

INTRODUCTION

Water has been the life-giving element and a healing environment since the beginning of recorded time. Ablution, the ritual washing away of sins and impurities, has always been a part of religious ceremonies in most known religions. In all the ancient cultures of the Fertile Crescent water was a central religious theme. The ruins of ancient Roman baths have been found throughout the Holy Roman Empire, and no culture has ever since so celebrated the place of the bath in its culture. The Roman physician Galen had his offices in the Hadrian Baths in 1 B.C. The average water utilization of the Roman citizen was nearly 300 gallons per day, about that of today's American family of four.

Ancient Hindu culture centered their most religious sites around springs, where priests could bathe, reflect, worship, and allow religious and physical healing to occur. In ancient Islam people were convinced that bathing led to enlightenment and rejuvenation. The earliest Chinese writings speak respectfully of water's rejuvenative powers. Chinese and Japanese baths occupy a central part of the culture.

In 1513, shortly after the European discovery of the New World, Ponce de León traveled to find the Fountain of Youth. European spas were the center of religious culture long before this, even though bathing fell out of vogue during the Middle Ages with the spread of Christianity, which viewed cleanliness as evidence of excessive materialism and sensuality. Even so, monasteries were the reservoirs for preservation of hydrological technologies and the bathing habits of the Romans, and ill monks were permitted to use hot baths for medical recovery.

Spas underwent a significant resurgence in Europe in the 1800s and into the early part of this century. The names of the European spas are legendary, evoking a vision of high society: Bath, Baden-Baden, Spa, Bad Ragaz, Évian-les-Bains, and Baden, to name a few.

Early America had an active spa culture. In Michigan the spa in Battle Creek was developed by Dr. Kellogg, a physician who had fixations about diet and exercise. The facility was extensive, and Dr. Kellogg became both famous and an object of medical scrutiny. Elsewhere, Saratoga Springs, New York, had been a well-known spa

since long before the colonization of the New World. East Coast society turned Saratoga into a fashionable vacationing site in the latter half of the 1800s and the earliest part of the 1900s. Franklin Roosevelt made Warm Springs, Georgia, familiar to all Americans during the period of his polio rehabilitation. Sister Kenny reinvigorated the medical applications of hydrotherapy during the polio epidemic years of the 1940s and earliest 1950s, as did other centers, including Warm Springs.

The aquatic environment has always been the primary rehabilitative environment for arthritis, polio, and various neuromuscular diseases, as well as both acute and chronic soft tissue injury management. But at various times and places it has been an appropriate milieu as well for renal failure, especially when accompanied by edema, childbirth, heart failure, tuberculosis, and many other clinical dilemmas. In Europe, numerous specific protocols have been developed for the management of particular patient populations. These are today known by their site of origin or by the name of their originator, such as Bad Ragaz, or Kneipp. While much tradition surrounds these techniques, there has been a dearth of careful research studies validating their advantages over other techniques from different cultures and times. Yet the unifying element, H₂O, and the common principle, immersion, extend across too many centuries and cultures to be coincidental. Aquatic therapies can bring the therapeutic advantages of broad applicability, efficacy, and safety when used with an understanding of physiologic rationale and techniques.

American medical hydrology research had been quite intense during the early part of this century, and became even more so during the polio years. With the end of the polio epidemic in the 1950s and the rise of newer and more exciting technology, research stopped. It did not begin again until the late 1960s when NASA began to study the effects of weightlessness through research in water, the only environment that could approximate the effects of space flight. Much of the only solid science available in the research literature was done in the years between 1965 and 1977, golden years for basic scientists. Unfortunately, although many medical issues were raised,

they have never been pursued, including treatment of end-stage renal disease, the effects of water exercise on hypertensive patients, and the effects of immersion on wound healing. Many potential medical applications have never had serious research investigation.

During these years of active aquatic research, medical utilization of the aquatic environment in the United States has actually declined. The therapeutic pool, mainstream of traditional rehabilitation, has been neglected, and principles of medical hydrology and aquatic rehabilitation, formerly an important part of a therapist's training program, are rarely stressed. Indeed, there are some important misconceptions concerning a number of medical contraindications for aquatic therapy. The general public has become increasingly aware of the value of water-based exercise and rehabilitative programs, but unfortunately professional insight and support has not increased in proportion.

This issue of the journal seeks to address this concern. The authors believe there is a compelling need to "spread the gospel" of aquatic rehabilitation principles. We feel that a well-defined knowledge base of available contemporary research, treatment methodologies, and clinical stratagems is needed if providers of rehabilitation are to effectively utilize this powerful therapeutic milieu, defend its' appropriateness and rationale in a time of intense third party scrutiny, and counsel their patients toward effective and safe self-management programs, the most compelling use of aquatics.

Thus, this issue covers the current state-of-the-art use of aquatic environment for rehabilitation. The first article by Dr. Becker provides the physiologic rationale for many aquatic techniques, reviewing much of the medical research as well as basic science research sequestered in other research areas. The second article, by Dr. Cole and Marilou Moschetti, describes the issues that are central to the logistics of providing aquatic programs. The third through fifth articles, by Dr. Cole, Dr. Wilder, and David Morris, PT, describe a variety of techniques specific to important rehabilitative populations: spine pain, sports rehabilitation, and neurological rehabilitation. These articles represent the cutting edge of management, written by the acknowledged field experts. The sixth article by Dr. Araújo deals with asthma and water exercise, not a common rehabilitative concern, but one that crosses a broad spectrum of humanity and for which water may be a very useful therapeutic tool that the rehabilitationist should understand. The final article by Richard Ruoti, PhD, PT, also preeminent in the field, is an overview of some important current trends in aquatic research. Contained in this issue is material that contradicts "conventional wisdom," yet is grounded in hard science, once again providing the inquiring mind with evidence that not all we know is true, and giving rise to future important research questions.

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