

**For centuries, human beings have turned to immersion and exercise in water as a means of healing injuries and illnesses and of promoting both physical and mental health. Researchers have investigated the hows and whys of these phenomena for years, and the benefits seem to be even more remarkable than originally thought. There's still much to learn, but there's already more than enough good news for watershapers to share with motivated clients.**

**By Eric Herman**

# THERAPY



Most people know that aquatic exercise and hydrotherapy are good for them.

We know that activity in water can be used to treat and even heal a long list of physical ailments, and it's no secret that aquatic athletes are some of the fittest people on the planet or that physicians of all stripes have long made a habit of touting the benefits of swimming and other forms of water-based recreation for just about everyone.

Yet for all that accepted wisdom, most of us aren't particularly well informed about the specific medical science that backs up the centuries-old belief that being in water is good for the human body. That research has long been available

and has been joined in recent years by new studies that relate the experiences of scientists and physicians who are constantly being surprised by the depth and range of specific physical and mental benefits that flow to those who engage in aquatic activity.

This emerging picture points to the profound fact that swimming pools and spas are arguably the healthiest of all products. By extension, those in the watershaping business who are aware of these remarkable, diverse benefits – and communicate them to their clients effectively – are positioned on the crest of a wave that will carry the industry for years to come.

## **Making the Case**

Before we delve into the facts, studies and educated opinions of a pair of the medical community's top aquatic-health researchers, let's look at the issue of promoting aquatic health and spreading the good word.

In nearly 20 years of observing the pool and spa industry as a writer and editor, I've long perceived that too few of those who would benefit most from greater awareness of the value of swimming, water walking, aquatic aerobics, rehabilitative exercise or hydrotherapy – that is, watershapers *and* their clients – are fully aware of what's at stake. And the voices of those who *do* understand these issues



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have all too often been overwhelmed by those of advocates for other causes.

In fact, much of the dialogue that has permeated the watershaping world in the past two decades has focused on child safety and possible risk factors (biological and otherwise) associated with bodies of water. Let me be clear: Those messages are important, but they are only part of a much bigger, much more positive story.

It is my belief – and the position of more than a few experts in the field – that the people who design, engineer, build and sell swimming pools and spas as well as other bodies of water suitable for swimming and human immersion stand to gain immeasurably by chang-

ing the focus of these discussions to the industry-wide importance of building a better understanding of the benefits of immersion and water exercise. Even if this information spreads on no more than a cursory level, we'll all be taking huge steps in the right direction.

Just consider a population of potential clients that is increasing in average age every year: In 2004, according to the U.S. Department of Health's Administration on Aging, the number of Americans 65 years or older numbered 36.3 million, representing 12.4 percent of the population. By 2030, that number will increase to 71.5 million – more than 20 percent of the projected population.

We also know that the Baby Boomer generation that embodies that growth is arguably the most health- and lifestyle-conscious group of people the world has ever seen. They spend more on health care, plastic surgery, working out and vacationing than any previous generation, bar none.

It simply stands to reason – and this should surprise none of us – that as this group collectively ages, many will seek ways both to heal their physical ailments and improve their general health. When you couple those trends with the benefits afforded by aquatic exercise and hydrotherapy, it's clear that watershapers are in a position to provide exactly what many of these clients desire most: *a healthier life.*

## Healthy Resources

Known most widely within the pool and spa industry as an educational resource, the National Swimming Pool Foundation is about more these days than Certified Pool Operator's courses. In fact, it has become the industry's leading advocate for research examining and validating the benefits of aquatic exercise and hydrotherapy.

This past September, for example, NSPF sponsored the third annual World Aquatic Health Conference in Austin, Texas, with a program including presentations by leading experts on the specific medical science at the heart of what is known about aquatic health.

Those interested in seeing what happened at the conference – including presentations by Drs. Becker and Stager whose work is a huge component of the accompanying article – can do so by logging onto [www.epracademy.org](http://www.epracademy.org) and registering to receive seminar access codes. (These presentations will be available on the Internet through March 31, 2007.)

In 2005, NSPF extended a grant to Dr. Becker in the amount of \$247,000 – the largest single grant ever dedicated to a study of aquatic health benefits. NSPF has also recently agreed to match donations from 12 hot tub-industry organizations to fund a two-year study by Dr. Becker of the effects of hot-water immersion on the cardiovascular system, respiratory system, brain and more.

To communicate these results to the greater health community, NSPF will launch the *International Journal of Aquatic Research and Education* (IJARE) in 2007.

To learn more about NSPF, contact its chief executive officer, Thomas Lachocki, by phone at 719-540-9119, via e-mail at [media@nspf.org](mailto:media@nspf.org) or through NSPF's web site, [www.nspf.org](http://www.nspf.org).

