Matching Pool Features to Patient Populations

By Jonathan Bassett

*(**Editor's note:** Read this article to gather tips on how to tailor an aquatic therapy pool to your patient population. Online at www.advanceforPT.com, the article* Playing with Rings *discusses Bad Ragaz, its history and its benefits.)*

Water-based therapy dates back to the days of Hippocrates, but only recently has research validated its worth in treating a broad array of conditions. Clinical results are beginning to support what PTs have known for some time—aquatic therapy, in conjunction with traditional land-based rehab, can return a patient's quality of life faster and more thoroughly than land therapy alone. In spite of this, onsite therapy pools are still found in a minority of clinics, and as such offer an excellent marketing tool for a practice looking to stand out.

If you are ready to take the dive and implement an aquatic therapy program at your practice, make sure you tailor your new pool to the specifics of your patient population. Below are some factors to consider.

Depth

Perhaps the most important feature of any therapy pool is variable depth. The ability to change water level is absolutely critical to treating a varied patient population. Most pools range from 4 feet to 6 or 7 feet deep, and PTs find all levels necessary in daily practice. "People come in different shapes and sizes," said Tom Lorren, PT, managing partner at the Centre of Rehabilitation Excellence, Longview, TX. "Depending on what their condition is and how much load I want them bearing, I have to be able to adjust their level in the water."

PTs looking to treat an athletic or sports-injury patient population, for example, will find more depth helpful for such exercises as deep-water running. "If I'm training a basketball player who's 6 foot 6, even if he's wearing a flotation vest, I still need to have the water deep enough that I'm sure his feet won't hit the bottom," Lorren said.

On the other hand, patients who are elderly or have arthritis often find shallow water more agreeable, as do those with balance problems or those without much aquatic experience. "A lot of our clients can't swim, or have a fear of the water," said Rick McAvoy, PT, aquatic program coordinator at Rehab 3, Somersworth, NH. "In shallow water, we're able

When implementing an aquatic therapy program, PTs must tailor the pool to their patient population

PHOTO BY JAY WILEY

to get them in and make them feel comfortable. Usually they're in so much pain, that when they see the benefits of the water their apprehensiveness goes away."

No matter what the patient population may be, a stepped-bottom pool is usually superior to a sloped-grade one, especially when space is limited. This allows for larger level working areas and more secure footing. But with the step-bottom, drop offs in the pool should always be well marked.

Current

The ability to create resistance is also necessary to exercise an injured or diseased body part. While some pools create current through a jet, many PTs prefer the laminar flow created by a three-phase paddle wheel. Such a current fills the width and depth of a pool more uniformly, according to Rob Rosenberry, PT, owner of Rob Rosenberry Physical Therapy in Solvang, CA. "I did a tremendous amount of research before I bought a pool, and this was the best design out there," Rosenberry said.

Whether through a paddle wheel device or a traditional tubular jet, PTs rate water current as being as crucial as any piece of aquatic strengthening equipment. "Water is 800 times more supportive than air," explained McAvoy, "but it can be 75 times more resistant."

"Many times I'm working on lumbar spine stabilization," explained Lorren, whose practice focuses on spine and industrial medicine but includes a thriving sports medicine and geriatric contingent as well.

"And if I run a light current in there, they'll have to use their abdominal muscles to keep their position. They work them without really knowing it."

Temperature

Another helpful feature any therapy pool should have is the ability to quickly adjust water temperature. Patients with multiple sclerosis generally prefer cooler water, and pools designed to be cooler are available if that will make up a large part of your patient base. But for most rehab and orthopedic therapy, tropical temperatures are the order of the day.

"Fibromyalgia, degenerative disc or joint disease, rheumatoid or osteoarthritis, these are conditions that respond more favorably to water in the 92- to 94-degree range," said Rosenberry, whose patient base is mostly general orthopedic and sports medicine. He added that warmer water is also more effective in achieving relaxation and alleviating pain and is often favored by older patients. "But you want to bring the temperature down for any vigorous or extended exercise," Rosenberry cautioned, "and make sure all patients stay properly hydrated."

Hydration is especially important in aquatic therapy, since the water can make it difficult to realize how much you are actually working and perspiring, McAvoy said.

