

It Is Time for Rehabilitation: How Does It Work?

Appeared on WebMD®

You were blind-sided by a stroke, brain injury or a spinal cord injury. As you sit in your hospital room, you wonder what the future might hold. The hospital case manager tells you that you will be going for a period of rehabilitation, but what does that mean? How will it help? You know what the inside of a regular hospital looks like, but no one in your family has ever needed rehabilitation.

Putting Things Back Together

When a stroke or brain injury damages your brain, it has damaged the connection between nerve cells. Remember your mother telling you to think with your “grey matter?” That grey matter is billions of nerve cells that are connected to each other by wires (axons) that carry the messages to move your arm or ask someone to pass the butter.

Think about your garden—or a garden you’ve seen on television. When you cut a bush or plant back to prune it, the plant grows back bigger, more lush, and healthier; it literally sprouts beautiful new growth. After a stroke or brain injury, the wires in your brain, those axons and dendrites of a nerve cell, start sprouting new “stems,” new growth to seek out new connections. This is called collateral sprouting, and this regeneration is an important element of neural plasticity—the brain’s ability to repair itself. With the right type of rehabilitation, those new stems can be directed to connect the correct way and traffic in the brain can hum along as it did before.

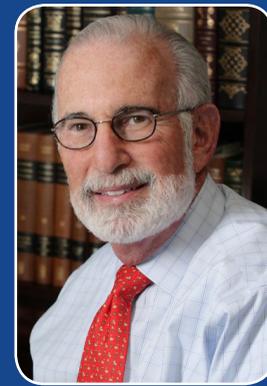
Dose-Function-Motivation

If you remember my mantra from the first article, you will see how “Dose-Function-Motivation” are the key to your improvement. We know from both animal and human research that with the right amount and type of therapy, we can both instruct other areas of the brain to take over the function of the damaged brain and also direct the damaged axons to connect with nerve cells that work. This is what rehabilitation does.

If you want to learn a new skill, you must repeat it many times. Just as multiple repetitions (practice) improve your piano playing or golf swing, so do multiple repetitions of a task help drive the axons to connect with the nerve cells that will restore function. It may seem like your therapist is pushing you hard, but it takes hard work. One hour a day isn’t enough.

Imagine a young child learning to use their hand. When my grandchildren were younger, I carried a tin of jelly beans in my pocket. When they called out, “Gramps, beans, more beans,” I would initially watch them take their hand and grab a fist full of jelly beans, spilling a few on the floor. As their brain matured

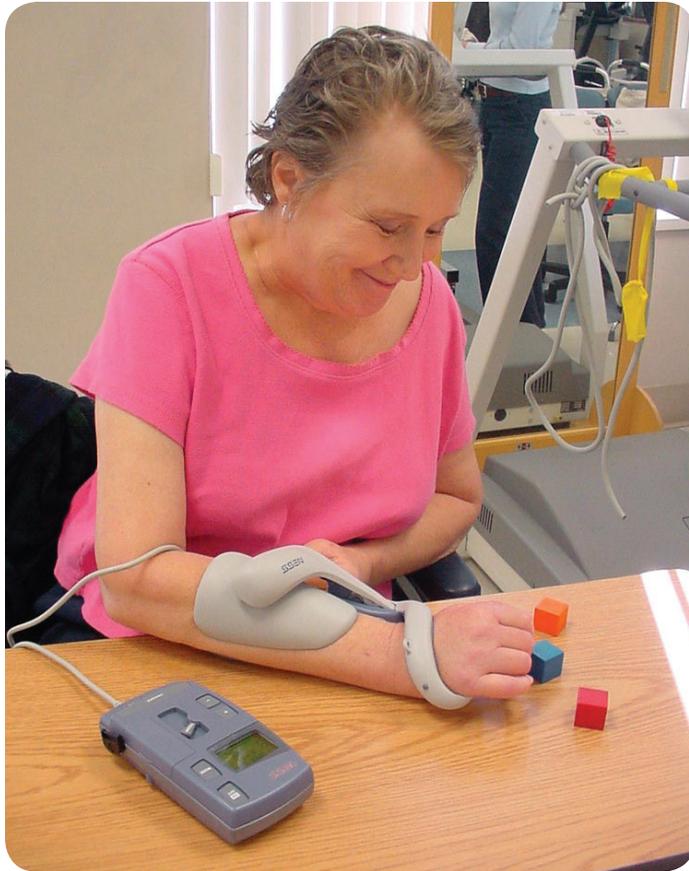
CONTINUED ON BACK



Richard C. Senelick, M.D.
Editor-in-Chief
HealthSouth Press,
Medical Director
HealthSouth RIOSA

Richard C. Senelick, M.D., is a physician specializing in both neurology and the subspecialty of neurorehabilitation. He is the Medical Director of HealthSouth RIOSA, The Rehabilitation Institute of San Antonio, and an associate clinical professor in the Department of Neurology at the University of Texas Health Science Center in San Antonio. He has authored several books on stroke, spinal cord injuries, and brain injuries. Dr. Senelick is an expert in the WebMD Stroke Community.

HEALTHSOUTH
P R E S S



and the insulation on their axons developed, I would ask them to take only a single bean. They would carefully take their thumb and index finger, form a pincer shape, and carefully extract the one color they most treasured.

It isn't much different in therapy. After a stroke or brain injury, your hand may only form a crude, clumsy grasp as you try to place soft ping pong balls in a large basket. But, many attempts and exhortations from your therapist, your brain starts to make the correct connections and you find yourself forming that same pincer grip from many years ago and placing a small peg in small hole. Success!

Technology Is Our Friend

In the first few weeks or months after a stroke it may be difficult to perform these tasks without help. New, exciting technologic advances like the Ness 200®, Saeboflex® and the AutoAmbulator®, assist patients to achieve their goals of performing many repetitions of a functional task. For example, the AutoAmbulator® helps a person who cannot walk stand upright on a treadmill and move their legs in a smooth walking fashion. This replication of walking helps drive the proper new connections in the brain that allows the person to walk. Be certain that the rehabilitation hospital you are considering has access to all the latest technologic advances. This is your chance to get better and it does make a difference.

Appeared on WebMD®