

## The Benefits of Aquatic Physical Therapy for Lower Back Pain



**Intro:** There are many different causes of chronic lower back pain. Despite these varying causes, aquatic physical therapy can decrease pain and improve function in patients with lower back pain.

### Why it Works:

The aquatic environment is ideal for patients with chronic lower back pain due to the water's properties of buoyancy and viscosity. Buoyancy offsets the loads on the spine due to gravity. Patients with lower back pain who performed 15 minutes of vertical traction in a pool showed increased spinal height and decreased pain following the session.<sup>1</sup> Similarly, patients with chronic lower back pain who performed pool exercises 5 x/wk for 4 weeks showed improvement in disability and quality of life.<sup>2</sup> Patients can move with greater ease once the compressive loads of gravity are minimized by buoyancy. They can then participate more fully in their physical therapy program.

Patients can also gain strength benefits from the water's viscosity when appropriately applied. Viscosity is the resistance felt when moving through the water. Water provides significantly great resistance than air when applied appropriately.<sup>3</sup>

- The patient can control and adjust the amount of resistance by varying speed of movement.
- Most activities are performed in an upright position, which is more functional and does not require getting up and down from a floor.
- Adding exercise equipment can increase the workload of the aquatic physical therapy program.
- Patients who begin aquatic physical therapy can readily transition into aquatic classes for a seamless transition into lifetime exercise.

Movement under water is resisted by the water's viscosity; the faster you move the more resistance you get. Research in patients with chronic lower back pain showed that doing aquatic exercises activated their trunk and pelvic muscles in a similar way to doing land exercises. When comparing patients who participated in land exercises and aquatic exercises, a realization arose where patients who partook in land exercises reported having pain twice as often compared to those who did aquatic exercise.<sup>4</sup>

## Benefits:



- Buoyancy decreases compressive loads on the spine.
- Decreased compressive loads plus the water's warmth reduces pain.
- Movement is easier in the water, allowing more active participation in the rehabilitative exercise program.
- The water's viscosity provides resistance relative to speed of movement.

## Additional Benefits:

The unweighting due to buoyancy combined with the strengthening resistance of viscosity makes the pool an ideal place to decrease pain and improve function in people with chronic lower back pain. Research<sup>5</sup> suggests that the pool is an ideal place to begin rehabilitation since exercise is more comfortable in the water. It can improve strength and mobility, improve physical therapy on land, and can become more productive.

Stretching and cardiorespiratory exercises are performed with greater ease and less pain in the pool. Patients who are deconditioned and unable to participate in land cardio programs, such as walking or biking, can achieve cardiorespiratory fitness in the water as they recover from back pain.<sup>6</sup>

## Summary:

The benefits of aquatic physical therapy being able to help patients with chronic lower back pain by decreasing pain and improving function are clear. All components of an effective rehabilitation program (cardiorespiratory, mobility, stretching, strengthening) are readily performed in the water. Patients are active participants in the rehabilitation program and can control the strengthening exercises by adjusting speed of movement. The aquatic environment is a key component of the rehabilitation program for patients with chronic lower back pain.

## References:

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