



THE THERAPEUTIC USE OF GUIDED IMAGERY IN THE BRAIN INJURED

Ten years ago the study of the mind-body connection was considered on the fringe of science; today it is in the mainstream of scientific investigation.

Though the science of mind-body healing is relatively new in technological medicine; in the art of healing, the mind-body connection has always been recognized. In traditional tribal medicine and in Western practice, beginning with the work of Hippocrates, the need to work through the patient's mind has been considered a vital part of the healing process.

When we consider healing from this larger historical perspective, we are actually rediscovering something that we have always known, that the mind and body are inseparable, and that when you influence one, you influence the other.

Paracelsus, a 15th century physician and the founder of modern chemistry, stated that "man has a visible and an invisible workshop. The visible is his body, the invisible is his imagination. The spirit is the master, the imagination is the tool, and the body is the plastic material."

Given this intimate link, the question then becomes how can we utilize this connection to assist in the healing and recovery process of the brain injured individual.

Guided imagery is emerging in many fields as a very powerful tool for engaging the mind to positively influence the body, from Cancer research to the study of peak performance in athletes.

The purpose of this paper is to:

1. Define the term guided imagery.
2. Review some of the latest research and literature on the subject of mind-body dynamics.
3. Explore some of the possible uses of imagery with brain injured individuals.
4. Discuss some of the specific components of using imagery successfully.

DEFINING IMAGERY

Imagery is a term that is used to describe a natural function of the mind, that of producing images with our imagination. Our minds are constantly producing spontaneous images and most often we don't even realize that we are doing it. Guided imagery is the technique of harnessing this natural function, in order to have it work for us rather than against us.

One way in which we more consciously use this ability is when we are planning a holiday. We first think of a place we would like to go to and then begin to imagine what it would be like to actually be there. For example our imagination can take us to that sandy beach, listening to the ocean, feeling the warm breeze on our faces. If our mental body likes the experience enough we will then begin the process of getting our bodies there.

In this way we are always using our thoughts and imaginations to create our future. Most of our decisions are made this way, starting as a thought and then we follow the thought by action.

In brain injured individuals a disruption in this ability is frequently seen as lack of initiative, impulsive behaviour, inability to pre-plan or set meaningful goals, resulting in a standstill in the life of this person.

Images, whether they are consciously produced or spontaneously produced have a very direct impact on our bodies.

For example, if a person is instructed to think about increasing the amount of saliva in their mouth they may experience a small degree of success. If they are instead instructed to imagine a lemon in their hand, feeling it's texture, noticing it's shape and colour, then imagine cutting the lemon in half and biting into it, the amount of saliva produced in response to this imagery will be much more pronounced.

Images tend to more powerfully influence our bodies on a physiological level than words. Imagining ourselves lying in a field of flowers is more effective for inducing a relaxation response than simply instructing your body to relax.

According to some researchers it is considered to be possible that every thought produces a corresponding physiological response.

Roberto Assagioli, an Italian Psychologist, founder of Psychosynthesis, the study of the mind-body dynamic, discovered that "When you visualize an activity, some parts of the subconscious mind cannot distinguish between a real and an imagined activity. Your body responds on a muscular, glandular, cellular and memory level just as it would if the experience were real. Real and imagined experiences trigger the same biochemical release in the body."

This has been reproduced by many researchers since he first made this statement. In fact there is now an entire field of research called Psycho-neuroimmunology which is being funded by the U.S. government, particularly as related to cancer.

If you think about the last horror movie you saw or imagine yourself doing something that terrifies you such as public speaking, you'll probably agree with this statement, because in both instances, the situation may not be real, but your body responds as if it were. For some people just the thought of public speaking terrifies them.

RESEARCH

Many researchers have continued to validate Assagioli's work, in fact, the field of study called Psychoneuroimmunology, funded by the U.S. government, studies the link between thoughts and emotions and the body. So the question no longer appears to be if the mind influences the body, but how?