– E.H.



## Aquatic Miracles

Dr. Joel M. Stager has spent the past several years conducting a range of studies on the relationship between swimming and aging. What he's found is nothing short of amazing.

"When you look at all the standard physiological markers associated with the aging process, we see that every one of them is slowed dramatically in people who swim regularly," says Dr. Stager, a researcher at the University of Indiana. "Of course those differences vary based on a number of factors, but the science is conclusive: Exercising in water slows down the aging process, and often quite dramatically – by upwards of 20 percent in some cases. You almost cannot overstate the benefits of exercising in water."

Indeed, the research Dr. Stager cites points to a range of benefits across the full spectrum of health.

"Not only does swimming slow down the aging process in terms of respiration, muscle mass, bone density, cardiovascular activity and neurological function,"

he says, "but there's also evidence to suggest that it increases mental health and even spiritual and social health. Fact is, swimmers lead happier, healthier lives than those who don't get in the water."

Dr. Stager notes that his research has focused on master swimmers – that is, people who have spent years, *decades* in some cases, swimming at least five hours each week. But the data are so conclusive and dramatic that he argues the benefits will flow to *anyone* who swims, even for much shorter periods of time.

"We wanted to study groups of people in which we would likely see the most dramatic benefits," he explains. "But we've also seen that when anyone goes from not swimming at all to swimming, say, a couple of times a week for a half hour at a stretch, the health benefits those people experience are extremely dramatic."

"For someone who already swims five hours a week," he says, "adding an extra hour doesn't mean nearly as much as it does for someone who hasn't been doing any kind of exercise at all (or very

little). When you look at the benefits from the perspective of routine swimmers, it's fair to say that it's as close to a genuine fountain of youth as exists in the real world."

Not only that, he says, but exercise in water offers huge advantages over land-based forms of activity.

## Fountains of Youth

"When we look at swimmers compared to runners, for example, we see consistently that people who swim tend to do so for longer periods throughout their lives, and they do so without injury," says Dr. Stager. "Statistic vary, but runners typically spend significant portions of their lives recovering from various injuries they incur while running."

"By contrast," he adds, "swimmers are seldom if ever injured. In fact, the vast majority of people we've studied have never experienced any kind of injury *at all* related to their time in the pool."

If you consider the fact that swimming provides even resistance and a



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workout for the entire body, the case gets even stronger: “Just about every part of the human body benefits from swimming,” he says. “It improves cardiovascular health as well as muscle tone and overall flexibility. There’s simply no other exercise like it – the only activity we know of where you can say that if that’s all you do for exercise, you can be almost perfectly fit.”

And the benefits of water are not reserved for those who swim laps, says Dr. Bruce E. Becker, medical director at St. Luke’s Rehabilitation Institute in Spokane, Wash., and a clinical professor at the Department of Rehabilitation Medicine at the University of Washington’s School of Medicine.

For more than 30 years, Dr. Becker has studied the effects of a range of aquatic activities among athletes as well as those recovering from injuries and other physical ailments. “What many people don’t realize is that simply by sitting in water up to your neck, you experience huge benefits.

“When immersed in water, for example, the volume of blood in your chest cavity and in your heart dramatically increases. This is due,” he says, “to the hydrostatic pressure on your body and the effects of being in a buoyant state: Your heart’s ability to pump blood goes up, while at the same time your heart rate goes down. Your cardiovascular system becomes far more efficient, and that af-

fects just about *every* function of the human body.”

According to Dr. Becker, central blood volume increases by nearly 60 percent and cardiac blood volume and output rise by nearly 25 percent – all while the heart rate drops by approximately 15 percent. “The ultimate purpose of the heart as an organ is to pump blood in response to physiologic demand, so its best measure of performance is volume of blood pumped per unit of time,” he observes. “Submersion to the neck increases cardiac output by more than 30 percent in a sedentary individual. The implications of that single fact are so broad that medical science has not caught up with them.”

Dr. Becker and other researchers report that similarly dramatic benefits of simple immersion extend to the pulmonary, musculoskeletal, renal and endocrine systems. “There’s a great deal of research that remains to be done,” he notes, “but it’s fair to say that the science is in at this point: Immersion in water produces a range of effects that are dramatically and uniformly beneficial.”

## In Times of Healing

One of the most dramatic aspects of aquatic health is that it applies across the board, from the most fit and able-bodied of people to those with some of the most severe physical issues. There are literally thousand of case histories and testimonials of people who’ve recovered from serious physical problems by working out in water, and almost uniformly the stories such people tell qualify as miraculous.

