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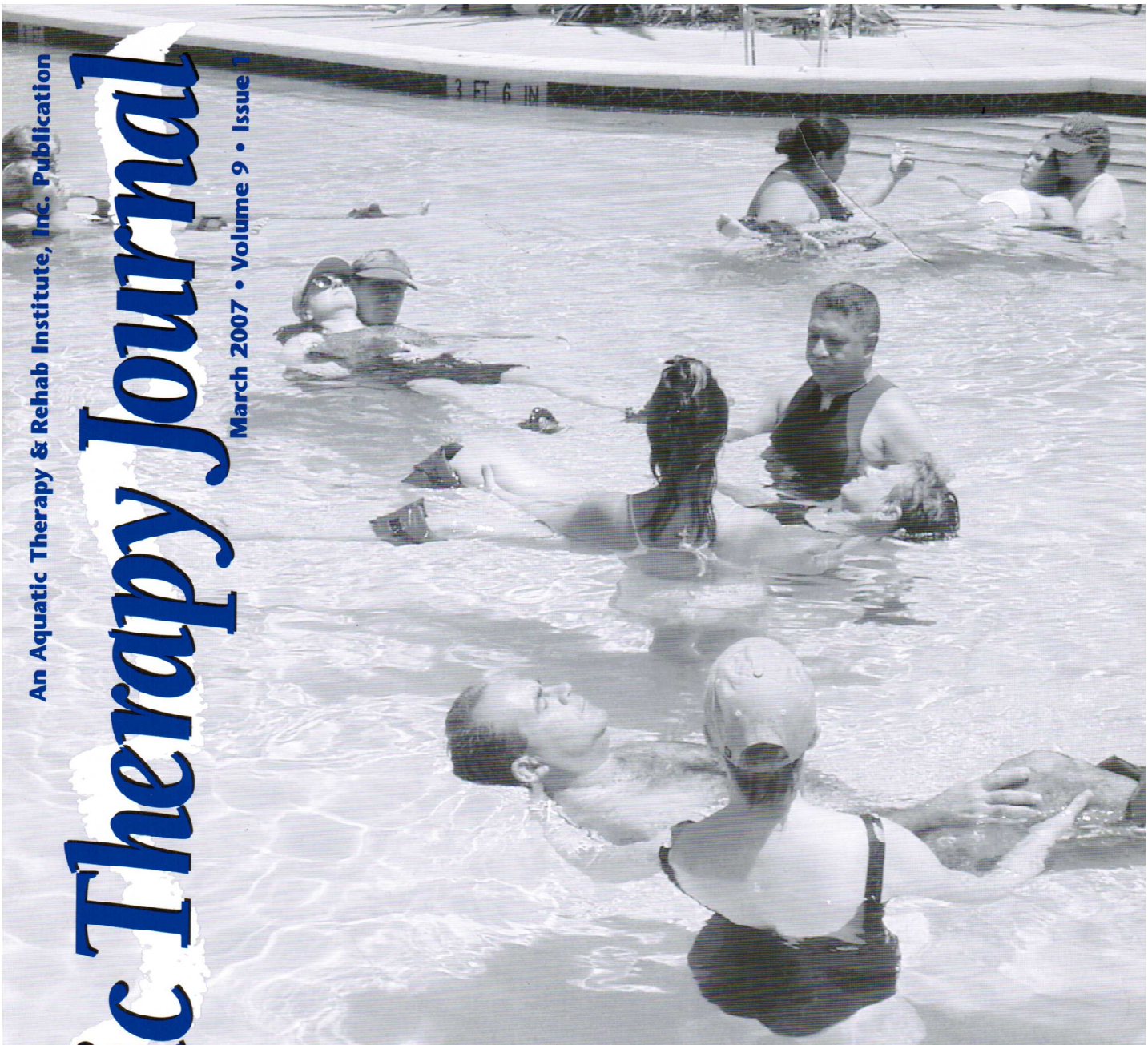

Guidelines for Ostomates: Ensuring Successful Aquatic Experiences

Aquatic Therapy/Exercise in Management and Prevention of Diabetes Mellitus

Aquatic Rehabilitation for Children with Arthritis: Guidelines for Aquatic Specialists

Changes in Muscle Tension and Range of Motion Following Passive Hydrotherapy: A Case Study

Feature Column: Are You Prepared?