NEW DEVELOPMENTS

Through the development of Positron Emission Tomography, Magnetic Resonance Imagery and cerebral Blood Flow studies the neuro-anatomical link between the image producing areas of the cortex and the hypothalamus can now be demonstrated. This sophisticated diagnostic equipment allows us to see what is happening in the brain as thinking occurs and can map the blood flow of the hemispheres as thoughts change. This technology seems to be demonstrating that thought, beliefs and imaginations are not merely ephemeral abstractions but electrochemical events producing physiological consequences."

In 1977, Guillemin and Schally received the Nobel Prize after demonstrating how the brain transfers thoughts into chemical reactions giving orders to the body.

NEUROANATOMICAL THEORY

The current theory of how this occurs is as follows: As thoughts occur they are seen as neural impulses which are transmitted via a rich network of blood vessels and neural pathways from the cortex to the hypothalamus and limbic system. The hypothalamic/limbic system which stores memory, learning and emotions is emerging as a vital centre for the modulation and transference of thoughts into biochemical and physiological reactions. Thoughts influence the cellular structures on the molecular level via the Autonomic Nervous System, the Endocrine System and the Immune System.

AUTONOMIC NERVOUS SYSTEM PARASYMPATHETIC NERVOUS SYSTEM

If we examine the impact of thoughts on the Autonomic the following events occur. When a thought arrives in the hypothalamus, depending on the content of the thought, it will activate either the Sympathetic or Parasympathetic nervous system.

If it is a pleasant, calm thought, the parasympathetic nervous system will be activated. This results in the production of the neurotransmitter acetylcholine which interacts with the molecular structure of the cells in the body resulting in a lowering of the pulse rate, respiration rate, blood pressure, reduction of muscle tension and expansion of the arterioles.

SYMPATHETIC NERVOUS SYSTEM

If it is an unpleasant, exciting or angry thought then the sympathetic nervous system is activated producing norepinephrine. This neurotransmitter produces an increase in the heart rate, respiration rate, blood pressure, muscle tension, and constriction of the arterioles.

EMOTIONS

Emotions produce similar changes in the Autonomic nervous System, the Endocrine System and the Immune System, as emotions have been discovered to be small bundles of neuropeptides.

PERSONAL EXPERIENCE

I had an interesting experience in witnessing the significant impact of emotions on tone when working with a young hemiplegic man. While inhibiting his tone, a bucket of water was spilled in an area close by. There was no increase in tone in response to the noise at the time, but about 3 minutes later his tone began to increase quite significantly. As there was no external event that could be causing the tone at that moment in time, I asked him what he was thinking of. He was apparently thinking of a similar incident at home which had made him extremely upset at his sons because they had spilled water all over the living room floor. Once he expressed his angry thoughts, his tone automatically returned to normal. From this experience I've learned to ask what people are thinking of, if I'm not experiencing any success in reducing their tone.

CEREBRAL BLOOD FLOW STUDIES

In cerebral blood flow studies, a group of Swedish researchers, Roland and Larsen, demonstrated that when a voluntary movement is performed such as lifting a finger, there is an initial burst of activity in the prefrontal cortex. Apparently there is a recruitment for the appropriate blueprint or movement pattern occurring. Once the appropriate muscles are selected, the blood then flows and shifts to the motor cortex indicating that the activation of the appropriate muscles is occurring.

The same burst of activity occurred in the prefrontal cortex when the movement was only mentally rehearsed. As blood flow is considered an indicator of cerebral activity this study indicates that merely mentally rehearsing an activity can activate neuronal functioning of the pre-motor cortex. It does lead one to question if imagery can then be used as a means of increasing the blood flow to the pre-motor cortex in the case of a brain injured individual.

BIOFEEDBACK

Biofeedback, which has been more thoroughly researched than almost any other medical protocol has demonstrated over and over again the ability we have to control brain wave activity, body temperature and muscle firing through our thoughts and emotions.

