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Therapeutic Swimming as a Community Based Program

Corinne Slade, OTR, and Dianne Simmons Grab, M.A.

A home and community program is fortunate in that it can call on an infinite number of activities within the community to augment and enhance the programming. These activities can be found in churches and non-profit organizations. They exist in all areas of the community and are valuable to the success of the program. They help teach the patient on one level how to relate to non-medical personnel. They can be used to simulate work situations when it is too stressful for the patient to return to a paying job. Most important, the use of these activities is a bridge for patients to begin to re-involve themselves in the community. There is no better way for the patient to develop self-esteem.

Therapeutic Swim

Therapeutic aquatic programs provide opportunities for children and adults with special needs to participate in programs of rehabilitation, recreation, and instruction. Under the supervision of registered physical therapists and specifically trained adapted aquatic specialists, the program can include water exercise classes, adapted swimming instruction, hydrotherapy, and therapeutic recreational swimming. An adaptive aquatics instructor is a swim instructor who has obtained a W.S.I. (Water Safety Instructor) along with courses in adaptive aquatics through the American Red Cross, courses concerning arthritic conditions through the Arthritis Foundation, and continuing education courses geared toward physical therapy offered through the universities.

Many doctors agree that swimming and water activities are beneficial in treating a variety of medical and surgical conditions. Since the water is buoyant, the reduction of the gravitational pull allows for reduced trauma and stress to the weight-bearing joints while its resistance helps to strengthen muscles, increase flexibility and range of motion, and improves the circulatory system of the body.

Each client is treated as an individual, although they may be seen in group sessions as well as privately; however, the following specific common physiological and psychological gains have become apparent:

- increase in kinesthetic awareness through stimulation of joints and muscles
- re-establishment of cognitive sensory-motor perceptual patterns
- reduction or prevention of atrophy through increased muscle action
- faster absorption of inflammation
- increase in skeletal strength and proper body alignment
- improvement in cardiovascular functioning, circulation, and respiratory function
- improvement in independent movement ambulation and range of motion
- stimulation of new cognitive functioning
- reduction of psychological stress and tension
- enhancement of self-image and increased satisfaction in an accomplishment
- avoidance of isolation and increased ease of re-entry into the community

Specific Examples

We will be discussing three specific cases to illustrate the benefits of a community based therapeutic aquatics program. All cases follow the same general guidelines. Each time a client has a session in the water, no matter how many previous sessions there have been, the therapist starts with *Orientation to the Water*. Orientation is accomplished by walking around in the pool with a simple forward, backward, or cross-over gait leading into a prone kicking skill used to exercise the cardiovascular system. The next step is *Relaxation Skills* which consists of breathing skills such as pursed lip or diaphramatic breathing accomplished while standing or floating. For a more advanced client, bobbing would be appropriate (this is an American Red Cross skill accomplished in deep water by submerging to the bottom of the pool while exhaling, pushing off and gasping air and repeating this sequence frequently). Another relaxation skill is to have clients floating on their backs with therapists supporting them and swaying them from side to side and working into a rotation to decrease the trunk tone. The third step is *Reviewing Previous Session, Goal Setting, and Achievements in the Current Session*. At this point the therapist will stress specific exercise programs along with working toward achievement of the American Red Cross swimming levels. The last step in the lesson is the *Conclusion*, including review and goal setting for the next session. Under these guidelines, over the past two years, 80% of the clients remained with the program and showed improvement. The types of improvement we saw were: 1) cardiovascular (explained below); 2) ability to perform new swimming tasks as tested by the American Red Cross swimming levels; and, 3) accomplishment and/or increased endurance of new skills and exercises.

Cardiovascular improvement results in lower heart rate after a set pattern of exercise, shorter cool down period, and increased endurance of a particular skill without a corresponding increase in the heart rate.

