



R.E.A.C.H. For Higher Level Outcomes In Stroke Rehab

By Jill Ritchie, OTR/L, and Jeanne Langan, MS, PT

*Mrs. Smith suffered a stroke approximately two years ago and was admitted to the hospital with right hemiplegia. After a typical course of rehabilitation; acute inpatient rehab, subacute inpatient rehab and outpatient rehab, she was discharged from therapies. Her many therapists considered her to be a great rehab success story. She had made remarkable gains being able to walk independently, returning to living at home with her husband and going into the community. Unfortunately, she did not feel the same level of success, as a 66 year old woman, success meant returning to her previous lifestyle. She was unable to complete higher level activities that she loved, such as cooking. The REACH program offered a means to work on these skills in a manner that allowed intensive practice. Mrs. Smith found this approach effective and thoughtfully brought in lunch that she prepared for the staff.

REACH (Revealing Extremity Activity, Changing Habits) is a new out-patient program being offered by Pinnacle Healthcare facilities in Eugene and Roseburg, Oregon for patients who have suffered a stroke. As facilities that specialize in neurological rehab, the team was familiar with some of the new research surrounding nontraditional approaches to rehabilitation. There is evidence that the brain has the remarkable ability to adapt (1-4) allowing us to view rehabilitation from a new perspective. This research suggests that different options in the delivery of therapeutic services should be offered. The question the therapists had was how to apply the research to patient treatments to get better outcomes. This promoted the development of the REACH program. Historically, the brain has been perceived as a relatively static structure with minimal potential for adaptation following lesions. This traditional view suggests that spontaneous recovery alone determines the amount of improvement possible. New research demonstrates plasticity of the brain, showing that the central nervous system has the ability to make adaptations to meet the demands placed on it. This cortical reorganization is influenced by both use and experience. The evidence of activity based plasticity occurring long after spontaneous recovery emphasizes the need for intensive rehabilitation programs.

The REACH program is based on the research of constraint induced (CI) therapy. CI therapy was introduced as a new form of rehabilitation by Dr. Edward Taub (5-7). It is a therapeutic intervention that focuses on improving the functional mobility of the impaired arm following stroke by limiting the use of the stronger arm. The mission of the REACH program is to provide individuals with mild to moderate upper extremity impairment following neurological insult the

professional educational and therapeutic support to make changes in the way they use their affected extremity.

The outline of the REACH program follows the protocol used in CI therapy. Clients first agree to wear a constraint on the affected hand ninety percent of their waking hours. The unaffected arm is then constrained with a mitt forcing the unaffected arm to be used more in daily activities. Clients are asked to keep a daily log of all the activities the affected hand completes. In addition, they participate in therapy six hours a day for ten days in a two week period. This may seem like an unreasonable amount of time to spend in the clinic, but, the reaction to the intensive time schedule has been positive. One recent graduate states “6 hours a day? Oh my! I enjoyed every minute of it. I could see improvement every day.”

Clients who are appropriate for the REACH program demonstrate specific criteria. They need to be medically stable and independent in transfers. Cognitive function should be adequate for direction following and communication. Active movement of the involved wrist, thumb and at least two fingers (generally 10 to 20 degrees of extension) should be demonstrated. Functional movement should be enough to allow the patient to lift and release a washcloth. There should be evident limitations in the functional use of the involved upper extremity. Clients need to be motivated to participate and have sufficient endurance to participate in activities. They should also express a willingness to wear a constraint on the unaffected arm. It is understood that the constraint should be removed if its use affects their safety in any way or if the task at hand requires two hands to complete. Clients must be willing to sign a behavioral contract prior to starting the program that describes what is expected of them during the two week program.

While research in CI therapy reports to have produced substantial improvements in almost all of the people studied, the outcome is variable. The amount of improvement is related to the severity of the initial impairment. Higher functioning individuals typically demonstrate greater improvement than individuals with more impairment. (8). At this time, clients are screened prior to admittance into the REACH program to identify participants that may benefit the most from this intensive program.

Similar to conventional therapy programs, therapy in the REACH program remains goal directed. While all subjects seem to express the more global goal of being able to use their affected extremity with less effort and in a timelier manner, they also list specific goals. The personal goals have ranged from being able to shake hands to being able to cut hair again with the affected hand. It is a reminder that even those clients who we would typically classify as having had a “milder” stroke welcome the opportunity to increase their functional level to enrich their lives.

One client participating in the program expressed this idea very eloquently despite limitations in her speech following stroke. She had established herself as an artist prior to her stroke, but, found that her self perception had changed dramatically after the stroke when she lost the ability to draw with her right hand.

One of her goals was to be able to create art with her right hand. Through a great deal of perseverance she improved the dexterity of her right hand allowing her to draw again. The change in her self-perception is remarkable and the joy it gives her is obvious.

Therapists strive for a “coaching” role in the program. The expertise of our therapy backgrounds is expressed in selecting activities that drive the desired movement pattern necessary to meet the long term goals. Activities are graded with the level of difficulty set at a point where the client is approximately 75% successful with the task. Adjusting the level of difficulty to maintain 75% accuracy generally challenges the client, but doesn’t allow the task to become routine.

Activities are individualized to address the goals of each participant, but the clients work in the same classroom lending a social atmosphere to the rehabilitation. The clients have a chance to develop relationships with each other and benefit from shared experiences. One client expressed this concept. “Doing rehab by yourself can be lonely and sort of depressing. Being able to do rehab while in the REACH program is more rewarding and more emotional while in the small group setting. I was encouraged by the others and their efforts helped to motivate me. The group evolves into a team. We benefited from each other. We learned from each other. We helped each other.” (MB).

To date, the feedback we have received from clients and their families is that they notice functional improvements and they are pleased with their decision to participate. The amount of recovery varies for each client during the program. To maximize functional gains an educational component is imperative in the program. Typically, clients relate the improvements in mobility with a massed practice approach and express a willingness to continue to use the affected arm more in their daily activities. Clients are contacted via the phone during the months following the program to monitor their progress and provide encouragement.

Adding the REACH program to our clinical services has been a rewarding experience for both the staff and the clients. It has been an effective way to approach stroke rehabilitation and it created an opportunity for professional growth. We look forward to new literature that would improve the program.