Dr. Edmund Hacobson, one of the original researchers in this area, found in 1932, that minute bursts of muscle activity could be picked up with EMG electrodes, while athletes visualized themselves skiing down a ski run.

At the Menninger Institute, which is internationally recognized as a leader in biofeedback research, they have consistently found with hundreds of subjects, that when a person visualizes themselves standing in front of a fire there is a corresponding increase in the blood flow to their hands.

There is a wonderful account of Tibetan monks being able to dry cold, wet towels with their backs through meditation. They apparently did this by imagining two angry women fighting.

CANCER RESEARCH

Cancer research is very quickly gaining momentum in the study of the influence of thoughts, emotional states, and beliefs systems, on the likelihood of developing cancer and recovering from cancer. The results so far indicate a definite link between the disease process and the mental process as those who are able to visualize their immune system as victorious over their cancer, appear to demonstrate greater success in combating their cancer.

SPORTS AND ATHLETICS

In the world of sports and athletics where men and women are always pushing themselves beyond previously set limits, the “mind” game is becoming as important as the “physical” game. They are coming to realize that the two are inseparable.

Professional and Olympic athletes such as golfer Jack Nicklaus, tennis player Chris Evert, ice skater Scott Hamilton, and weightlifter Arnold Schwarzenegger all claim to use imagery in conjunction with their physical training. Jack Nicklaus sees each shot as being successful before he actually hits the ball. Scott Hamilton reviews and rehearses his entire routine in his mind to the music he will use as a part of his training. Arnold Schwarzenegger states that if he can't see himself lifting a weight in his mind then he can't actually lift it.

The “psychology” of sports is becoming so important that many professional teams now have sports psychologists on staff (including such teams as the Edmonton Oilers and the Chicago White Sox). Sports psychologist Michael Mahoney of Pennsylvania State University states that the next break-throughs will be mental, for “at this level of competition the difference between athletes is 20% physical and 80% mental.”

BASKETBALL STUDY

An interesting study was conducted using a basketball team where the team was broken up into 3 groups. The control group—continued their physical training as usual. The second group—were instructed to mentally practice the game only. The third group alternated between physical training and mental practice. The results were interesting in that the first two groups performed at approximately the same level, but the third group demonstrated a significant improvement in their performance over the first two groups.

THE BENEFITS OF IMAGERY IN SPORTS

What sports psychologists and athletes report as apparent benefits of imagery and mental rehearsal is that it helps to:

- calm and centre the athlete
- release the negative influence of self-doubt and fear by seeing oneself succeed
- mentally prepare the athlete for the actual event by programming the blueprint for the movement in their minds

Thomas Tutko, sports psychologist for Colorado State University states that “Mental rehearsal is not daydreaming. It is a drill that calls for concentration and precision, which puts you to work in setting correct movements firmly in your physical experience.”

REVIEW

What appears to occur with imagery is that visualization of a movement pre-sets the movement not only in your mind but also in your body giving instructions to your body, as in this case allowing the muscles to relax and therefore stretch further.

The areas of the cortex responsible for producing images are abundant though primarily located in the frontal, parietal and temporal lobes. This degree of redundancy in the brain is an indication of the importance of this function to survival.

IMAGERY AND THE BRAIN INJURED PERSON

A person with a major disability such as a brain injury can be compared to an Olympic athlete in that they need to call forth all the physical and mental resources they can muster. Imagery is a tool that can be easily adapted to the needs of the brain injured person as an adjunct to all the other protocols and treatment strategies used. It provides access to a powerful resource, their minds.

CASE PRESENTATIONS

The problems of brain injured persons are as complex and unique as the individuals themselves. I will demonstrate how imagery can be developed and adapted to address individual difficulties, through case presentations.

Manuel is a 32 year old mechanic and father with a left sided hemiplegia as a result of a cerebral hemorrhage. His problems included loss of motor control to his left arm and leg, loss of sensation and proprioception, impaired body awareness, flex or tone in his left arm, a painful left shoulder and distractibility. The loss of body image and awareness was the biggest challenge to utilizing imagery techniques with Manuel. When I asked him to mentally lift his left arm, he could only see himself performing the movement in pattern, so any attempts to move the “real” arm could only match the visual image.