Sue Skaros, BA, BS, PA-C, Medical College of Wisconsin, Milwaukee.

It has been a busy day. You mentally sigh with relief when your last client of the day leaves the water and heads in to get dressed. As you are putting away equipment, you hear your client cry out. Entering the dressing area, you find her half sitting, half lying on the floor. Grimacing with pain, and holding her butt, she tells you she was hurrying from shower to dressing bench and slipped on the wet floor, falling and landing on her tailbone. She says "I just need to catch my breath and I'll be fine. Don't worry about me."

Are you prepared to handle this situation? To see just how prepared you are, review the possibilities for action, analyze the situation, and apply your safety knowledge and experience.

Possibilities—

a. She says she will be fine and she knows her own body. You trust your client's instincts, and sit with her for a few minutes. When she says she is ready to get up, you leave her to resume dressing in private.
b. You know a fall onto the hard tile floor, with a landing on the tailbone could cause a spinal injury. To take appropriate precautions, you tell her to stay down on the floor and not move. You get towels to cover her so she does not get chilled, check her for other injuries and possible shock, and then you activate your facility Emergency Action Plan, including calling 911, reporting a possible spinal injury from a fall. Then you wait with your client, explaining what is going to happen next, while monitoring her for change in status and reassuring her.
c. Sitting on the wet floor is chilling. You activate your facility Emergency Action Plan and when a co-worker comes to assist, you both lift your client onto the dressing bench so she is off the cold floor. Once seated, she says her back hurts and she feels a bit stiff. You think that may be from the work-out she just had, combined with being cold on the floor. So you advise her to dress quickly so as not to chill further. You also recommend she take a hot bath when she gets home, to further alleviate any chilling. Before you leave, you take time to complete a facility accident report to document the incident.

Were you prepared?

Possibility a – Any tailbone fall could result in a spinal injury. Cracked and/or broken bones, when moved, can damage surrounding soft tissue, including, in this case, the spinal cord, due to potential for a compression fracture affecting a higher level of the spine. Even if your client thinks she is ok, this is still a spinal injury accident and should be handled as such. Leaving your client could be construed as abandonment. Not providing appropriate care for a possible spinal injury could be construed as negligence. You were not prepared.

Possibility c – While you have recognized this as a spinal injury accident and have activated your facility's Emergency Action Plan, you have provided incorrect care. Someone with a suspected/possible spinal injury should not be moved without proper immobilization of the head, neck, and spine. Furthermore, providing after-care advice outside your area of expertise is, at the least, inappropriate and, combined with the incorrect care provided, considered negligent. You were not prepared.

Possibility b – Recognition of a possible spinal emergency, activation of your facility's Emergency Action Plan, calling 911, immobilization, checking and caring for additional injuries and shock, and then waiting for EMS to arrive are all procedures appropriate to the scenario and within the scope of appropriate standard of care. You were prepared.

Were you prepared? If not, now is the time to take or update your safety training. **Professionals** in aquatic therapy are prepared!

Content of *Are You Prepared?* is designed to bring to the attention of the reader situations and circumstances requiring knowledge and expertise in risk management, first aid, and safety. Are You Prepared? Is not designed to provide a legal opinion and/or document specific first aid procedures and/or treatment. Commentary in Are You Prepared? is not a substitute for training. ◆

Feature Column: Pool Problems

Therapy Pool Water Temperature

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Question: *What is the best temperature for therapy pool water?*

Here's something you will never get two people to agree on. Water temperature preferences vary from person to person, depending on his or her age, health, the activity in which he or she is participating, and what he or she has become accustomed to when they enter a pool. What is considered an appropriate pool water temperature also varies by region of the country. For example, pools are usually kept colder in New England, and warmer than average in Florida. Typically, spas are maintained at 104° Fahrenheit. Multi use pools are usually kept at 83° - 86°, while competitive ➤

pools are usually maintained at cooler temperatures between 78° - 82°. Depending on the target population, instructional and therapy pool water temperatures usually range between 86° - 94°.

