

Aquatic Therapy Temperatures

Imagine yourself walking to an 82° pool. What has happened to your skin, your shoulders, your muscles; and what has happened to the body systems that you aren't even aware of?

Now imagine yourself walking into a 92° pool. What has happened to your skin, your shoulders, your muscles; and what has happened to the body systems that you aren't even aware of?

Pool temperature makes a difference in how you feel, how your clients feel and what type of therapeutic exercise you'll use. Remember this concept:

There are two ways to increase body heat: Internally and externally. If your water is warm (94 – 98°) your program should be passive (because you're heating externally) and if your water is moderate (86 – 90°) your program can be more active (to create heat internally). This works unless you're working with clients who have thermoregulatory problems.

The bariatric client, prenatal women, clients with MS, clients with cardiac issues, and children could overheat. Their programs should be passive in thermoneutral (92°) or warm water.

Clients with rheumatological issues, pain management clients, and some pediatric clients could become chilled and experience an exacerbation of tone, pain or joint issues. In moderate or cool water their programs should be more active.

So what's the right temperature for a therapeutic pool? Monica Lepore, in her book on Adapted Aquatics, says, "*These pools are normally kept between 84 and 94 degrees, which is higher than multipurpose pools.*" Bruce Becker (MD) and Andrew Cole after reviewing research state that, "*Most studies that demonstrated positive effects controlled water temperature in the range of 26-30°C (average = 28.64°C). Therapeutic pools that tend to have higher temperatures may be more effective for rehabilitation application, but there are few temperature-controlled studies*

dealing with patient populations." They conclude that "*aquatic exercise can be performed in a wide range of temperatures, but warmer temperatures appear to be more favorable for nonswimming activity.*"

Another author, Glenda Baum from the UK, gets into the temperature concept more thoroughly. "*Heat is lost from the body much faster in water (a denser medium) than when exercising elsewhere, even though the ambient temperature in a gym or studio is likely to be much less than the water temperature. Thin people lose heat more quickly because they do not have such a good layer of subcutaneous fat. On the other hand, obese people have too much insulation, and could theoretically be at risk from overheating.*"

"*A characteristic of many conditions is that pain is made worse when cold, and reduced when warm. Generally speaking, people with joint disease far prefer the warmer temperature of a thermoneutral hydrotherapy pool, although the excessive temperature of some hydrotherapy pools (i.e. above 34°C) whilst being pleasant for the arthritic joints, can be debilitating. An ideal temperature for exercising with chronic arthritis would be thermoneutral. Whereas in the UK, it is not recommended that therapeutic activity takes place if the water is less than 27°C, in the United States, pool water is generally kept lower than that, at about 24°C.*" "A warm pool causes vasodilation, which places an additional demand on the heart as blood is not then being shunted away from the skin to be diverted to the demanding working muscles. A very cold pool might cause vasoconstriction with an accompanying increase in blood pressure. These comments, however, relate to extremes in temperature, i.e. above 30°C and below 20°C."

Bates and Hanson's book makes it easy with, "*The temperature of a therapeutic pool is 92° to 98°F (33° - 37°C). This temperature is not suitable for aerobic conditioning. The temperature of a swimming pool is usually between 80° and 85°F (27° - 30°C).*"

Another source, Aquatic Therapy Programming by Koury states, "During early pool therapy when clients are minimally active, water temperature can significantly affect the physiological and, more importantly, the psychological success of the aquatic therapy session. A critical temperature range for many people is 89 to 90°F."

Margaret Champion searched the research and found extensive information: "Under normal circumstances the heat regulating mechanisms maintain the body temperature within narrow limits. In comfortable surroundings the skin temperature of the head and torso is 33.3°C (92°F) which according to Finnerty and Corbitt (1960) is the point of thermal indifference of the skin for water. On exposure to a hot environment subcutaneous temperatures rise most rapidly in the peripheral parts of the body so that the difference in temperature between the torso and the extremities is obliterated. In warm water, heat loss is limited so a systemic rise in temperature occurs"

"Huddleston (1961) believed a pool temperature of 30.5 to 33.3° (87 to 92° F) was ideal for therapeutic exercise and general physical programmes providing both sedative and stimulating effects"

The work of Finnerty and Corbitt (1960) shows that 33.3°C (92°F) is neutral and has a sedative effect. Temperatures just above this are warm yet still produce sedation, but when the heat rises above 35.5°C (96°F) and upwards the effects are stimulating and temperature is into the hot range. These authors propose that 28.8°C (84°F) is tepid and that below 26.6°C (80°F) produces stimulating effects.

When working with ante- and postnatal women in water exercise programmes Vleminckx (1988) advocates a temperature range between 30 and 32°C (86 and 89.6°F). The advantage of this range especially at the highest point is that it allows for relaxation and permits activities to take place at a more leisurely pace. When the water is cooler it is important that exercise is carried out at a faster rate.

The work of Franchimone et.al. (1983) stresses that temperatures above 35°C (95°F) are disadvantageous as the beneficial effects of treatment in warm water are dissipated due to alterations in the cardiovascular system which may produce untoward consequences. Higher temperatures do produce relaxation but when patients are subjected to more than 15-20 min in water heated to 35°C (95°) or above they become enervated, tired and frequently sleep for up to three hours following treatment. Koga (1985) found that a neutral water temperature for light exercise was 31°C (87.4°F) and that light exercise in temperatures of 27°C (80.3°F), 31°C (87.4°F) and 35°C (95°F) showed no discrepancies as far as the thermal response of the body was concerned.

In hydrotherapy pools where a variety of conditions and age groups are treated it is impossible to suit everyone. Whitelock and Barefoot (1993) advocate a thermo-neutral water temperature of 35°C and a temperature range of 32 to 37°C.

However, in this author's experience the pool water should be heated to a range between 32°C (89.6°F) and 34°C (93.2°F) or 35°C (95°F) but no higher. This caters for all conditions and avoids any debilitating or untoward effects provided that all contra-indications to hydrotherapy have been considered. In the past, and in many pools even today, the trend of keeping the water temperature in the higher ranges goes against research findings, ignores the thermal indifference of the skin temperature and puts patients and physiotherapists at risk.

That's the scoop in books on aquatic therapy. So what's best? A pool temperature of 92° seems ideal for most clients. Therapy, however, is being done in 82° to 98° pools. Remember that you'll use a more passive technique (Watsu, Ai Chi) at higher temperatures and more active techniques (Burdenko, Halliwick) at lower temperatures. And finally, there are some temperatures that just won't work for some clients.

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Temperature Conversion Chart:

23.9 C = 75 F
26.7 C = 80 F
29.4 C = 85 F
32.2 C = 90 F
35 C = 95 F
38 C = 100 F