

Stroke Rehabilitation

What is Neuroplasticity?

- The potential of the brain to react with **adaptive changes** to outside or inside inputs.
- A **flexible property** of the brain **to change**- temporarily or permanently.
- The ability of the brain **to adapt** to new situations.
- **Strengthening** or **Weakening** nerve connections or adding new nerve cells based on outside experiences.
- A defining feature of the brain is its capacity to undergo changes based on activity-dependent functions, also called **activity-dependent plasticity**.

Problem:

- Paralysis or problems controlling movement (motor control)
- Sensory disturbances including pain
- Problems with thinking and memory
- Emotional disturbances

Current perspectives and therapeutic avenues:

- Constraint-induced movement therapy
- Motor re-learning
- Bobath (NDT)
- Mirror therapy
- Task-specific therapy
- Mental Practice- Mental imagery involves rehearsing a specific task or series of tasks mentally before actually performing the task.
- Botulinum toxin
- Functional Electrical Stimulation
- Hydrotherapy
- Biofeedback, Robotic technology
- Virtual reality
- Brain repair
- Stem cell therapies- in research

What is Neurodevelopmental Treatment (NDT)?

- NDT is a problem-solving approach to the examination and treatment of the impairments and functional limitations of individuals with neurological impairments.
- **“Hands-on”** approach
- Training is focused on **specific task goals and functional skills**
- Direct teaching of the patient/client/family/caregiver to ensure carryover of functional activities in the home

Life Skills Therapy/ Rehab

Approach

- Is not based on exercise, but activities related to daily life.
- Our program is scheduled to meet the specific needs of every person. It is an on-going process, and we try to begin treatment as soon as possible.
- By not using any specialized equipment, treatment is not limited to the clinic. With our specialized training, it can easily be continued by the clients and/or caregivers at home.

Concept

- If you can move, you can learn. If you can learn, then you can develop.
- The brain has neuroplasticity. With the appropriate stimulation and training, a person's brain can develop additional pathways to replace the damaged ones.
- Only independent function can develop a client into independency.
- Brain stimulation comes from verbal and motor guidance. Therefore, we emphasize the importance of communication and repetition when working with a client.
- There is no exercise, just function; no therapy, only life. Treatment is based on a client's physical effort. We simply provide guidance and teach them functions that are integral to their daily living.
- Treatment must continue outside the sessions and become a part of the client's life. Therefore, we teach clients and caregivers how to continue guiding outside the sessions.
- Nothing can be built up on disability. No client is seen as handicapped; therefore, we build on their abilities, and not their disabilities.

"We do what works best for you"

Examples:

- ✓ A great example of this can be seen within Norman Doidge's 'The Brain That Changes Itself.' Bach y Rita's father suffered from a disabling stroke that left the 65-year-old man half-paralyzed and unable to speak. After one year of crawling and unusual therapy tactics including playing basic children's games and washing pots, his father's rehabilitation was nearly complete and he went back to his role as a professor at City College in New York.
- ✓ For example, a right-handed person may perform any movement poorly with his/her left hand but continuous practice with the less dominant hand can make both hands just as able. Another example is if someone was born with a neurological disorder such as autism or had a stroke that resulted in a disorder, then they are capable of retrieving much of their lost function by practicing and "rewiring" the brain in order to incorporate these lost manners.