Case One: JR is a high-level functioning 11-year-old head-injured male who has been in the therapeutic aquatic program one year. He came into the program with right-side paresis. Since JR "needed" to be treated as a "normal" child, a goal was set with him to achieve the intermediate swimmer Red Cross Level. In order to achieve this, JR had to become an accomplished swimmer in the crawl, elementary back stroke, and the breaststroke. These strokes entail the use of both sides of his body simultaneously and independently. JR started a year ago at the beginner level of swimming working on proper body alignment through floating. He also prevented the atrophying of his muscles with the exercises he did, as well as improving his cardiovascular condition, circulation, and respiratory system. When he started in the program, he was unable to swim one length correctly; now he is able to swim six lengths in a 75-yard pool using both sides of his body (as equally as possible) and swimming correctly. He has reestablished sensory-motor patterns and shows improved independent movement. Although JR is still not able to use his right arm functionally, in the water his arm is able to relax and is used for circular motions in the crawl and breaststroke. All of these exercises are done in conjunction with an active physical and occupational therapy program. This is true with all the patients. The careful coordination of all these aspects is very important. Another benefit of the swim program is that JR's self-image has improved. He is working toward the same Red Cross goals as other children his age, and he is participating in the regular swim classes.

Case Two: MO is a head-injured 22-year-old male who began the therapeutic aquatics program six months ago. MO is functioning on level VI to VII (Rancho Los Amigos Scale) and is confined to a wheelchair with paralysis on his right side and ataxia on his left. The major goals established are to reduce tone, strengthen muscles, improve posture, increase his

self-image, and prevent isolation. In this case, as with all cases shared by the team, the goals are set by all professionals involved with the patient. Before MO's injury, he was a non-swimmer and fear of the water presented an additional element to consider. In the beginning, special flotation devices were used. In addition, MO's aide and three therapists accompanied him in the pool. He now works only with one therapist, and only occasionally uses the flotation device while working on specific relaxation and swimming skills. MO has been very successful in tone reduction through relaxation. His posture and body alignment have also improved; when he walks in shoulder-depth water he is perfectly aligned...this has also been observed in sitting balance in his wheelchair and regular chairs. MO has been able to learn a flutter kick with both legs and a very rough elementary back stroke, all accompanied with minimal flotation aids. These accomplishments have led to a strengthening of muscles and an improved cardiovascular system. The two most important benefits have been the improvement of his self-image (he now wants to learn to swim totally unaided and he occasionally brings his friends in to watch) and the prevention of isolation. (MO takes his lessons while other swim classes are occurring and socialization takes place.)

Case Three: AL is a 58-year-old spinal cord-injured female. When she started the program, she had full motor control, but was extremely weak and stiff, and walked with a quad cane with supervision for very short distances. Her major problem was, and continues to be, excruciating pain around her trunk and shoulders. This pain limited her ability to progress quickly. The goals that were set for AL included strengthening of muscles, increasing range of motion, improvement in independent movement and ambulation, and reduction of pain. Simply by letting the buoyancy of the water take over, AL can walk unaided in shoulder-depth water with proper alignment and without pain. The pool is the only place that AL is pain free, and, therefore, she is able to push herself farther physically than when she is on land. She is able to float on her back, do a flutter kick with both legs, and move her arms simultaneously back and forth...totally unaided. These actions have led to increased strength and range of motion, more fluid and independent ambulation, and an improvement in the cardiovascular system. An additional gain has been AL's change in emotional state. Her feelings of despair and frustration, with her condition and constant pain, have been replaced by a feeling of hope and satisfaction with her progress. She is also not isolated and interacts with people in other classes and shares her experiences with others.

Summary

It is obvious that a therapeutic aquatic program can have a great impact on the rehabilitation process for many different types of cases. Unfortunately, not every community has such a program available. However, with more evidence showing the value of such a program, there are several ways they can be developed. Most local YMCAs/YWCAs have pool time available for such programs and generally have some relationships with other outside organizations such as hospitals, Red Cross, rehabilitation centers, physical and occupational therapists, arthritis foundations...to name a few. YMCAs/YWCAs have highly trained individuals who have as their goal within the organization to mainstream individuals and aid them in reaching their fullest potential.

As more information becomes available about the courses of rehabilitation in the head-injured population, as well as rehabilitation in general, it is evident that treatment takes place over a very extended period of time. In our opinion, reality-based therapy is producing the most effective results. It should be reassuring to patients, families, and health care personnel to know that programs are being developed to accommodate the patient in their home and

community, and that these programs are proving to be very successful.

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