TREATMENT

The treatment sessions first involved teaching Manuel how to relax and reduce his tone using breathing and imagery techniques demonstrating to him how his thoughts influenced his tone. When I asked Manuel to “try” to relax his hand the mental effort of “trying” to relax automatically produced an increase in his arm, which he couldn’t feel. I then asked him to imagine his hand opening like a rose, and his hand automatically relaxed. Once again I asked him to “try” to relax his hand and the tone increased. Back to the image of the flower opening and his tone was released. This exercise was very effective in helping him to understand the powerful influence of his thoughts over his body. As Manuel was very distressed about the disability and constantly worried about his family, it was important for him to realize the impact of his thoughts on his body.

In order to assist Manuel to develop a normal movement pattern in his brain, he practised lifting his unaffected arm first, being conscious of the movement pattern, what muscles are required and to what degree. I then asked him to recall a time when he could move his arm normally, before the injury. Using his memory to regain the awareness of what normal movement feels like. From this he was then allowed to assist lifting his left arm or have me lift his left arm paying close attention to every detail of the movement, assisting with his mind.

Once he had some sense of what normal movement felt like and looked like, he was then asked to physically try to reproduce it.

BENEFITS

Imagery has benefited Manuel in that his body awareness and body image have improved as has his concentration (initially he was only able to close his eyes for a few minutes and so found it difficult to concentrate on any exercise regimen) and his ability to control his tone both at rest and on movement. The control of voluntary movement has been slow but he has shown a slight improvement in his ability to extend and flex his elbow, which he was unable to do before the sessions began. Manuel is a motivated man so he works diligently with the tape that was made for him to practice with at home.

Attempting a new or difficult activity without preparation can create tension in any of us, by mentally preparing for a new or difficult movement, seeing it performed with ease, paying attention to what the movement feels like and seeing the movement being performed successfully can help reduce tone produced by fear. It also allows the person to have a sense of how the movement is to be performed therefore reducing the amount of effort needed.

Even talking in a smooth, calm soothing voice introducing images of peace and nature scenes can be effective in relaxing the person's tone. Accompany this by gentle touch and you can very powerfully calm the person both emotionally and physically.

MENTAL REHEARSAL

Imagery can be used by brain injured individuals as it is being used by athletes, as a means of setting the blueprint for the desired movement in the mind which acts as a guide and directs the body. Any skill from learning to stand, moving an arm, retraining balance, walking or learning a new sport such as tennis can be first rehearsed in the mind.

An example of how effective mental rehearsal can be for communicating with the body, is demonstrated by reaching for your toes and marking a spot that indicates the furthest point you can reach. Then mentally visualize someone else perform the movement, for example, an acrobat or ballerina, who can perform the movement easily and effortlessly. They are so loose that they can even put their elbows on the floor. Now imagine what it would feel like to be in this person's body being able to touch the floor so easily and effortlessly, putting your elbows on the floor, even touching your head to the floor. Once the experience is well set in your body and mind, then open your eyes and reach down to the floor and see how much further you can go. Most people find that they can reach further following the mental rehearsal than before.

It is interesting to note that when children were asked how they prepare for a sports event most, of them stated that they mentally practiced the event the night before.

CASE PRESENTATION 2:

Sheila, a 36 year old artist and potter was diagnosed as having a large calcified mass in her cerebellum three years ago. She came to me with the complaints of loss of coordination in both U/E and L/E, with particular difficulties in writing, painting, lifting heavy objects, repetitive, rhythmical movements and playing the piano. Not being able to play the piano was the source of greatest disappointment for Sheila. This was the one activity that gave her the greatest pleasure.