Consider Cindy Carter of Laguna Beach, Calif., a longtime sufferer with a variety of physical ailments stemming from a congenital immune-system deficiency: Among her many daily trials was a bone condition that resulted in the replacement of both of her elbows and knees as well as a shoulder and a hip. After years of surgery, her prognosis for regaining full motion throughout her body was bleak at best.

“My doctors told me that I’d never have anywhere near a full range of motion throughout my body and that I’d likely be confined to a wheelchair at some point,” she says. “My condition was such that nearly every joint in my body was compromised – those that were replaced as well as those that weren’t.

“Several years ago, an orthopedist recommended that I take up aquatic exercise as part of my physical therapy. It took years in the pool,” she says, “but today, I have complete range of motion everywhere. I comfortably do yoga and pretty much any other form of exercise.

“If it wasn’t for aquatic exercise,” Carter concludes, “my life would be something

very different than it is now. I believe I owe my health to exercising in water.”

The range of conditions that are effectively treated with similar results is remarkably all-encompassing: Ankle, hip and knee injuries, spinal injuries, neurological disorders, arthritis, all manner of sports injuries and most types of congenital disabilities can all be treated with some form or other of water exercise.

“What we know about the ways in which aquatic exercise and therapy benefits the spectrum of physical conditions and disabilities is limited only by the research that’s been done to date,” observes Dr. Becker. “Every time we look at a new issue with respect to aquatic exercise, immersion or hydrotherapy, we find the same thing: The benefits are greater and more profound than we would’ve imagined.

“Yes,” he says, “the regimen and type of treatment must be specific to a person’s particular condition, but we’ve yet to come anywhere near finding the limits of what can be done in a pool or spa.”

## Broader Benefits

The range of health benefits is so broad that the implications extend to the society in addition to the individuals who directly benefit from hopping into the water.

“In the studies we’ve done with master swimmers,” reports Dr. Stager, “we’ve found a key distinction between fitness and wellness: *Fitness* is something that is easily measured and, obviously, swimming and other forms of aquatic exercise have incalculable benefits. *Wellness* is a more subjective issue, but one that is equally affected by exercise – if not more so.

“Consider that our research shows that people who exercise in water tend to be sick far less and miss work far less often than those who don’t. Their health costs plummet,” he says, “and their mental acuity, energy and productivity almost always increase. Imagine how in-



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urance companies and employers would respond to an activity that might reduce absenteeism by 15 to 20 percent – and that’s a conservative estimate – or might reduce health costs by the same factor. I contend we’d have companies installing pools and requiring employees to get in the water.”

Adds Dr. Becker, “You’ll stay healthier when you’re well and almost always recover more quickly when you’re sick or injured. With swimming and other forms of aquatic activity, people will be happier, healthier and better able to meet the challenges they encounter in their lives.

“There simply is no downside to be found in this discussion anywhere,” he says. “We’ll be less dependent on drugs and more self-sufficient in maintaining increased levels of wellness across the boards.

“In this country,” he adds, “our thera-



For forms of aquatic activity, people will be happier, healthier and better off because of the challenges they encounter in their lives.

therapeutic approach has been to respond to conditions after they occur. Focusing on aquatic exercise and therapy encompasses a paradigm shift in which we get ahead of problems in a preventative context. If as a culture we were to embrace that approach, the benefits would be remarkable, even transforming.”

The enthusiastic comments of leading experts such as Drs. Becker and Stager are not the least bit unusual: In gathering material for this article, I reviewed information from a wide range of sources and found similarly bright conclusions at every turn: There indeed may be no limit to the benefits of exercising and relaxing in water.

If that’s in any way a valid statement – and I see no reason to doubt it – the time has certainly come to let prospective owners of watershapes know all about it.

## Taking a Stand

Through the years, we at *WaterShapes* have printed a number of features in which *clients* have challenged designers or builders to come up with a watershape that meets specific health-related needs, but rare have been the cases in which such concepts and details have reached the client at the *watershaper’s* initiative.

That is something that needs to change, and the sooner, the better. We’ll do our part in the months and years to come by approaching these issues from a number of supportive angles, but the true weight of conveying messages about the health benefits of pools and spas rests on the shoulders of those who design and sell these watershapes.

Helpfully, organizations such as the National Swimming Pool Foundation, the National Institute of Health and more are churning out treasure troves of information pertaining to specific conditions and the ways in which immersion or exercise can be beneficial. There’s much more research to be done, but what’s already available is incredibly impressive, persuasive and valuable.

It’s our position at *WaterShapes* that the benefits of aquatic exercise and hydrotherapy should be familiar to everyone at every level of the industry – something we all can (and should) be promoting at every turn.

– E.H.