

# ACADEMY OF PEDIATRIC PHYSICAL THERAPY

## FACT SHEET

(co-produced with the APTA Section on Aquatics)

# The Benefits of Aquatic Physical Therapy for Children

Aquatic Physical Therapy integrates the unique knowledge, skills, and training of a physical therapist or physical therapist assistant and cannot be performed by an unlicensed individual, caregiver, personal trainer, or aquatic instructor.

### WHY IT WORKS:

- Uniform support and fluid resistance of the water provides stability to the patient. For patients with posture or movement dysfunction, the stability allows for prolonged reaction times.
- Near zero gravity and buoyancy effectively reduce the patient's body weight, making it easier to move.
- Water provides continuous, fluid, velocity-dependent uniform resistance to develop strength through larger ranges of motion.
- Constant pressure supports body awareness to improve brain-body connection.
- Depending on how a therapist uses the aquatic environment, the multi-sensory environment can stimulate alertness or calming.



Research shows for children with cerebral palsy, aquatic physical therapy affects hypertonicity by reducing muscle tone and increasing extensibility of soft tissue.<sup>1,2</sup> For children with respiratory impairment, the hydrostatic pressure of the water redirects blood flow from the extremities to the chest to improve efficiency in the cardiorespiratory system.<sup>2</sup> Children with autism spectrum disorder have experienced an improvement in socialization when participating in a group aquatic exercise program.<sup>4</sup>

### ADDITIONAL BENEFITS:

- Aquatic PT provides opportunities for movement the patient may otherwise be unable to perform.
- Allows for efficient training of multiple systems during a single session.
- Aquatic PT introduces the patient to an activity that allows for life-long participation.
- Enables/promotes caregiver participation.

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## TIME AND TEMPERATURE MATTERS

Thermodynamics refers to the effect the temperature of water has on the body. Research suggests the effect of exercise in the water is dependent upon such factors as the age of the patient, the type of intervention performed, the level of activity, the amount of time spent in the water, and the air temperature within the aquatic center or outdoors.<sup>1,5,6</sup>

Because children have a lesser ability to regulate body temperature, passive interventions may require water temperatures to be between 90-92 degrees to prevent chilling. For children who actively participate in water play, swim skills, and gait training, the water temperature may range from 87-89 degrees.<sup>1,5</sup> The length of time a participant spends in the water also impacts their ability to dissipate heat. Most studies reported aquatic interventions lasted between 30-45 minutes.<sup>2,3,4,5,6</sup>

## INTERVENTION TO IMPROVE FUNCTION

Intervention strategies utilize four basic positions: vertical, prone, sidelying in supine. Some examples of fundamental intervention strategies using the four basic positions include:

- Vertical suspension: supported vertical can help patients develop head and trunk control in all planes of movement. Activities performed in suspended vertical or standing at various depths, allow patients to develop postural control, balance, and cardiorespiratory strength.
- Prone: By supporting a patient in prone, the therapist can visualize neuromuscular asymmetry and facilitate muscle activation in targeted areas. Development of extensor strength supports independent sitting and standing. Therapists can motivate patients with toys to encourage forward reach and visual-motor control.
- Sidelying: Positioning and handling with the patient in sidelying offers opportunities for the patient to develop the lateral head and trunk control needed to reduce torticollis. Unilateral upper and lower extremity movements in sidelying help promote dissociation and laterality.
- Supine: In the supine position, focused intervention for the flexors of the body, particularly the head and trunk promote development of upright posture. Therapists may also use the supine position to perform a variety of manual techniques to improve the extensibility of soft tissue, work to develop trunk rotation.

## WHEN TO USE FLOATATION SUPPORT

For aquatic physical therapy, floatation support is typically kept at a minimum because the therapist is providing skilled, hands-on intervention to the degree necessary to control the patient's movements. However, there are times when floatation support is necessary and used for several reasons:

- To stabilize a portion of the patient's body while the therapist or patient moves another segment;
- To promote independent movement when the patient is otherwise unable to move;
- To provide additional resistance or challenge movement;
- To support participation or safety during group activities.

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If you want to know more about aquatic physical therapy, please contact the APTA Section on Aquatics at 800-765-7848, x7101, or at [Aquaticspt@apta.org](mailto:Aquaticspt@apta.org).

## REFERENCES

- <sup>1</sup> American Red Cross Scientific Advisory Council (2012). Appropriate Water Temperatures in Which to Conduct American Red Cross Aquatic Instructional Programs. Retrieved from: [www.instructorscorner.org/media/resources/SAC/Scientific Review...](http://www.instructorscorner.org/media/resources/SAC/Scientific%20Review...)
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- <sup>3</sup> Dimitrijević, L., Aleksandrović, M., Madić, D., et al. (2012). The effect of aquatic intervention on the gross motor function and aquatic skills in children with cerebral palsy. *Journal of human kinetics*, 32, 167-174.
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- <sup>5</sup> Karklina B, Declerk M, Daly D. (2013). Quantification of Aquatic Interventions in Children with Disabilities: A Systematic Literature Review. *International Journal of Aquatic Research and Education*, 7(4): 344-379.
- <sup>6</sup> Lees, T., Fielding, R., Wernicki, P., Markenson, D. Appropriate Water Temperatures in Which to Conduct American Red Cross Aquatic Instructional Programs, *International Journal of Aquatic Research and Education* 2013, 7, 167-178

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