IMAGERY

In order to develop an imagery that is appropriate to the person, I find it is important to understand their personal imagery and so ask them to draw a picture of how their disability feels or looks to them and how they would like to feel. Sheila's first drawing expresses an undercurrent of movement that has flow to it but there is a great deal of interference blocking the movement. How she would like to feel is that the movement be flowing, directed and free to express itself unhampered by interference.

TREATMENT

As one of Sheila's major reasons for coming to me was to help improve her piano playing, the sessions were initially focused on that goal. We started the session by focusing on her breathing. Clearing her mind of any distracting, doubting thoughts, bringing to her mind her drawing and imagining the interference falling away. Transforming the mental picture to one of a smooth flow of energy and movement starting from the top of her head down into her arms flowing out of her finger tips, mentally seeing her hands being moved delicately and gracefully by this energy flow. She was then directed to "see" herself sitting in front of the piano, watching her fingers dance over the keys. Once this image was clear, she then was directed to blend with this image so that she could actually feel her fingers on the piano keys and hear the music she was making. Making it as rich a sensory experience for herself as possible. Once this feeling was well planted in her mind and programmed into her body, she was then allowed to play the piano. We continued to alternate between mental rehearsal and playing the piano, establishing a more direct link between the two so the movement would continue to flow from her. As any "effort" on Sheila's part increased the ataxia and incoordination the treatment and imagery focused on the movement being easy and flowing "from" her and "through" her hands decreasing the effort required. A tape was made for her to practice with on her own.

BENEFITS

The results have been impressive, in that she demonstrates a noticeable improvement in her ability to play the piano, as well as an improvement in other areas of function. With her piano playing she is able to play chords that she had not been able to play for three years. She also finds herself using her hand automatically for activities such as handwriting, doing up buttons, hammering clay and putting in screws, all were activities she gave up long ago doing with her right hand. She stated that her right hand used to feel dead and clumsy; it now feels alive and functioning. I think one of the most significant comments Sheila has made about imagery is that "it gives me something else to do with my mind besides worry".

SOME POSSIBLE USES OF IMAGERY WITH BRAIN INJURED PERSONS

These two case presentations have demonstrated some of the possible ways in which imagery can be used and adapted to the specific needs of brain injured individuals. Let's take a look at some further possible uses of imagery in relationship to specific problem areas.

RELAXATION

For the individual, family members and health care providers the daily stress of coping with a brain injury is very high. Imagery can be a very effective tool for inducing relaxation in order to release stress, recharge the batteries and regain a sense of harmony.

Techniques for inducing relaxation include:

- *Deep breathing*: imagine holding a rose in your hand and taking a deep breath, breathing the sweet scent in. (Useful in either acute or rehabilitation settings.)
- *Quieting the mind*: eliminating all the chatter and distracting worry thoughts, releasing the mental tension.
- *Progressive Relaxation*: releasing the tension in each part of the body using images to relax the body.
- *Imagery*: include images that induce relaxation such as “imagine lying in a field of flowers,” this can be more effective than telling someone to relax. Images take us places that words cannot go. Showing someone an actual picture of a field of flowers can help plant the image in their mind.

Super-learning studies have demonstrated that we learn most effectively when we are in a relaxed state, at an alpha state of brain wave activity. We are able to concentrate more easily, retain the information and be more receptive to new ideas. *Therefore, it is important to take a few moments to relax someone before any treatment session or before learning any new motor or cognitive skill.*

STONE REDUCTION

As demonstrated in the earlier example, imagery can also be very effectively used as a means of reducing tone. Two major factors which increase tone are fear and effort. The use of imagery can be used to reduce both of these factors.

BODY AWARENESS

It is important to keep the memory of normal movement alive, in order to maintain the blueprint of normal movement functioning. Not using certain body parts for a long period of time results in mental inhibition, the body habituates (as well as the mind) very quickly to its environment and forgets the movement pattern. This makes it difficult to remember to recreate the movement both mentally and physically.

Even if someone is unlikely to ever be able to move normally again, it doesn't mean that they can't enjoy the pleasure of performing their favourite movements and receive some of the physiological benefits from imagining the movement or experience.

