How Water Enhances Rehabilitation for ACL Reconstruction

In the world of sports, a rehabilitation movement is underway that’s being discussed by journalists, sports medicine professionals and athletes at the highest levels. This trend involves the utilization of one of nature’s most abundant properties—water. Aquatic therapy is being harnessed to help generate remarkable rehabilitation breakthroughs previously thought ‘impossible’ by traditional standards.

Coming back stronger after ACL reconstruction surgery is becoming a new standard or expectation by elite athletes in today’s competitive arena. Water is playing an important role to make this possible and safe. No athletic trainer knows this better than Eric Sugarman, Head Athletic Trainer of the Minnesota Vikings. He played a critical role in shattering the mindset that a running back could not be as productive after ACL reconstruction surgery as they were before the injury.

“As soon as we are comfortable using the HydroWorx pool after surgery, we get our athletes in there. We know that water therapy is beneficial. The ability for an athlete to move in the water with very limited resistance is very, very helpful,” says Sugarman of the early days of the rehabilitation process.

The Natural Properties of Water:

- **BUOYANCY**: At this water depth, an athlete is bearing only 20-25% of his/her bodyweight.
- **HYDROSTATIC PRESSURE**: Natural properties of water naturally reduce swelling and inflammation.
- **RESISTANCE**: Resistance and strength are increased when working against the added viscosity of the water or therapy jets.
- **SENSORY STIMULATION**: Water increases kinesthetic awareness of the body to promote relaxation.
- **WATER TEMPERATURE**: The warmth of the water relaxes joints and muscles promoting early range of motion and increased flexibility.

Why Warm Water Therapy Worx:

1. Water rehabilitation allows an athlete to support up to 90% of their body weight during the early stages of rehab.

2. Shortly after surgery, movement in warm water allows the athlete to reduce swelling, increase circulation and relax the affected muscles thus reducing the athlete’s pain.

3. Early movement in the water also affects the athlete’s mental state, performing exercises in the water well before the athlete would be able to on land enhances their mental outlook.
In the water, you can begin rehabilitative and sport specific exercises much sooner than you can on the land. Sugarman utilizes various exercises such as walking, jogging, back pedaling, side stepping and jumping on the underwater treadmill throughout rehabilitation. Adding resistance from the jets ensures that the intensity of the exercises can be increased as the athlete progresses through the rehab process.

Additionally, there are two key points to keep your athlete progressing throughout the rehab process:

1. **Protect the athlete from themselves.** This is one of the most important things a clinician can do. If the athlete does not feel pain, their competitive nature will kick in and they will push harder than their body is ready. Working with the athlete is critical in keeping them engaged but not pushing too hard before their muscles and joints are fully healed.

2. **Set clear expectations for the rehabilitation process.** Be certain that the athlete fully understands the stages of their rehabilitation and the expectations for each. Setting attainable goals throughout the process prevents the athlete from getting discouraged on the path to recovery.

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**A Sample Aquatic Timeline of what an ACL recovery can look like after surgery:**

**Week 1 – 2:** Diminish the pain, decrease swelling and restore mobility.

**Week 3:** Begin walking on the underwater treadmill in the pool with minimal weight bearing.

**Week 6:** Begin light jogging in the pool while beginning to restore full range of motion.

**Week 8:** Begin sprinting in the pool to start the transition to land.

**Week 10+:** Continue using the pool for conditioning, gait refinement and strengthening as well as any skills that need to be mastered before moving to land.