Pool Lifts

An essential feature for all therapy pools is a hydraulic pool lift, enabling PTs to lower patients who use wheelchairs or have other mobility limitations safely into the water. This feature is especially effective for practices focusing on patients with neurologic problems, whose safety is key.

"One of the more common areas of injuries within health care has to do with lifting and transporting patients," Lorren explained. "When you think about it, as PTs we are all expected, to some extent, to be able to lift or control someone who is equal to or greater than our own body weight. That just doesn't exist in many health care industries."

Windows

A useful feature for athletic and sports injury populations is viewing windows on the side of the pool for monitoring patients as

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they swim or hold their positions in the water. The windows can either be built in to the side of an above-ground pool, or be a "hole" in the water surrounded by Plexiglas™ that an observer climbs down into.

"We can look at the position of the trunk or how their knees are bending during the swim stroke. It is a tremendous tool for high school athletes on the water polo or swim teams, who want to have their performance analyzed by a coach," said Rosenberry, who had video cameras installed at the windows and hooked into closed-circuit monitors in a TV room. This allows real-time viewing and the ability to freeze frame or videotape copies to send to other therapists or home with the patient.

Windows to the outside also deserve consideration. "I like to have a lot of natural light to counteract the cramped feeling you often get with artificial lighting," Lorren said. "Just make sure the windows are high enough for patient privacy."

Size

One important thing to keep in mind when shopping for a pool—make sure you go big enough. Aquatic therapy programs have a tendency to catch on and catch on fast, so make sure you use all the available space you have.

While Lorren has put in several pools before and said he got it right this time, he admitted he was limited on space and could use a slightly larger pool. And McAvoy, whose pool program has grown 140 percent in two and a half years, will more than double his pool's size this summer by expanding its length through an existing wall. "Right now, I can fit four people in the pool comfortably at one time," McAvoy said. "When you're seeing 30 to 50 clients a day, things can get tight."

Aquatic Exercise Equipment

It is because of limited space that many PTs will not overfill their pools with unnecessary equipment. Elaborate aquatic gyms and equipment such as underwater treadmills and bikes are available but are not often used by PTs. "I don't like crowding too many machines in the pool," McAvoy said. "It gets to be an inefficient use of your space. You don't want to limit the patient's freedom of movement."

As coordinator of the aquatic program at Rehab 3, McAvoy was in charge of setting up the pool and deciding where best to spend the money. "I didn't feel the need for a $5,000 underwater bicycle," he said, adding that he can do the same things with a stainless steel exercise station that hooks into the pool's ladder holes. Such bicycles feature a pull-up bar, platform and handles for various exercises, and can easily be removed when more space is needed.

Other Helpful Features

A component that Lorren enjoys almost daily is a pool shower. Essentially a separate area in a corner of the pool surrounded by a curtain and equipped with a showerhead, it eases the aquatic treatment of patients with disabilities. "Not only does it give them more room to shower," Lorren said, "but it's much easier than taking them wet and cold all the way to the bathroom."

Bars in the pool are another feature mentioned by PTs as being beneficial for most patient populations. Mounted just below the water surface, the bars are helpful for both patient stabilization and tethered exercises such as swimming and running. "We've rehabbed a couple of New York City marathoners that way whose knees were just shot," said McAvoy. "They wanted to maintain their cardiovascular endurance by continuing to run."

Directionally adjustable jets assist McAvoy in a range of exercises, for instance, training patients with ACL injuries to maintain their position while resisting the current.

Recessed eyehooks on either side of the jet can be used for tethered exercises. Jet speed in McAvoy's pool is fully adjustable to 4 mph, as is the amount of aeration in the current. Smaller therapy jets can also be used in bench seating for relaxation and pain relief.

Most PTs agree, though, that the majority of aquatic therapy can be performed with the assistance of simple exercise equipment, such as aquatic dumbbells and cuffs, or with nothing at all. And most PTs agree that aquatic therapy is necessary only until a patient is able to make the transition to land, so it is important to keep your aquatic therapy program in perspective when outfitting a pool.

"Rarely do I start and finish in the pool," Lorren said. "My goal when I initially put people in the pool is to make them either weigh less, or put them in a warmer environment to increase flexibility. Usually patients will graduate from there rather quickly to a more strenuous on-land exercise program." ■

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