This is a valuable tool to use with the elderly or wheelchair bound individuals. As stated earlier the body responds on a biochemical level as if the movements were real, so learning to use this phenomena to full advantage is the goal.

PAIN MANAGEMENT

Imagery and deep breathing can be used very effectively to assist in reducing the experience of pain. In this society we tend to be very afraid of pain when experiencing it, resist it and therefore create more muscle tension and more pain. Any pain inducing activities such as stretching can be accompanied by deep breathing, imagery, relaxation and transforming the sensation of pain into other more pleasant sensations.

MOTIVATION

Staying motivated over a long period of time when the gains may be small and the efforts are great would be a challenge to the most highly motivated person. Imagery can be used as a means of inspiring and motivating a person. Ask the person what would be a vision or scene that they feel would make the long journey ahead worthwhile. e.g. standing in front of a group of people who are applauding your success; accomplishing or achieving a goal and seeing it complete; walking towards a shiny new sports car.

Another important aspect of motivation is believing in your ability to control your environment, as learned helplessness is lethal and kills motivation. *Imagery can be used to plant thoughts that empower individuals and inspire them to extend beyond their limitations.* One brain injured young man always expected the worst and interestingly enough the worst always seemed to occur. He experienced every possible negative side effect from any treatment or intervention. This is not to say that the use of imagery will prevent things from going wrong. But when we consider the powerful impact of belief systems on the healing process as demonstrated by the placebo effect. It appears that the more we believe that we can progress, the more likely are the chances of making that happen.

SELF-ESTEEM

Low self-esteem and lack of self-confidence along with what often appears to be a long series of failures can be very demoralizing to a brain injured individual and can result in an even lower sense of self-worth. Statements that boost confidence and self-esteem can be introduced into imagery sessions. Phrases such as “I have dignity and self-respect” are food for the soul.

INTERNAL CONFLICTS

Inner turmoil, ineffective social skills and difficulty in making decisions, can make the inner world of a brain injured individual a battleground. Imagery can be used in many creative ways to resolve or add clarity to internal conflicts.

1. As the mind is not limited by time and space we can go back to the past and review stressful, unpleasant situations analyze what happened, play out scenarios of how it could have been handled differently and consider what was learned in this situation.
2. We can also replay the scene as we wish it had occurred, planting seeds of new possible behaviours or responses.
3. We can then go forward to the future, pre-planning in advance how you would like to handle a difficult or stressful situation. For example a young woman who had been recently injured in a car accident was invited to her class graduation. Though she deeply wanted to go she felt too self-conscious about being in a wheelchair to actually go. We worked on imagining herself at the graduation ceremony feeling relaxed, seeing all her friends greeting her while she continued to feel relaxed, confident and comfortable. Well, attending her graduation ceremony turned out to be a major breakthrough for this young lady. She was not only well-received by all her friends and peers, but the standing ovation she received did wonders for her self-esteem.

DECISION MAKING

Making decisions can be assisted by the use of imagery in the following ways:

1. Present all the options.
2. Play each one out mentally.
3. Analyze the effect and possible outcome of each possible decision.
4. Choose the option that appears to have the most positive outcome.

ADJUSTMENT

It can also be used as a mental preparation for changing roles and to explore the value and possible contribution that can be made by the individual in their new role. Through imagery, the person can be helped to realize that they are much more than their bodies and they can be helped to explore other facets and realms of their being. Someone who is physically disabled needs to find other means of exploring and expressing themselves, and imagery can be one tool to assist in that discovery process.

GOAL SETTING

One popular use of imagery is as an assist to goal setting. First, ask the person to write down their goals, ensuring that they are attainable. The next step is to break the goal down into small, manageable steps. Then have the person visualize themselves actualizing their goal. Seeing and feeling themselves doing what they set out to do, e.g.: holding an image of what it would look like and feel like your first day on the job, feeling confident and capable.

