to force the brain to rewire the use of the involved limb.

NEURODEVELOPMENTAL THERAPY

NDT is a hands-on technique that focuses on facilitating normal movement. Use proper handling techniques to increase strength, range of motion, motor control, reduce neglect and encourage independence in functional activities. NDT promotes the opportunity to practice effective movement strategies of the involved limb, changing the lesioned side of the brain.

PROPRIOCEPTIVE NEUROMUSCULAR FACILITATION

PNF combines movement patterns and coordination, rather than single planes of movement. For example, working on shoulder flexion (single plane) is not sufficient to achieve a goal of reaching overhead to retrieve something from a cabinet. PNF involves teaching the patient about coordination and timing by using activities of everyday life.

Both PNF and NDT involve hands-on guidance. Today, experts suggest that physical guidance is the most beneficial in the early learning stages but patients can become dependent on this and fail to develop their own motor plan for movement. You can also guide patients with verbal feedback.

FUNCTIONAL REHAB

Current treatment research has proven that a functional approach to stroke rehabilitation drives better outcomes. Since stroke survivors and their families may not see the slow signs of progress, use one of the following functional tools to show improvement to the patient and to drive reimbursement:

- Motor assessment scale assesses bed mobility, balance, walking, arm and hand movement and muscle tone.
- Berg Balance Scale assesses balance, gives therapists a predictive risk of falling and assesses need for assistive walking devices.
- Five-minute walk test assesses functional capacity or endurance.

ADDRESSING SPECIFIC DEFICITS

Dysphagia is often a complication of stroke. Untreated, dysphagia may lead to weight loss or aspiration pneumonia. A speech language pathologist will treat dysphagia using strengthening exercises for the cheek muscles and tongue, or change the consistency of food. Another common complication is foot drop, caused by involvement of the nerve that lifts the forefoot. Foot drop affects the patient's ability to safely ambulate, and may be treated by a physical therapist using strengthening techniques, muscular stimulation or orthotics.

You have several tools to treat patients after a stroke. Your job is to motivate them to achieve their goals and to remind them that practice makes perfect. ■

Reference

1. Levine P. Recalling the scientists behind stroke rehab. *ADVANCE for Physical Therapists & PT Assistants* 2008;19(19):52.

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