

The Role of Aquatic Therapy in the Return to Running/Walking Function After Injury

One of the primary reasons aqua therapy is prescribed for rehabilitation is when a patient or client has weight bearing precautions as a result of an injury, illness, or surgery. When in the water the client is able to perform exercises in non-weight bearing or limited weight bearing positions. Therefore, the individual is still able to gain the benefits of exercise without increased risk of injury or pain. This early initiation of exercise with less pain, gives the patient a sense of motivation and optimism. It also allows for a feeling of freedom, because the client is no longer confined to a wheelchair or other assistive device. A feeling of normalcy can also occur because of this freedom of movement. Most patients tend to progress more quickly with a combination of aqua therapy and land-based therapy. This is especially important when a client's land-based therapy is limited due to weight bearing precautions. Due to the properties of the water, patients with weight bearing limitations can improve range of motion (ROM), flexibility, strength, cardiovascular endurance, pulmonary function, and decrease pain. This early activity allows patients to progress at a quicker rate, so they can return to function earlier once weight-bearing restrictions are lifted.

This particular course will focus on the aquatic exercise portion of rehabilitation for lower extremity injuries and how to properly progress patients. Where to start the exercise program depends on the patient's injury, weight bearing status, functional capacity, co-morbidities, and comfort level in the water. Each program must be tailored to the individual need of the patient or client. Therefore, each patient must be evaluated before designing and implementing an aqua therapy program. Once the evaluation is complete and a baseline is established, the treatment can begin.

If the patient is non-weight bearing the best place to begin is in the deeper section of the pool. The client would perform deep water exercises. The patient can be suspended with a floatation belt or noodle and start with basic ROM, strengthening, and easy cardiovascular exercises. If the patient only has lower extremity injuries, the upper extremities can be worked at a more advanced pace to assist with increasing cardiovascular fitness, as well as add some variety to the workout. Including core strengthening to the exercise protocol will also help the patient progress and can be performed in non-weight bearing positions.

As the patient's weight bearing status progresses, the exercises can be done in standing position depending on the depth of the pool. As the patient is able to put more weight through the injured extremity, exercises can be performed in shallower water. At this point, gait training can be introduced to the therapy program. The earlier the patient is able to initiate gait training the faster they will progress. Depending on the depth of the water and height of the client, gait training can be initiated even when a patient is only allowed 10% weight bearing. If available, underwater treadmills are great to assist with initiation of proper gait. The addition of an underwater camera is even more helpful with gait because it provides immediate and constant feedback to the client, allowing for instantaneous correction. Basic lower extremity strength training exercises can also be initiated with minimal weight bearing. In addition, resistive equipment can be added to exercises to promote more advanced strengthening. Once the client reaches a weight bearing status of at least 50%, exercises can be initiated in waist deep water to allow for more increased strengthening benefits.

The next progression would occur when the client reaches a status of weight bearing as tolerated (WBAT). At this point the patient can be advanced even more and perform as many exercises as they can tolerate without significant increase in pain. Basic plyometrics and agility drills could be introduced at this stage in the rehabilitation progress in deeper water, but still allowing the patient to be in a weight bearing position. This would include small amplitude jumps in several directions with feet together and slower speed agility drills involving changes in direction. As the client progresses and is able to tolerate more strenuous exercise, similar exercises can be performed in shallower water. Once the exercises are performed in the lowest depth with ease and no increased pain, it is time to increase the speed of the drills, as well as amplitude and power of the jumping activities. The client could also perform more advanced training in deep water to continue to assist with strength and cardiovascular fitness. The next progression with the plyometric training would be to advance to single leg jumps and activities.

During the therapy process the therapist or trainer must be aware of the patient's goals and cater the exercise program to assist them in reaching those goals. If one of the goals is to return to a certain activity or sport, then the exercises should mimic the motions or movements needed in that activity or sport. By doing this it will allow the client to be more functional once they are finished with the rehabilitation process. The proprioceptive feedback given to the individual with each movement performed in the water assists in the re-training process. For example, if the patient is a runner, then running drills, technique, and form should all be incorporated into the exercise program. This will allow the runner to perform better once he/she advances to land based therapy/exercise programs.

Once the client/patient has progressed to a land based therapy/exercise program, the water can still be utilized as a cross training tool to help maintain gains and add variety to a training or exercise program. As noted above, the water can be a wonderful tool in the rehabilitation progress of an injured client. It not only allows for earlier initiation of several types of exercise, and is typically less painful than land based exercise. The most rewarding aspect of training patients in the water is giving them the ability to move more freely and in ways not possible on land.

Melissa Lewis, MPT, ATRIC, AEA