DIFFICULTIES

Depending on where the damage is in the brain, brain injured individuals can have difficulties using imagery. If the damage is in the image producing area of the cortex they may have lost their ability to visualize. Without this ability to visualize an activity or event, it becomes very difficult to pre-plan or initiate the steps to achieving or actualizing the activity. We see this lack of initiation as a common problem in the brain injured individual. A loss of body image, sensory and proprioceptive awareness, can make it very difficult for the person to mentally see or feel their body moving in space.

Distractibility and impulsiveness can also pose problems in the person's ability to concentrate long enough to create images.

Memory problems can present the problem of either forgetting to do the imagery or forgetting what emerged out of the imagery session and therefore not act on the insights that emerged.

Visualization is an abstract activity, so a decrease in the ability to think abstractly will make it difficult to engage in some of the more sophisticated visualizations.

My own approach is to look at difficulties as challenges that inspire me to be more creative in my thinking and use of the technique. In this way I have learned a great deal about the adaptability of this technique and applying it to meet the needs of the individual person I am working with. It has applicability in all stages of the recovery process from the most acute to the more subtle reintegration stage. It's success is dependent upon setting appropriate, attainable goals for each individual at each session and having the determination to keep working creatively.

TIPS FOR USING IMAGERY SUCCESSFULLY

1. Select a quiet, comfortable environment.
2. Ensure that the client is comfortable, physically and emotionally.
3. Explain the purpose of imagery in terms the person can understand.
4. Ensure that you are comfortable and relaxed.
5. Initially write down your instructions to assist in your being relaxed and remembering what you want to say.
6. Slow down your own breathing to assist the person you are with to slow down their breathing.
7. Use your voice, to pace, create the mood or feeling you want to create. Use voice to add excitement or calmness.
8. Ask the person you are working with what images or words evoke feelings of success, strength or relaxation to them.
9. Use breathing as a means of relaxing, focusing and centring the person, clearing the clutter of their mind.
10. Find a word that can act as a cue to activate the image that induces relaxation.
11. Use music to assist in setting the mood, the music can also act as cue to trigger subconscious.
12. Use all the senses, making it as rich and real of a sensory experience as possible.
13. Use strong emotional words that motivate and stimulate.
14. Get feedback from the person to find out what worked and didn't work. Use this opportunity to learn.
15. Use the sensory modality the person is strongest in.
16. Keep the language in the positive mode, this is more effective.
17. Include affirmations and positive statements that reinforce their ability to accomplish activity.
18. Educate them about their illness and disease as well as their treatment. It feeds imagery.
19. Use your imagination and allow the person to teach you how to lead them.

"The brain is seemingly put together in a rigid way, but the quality of the brain's connection is modified by experience. Not only drugs or chemicals modify the connections, just by talking to someone I am modifying some of that person's synapses.

SUMMARY IN SUMMARY:

1. Imagery is a natural function of the mind that can be directed to assist in the recovery process of a person with a brain injury.
2. There is an impressive and increasing body of research that shows the important role that the mind plays in both our day to day lives and in the maintenance of health.
3. With reactive thinking imagery can be adapted to suit the individuals needs in any environment or activity. It is really a matter of consciously using the mind to assist in everything we do.
4. This is a technique we do with the person, not to the person; therefore, we become a co-creative process where we merely facilitate the healing rehabilitation process.
5. There is still much that we don't know about the mind as stated by reporter Michael Nichols of MacLean's magazine who recently did an excellent article on the advances in brain research, *"Every breakthrough in understanding the mind seems to generate fresh mysteries. But the exploration is surely the most exciting venture since men and women began to ask questions about their own mental process!"*

As the brain is involved in a recreative, self-generative process, learning to maximize this is the goal of therapies. With this talk, I am hoping to plant some seeds and to inspire you to consider some new tools, that involve using the natural resource of the mind in the recovery process of the brain injured individual. With imagery, as with any other tool, in the hands of a skilled and inquisitive therapist, the tool can also become the teacher.

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