Immersion in warm water is both physiologically and psychologically beneficial. In addition to the benefits of the therapeutic procedures, being immersed in a warm water therapy pool may relieve pain from arthritis, stiff joints, sore muscles, and minor injuries. The warmth causes pores to open, inducing perspiration, and deep cleanses skin tissue. It stimulates circulation, increases blood flow to the skin, and reduces tension, stress and fatigue; thereby heightening mental awareness.

However, as water temperature increases, costs of pool operation also increase. Besides the obvious cost of energy to heat the pool and surrounding area, evaporation rates speed up, and destruction to the surrounding equipment and surface materials intensifies. Chemical usage goes up. Calcium is less soluble in warm water, so water is more difficult to balance, and problems associated with calcium scale deposits mount. Perspiration rates increase, and more ammonia is added to the pool. Chloramine levels escalate rapidly as a result. Organic loading escalates. TDS levels also increase at a faster rate, requiring more frequent dilution, and draining and refilling of the pool.

Temperature Selection

Pool operators should select a temperature based on priority facility usage and programming, and age of participants, while managing the maintenance concerns. **Cooler water temperatures** are needed for: high level competitive or fitness swimming, aerobic fitness activities, and activities in which participants are generating a lot of heat that needs to be dissipated. **Warmer temperatures** are needed for instructional programs, low level fitness and health maintenance programs, therapeutic programs, and programs catering to young children or seniors.

No matter what the water temperature, someone is likely to complain the water is either too warm or too cold. **If a patron tells you the water feels too warm**, tell them not to wear a bathing cap, to drink plenty of water, and to reduce the level of intensity at which they are working out. **If the water feels too cold**, suggest they wear a bathing cap, wear a Lycra dive skin, rash guard or neoprene wet suit, and work faster and harder so that they use more energy and generate more heat.

Additional Factors

Patient thermal comfort is also affected by temperature of surrounding air in the natatorium, as well as by other HVAC factors such as relative humidity, ventilation rate, and direction and velocity of air movement. Ambient air temperature in indoor pools should be maintained for the comfort of participants, and instructors or therapists who are in the water – not for spectators on the deck who are dressed in street clothes. To prevent excessive loss of heat due to evaporation, make sure **air temperature** is always maintained 1 - 3 degrees warmer than pool water temperature. **Relative humidity** should be maintained around 50%, and never be allowed to get above 60%. At a minimum, ventilate in compliance with ASHRAE Standard 62-1989 "Ventilation for Acceptable Indoor Air Quality". Provide at least 8 complete **air exchanges** per hour in the natatorium with a minimum 40%, and preferably 100% fresh air. Make sure you have the capability of bringing in 100% **fresh air** when needed during peak usage times or when attempting breakpoint chlorination.

Since **pollutants** travel from positive to negative pressure areas, natatoriums should be positively pressured in relation to the out of doors, and negatively pressured in relation to surrounding occupied spaces. Maintain air contaminants below specified values or concentrations.

Drafts, stratification of air, thermoclines or temperature gradients should not be evident. The air velocity in the area from deck level to 8' above the deck should be less than 25 feet per minute. The air temperature in spectator seating areas should be cooler and the velocity should be in the range of 40 – 50 fpm. Air should be introduced into the pool area from low to high. A common design error is to install all ductwork at ceiling level. Supply registers should be placed low in the natatorium and grills adjusted so that fresh air blows across the pool surface. This is necessary even though it increases the rate of evaporation, because heavier than air pool chemical gasses need to be moved away from the pool surface. Return / exhaust ducts should be located at ceiling level.

About Spectators

A family member or caregiver who wants to watch the session, or at least stay nearby in case they are needed often accompanies patients to a therapy session. It is best to design a **spectator viewing** room adjacent to the pool deck, and separated from the pool deck by safety glass windows. The room should be large enough to accommodate the anticipated number of spectators, allowing at least 20 square feet per person. Depending on the season, the viewing room should be heated and/or air conditioned, and the temperature in the room maintained for the comfort of the spectators. Comfortable seating, coat racks, vending machines, reading materials, toys, televisions and other distractions are often provided to help keep people occupied while they wait. ◆

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Pool Problems

Pool Problems is an on-going column. Does your pool have a persistent problem? Submit your pool problem and/or pool operations question to sjgrosse@execpc.com. The purpose of this column is to help you, our readers, operate safe, healthful facilities.