



APTA
Combined
Sections
Meeting

Water Specific Therapy (WST) in Pediatrics Part I

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February 13, 2025

Houston, Texas

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Disclosure

We have no relevant financial relationships to disclose for either speaker.



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Learning Objectives

- Describe what Water Specific Therapy (WST) is and how it integrates water principles to improve function on land for the pediatric patient.
- Explain the Evidence Based research that supports the use of Water Specific Therapy (WST) in the pediatric population.

Water Specific Therapy (WST)

- A group of physiotherapists in Switzerland developed WST in the 1970s together with James McMillan.
- WST is a system for aquatic motor re-learning, in which elements of the ten-point program of the Halliwick Concept® are applied therapeutically.
- Also related to the ICF and other concepts.
- WST is based on the competency profile of Aquatic (Physical) Therapy and includes specific knowledge and skills.



Water Specific Therapy (WST) is defined as a therapeutically functional treatment, adapted to the biomechanics of the human body and based on the specific characteristics of water: the buoyancy-gravity relationship, flow conditions and waves.

Urs Gamper

Water Specific Therapy (WST)

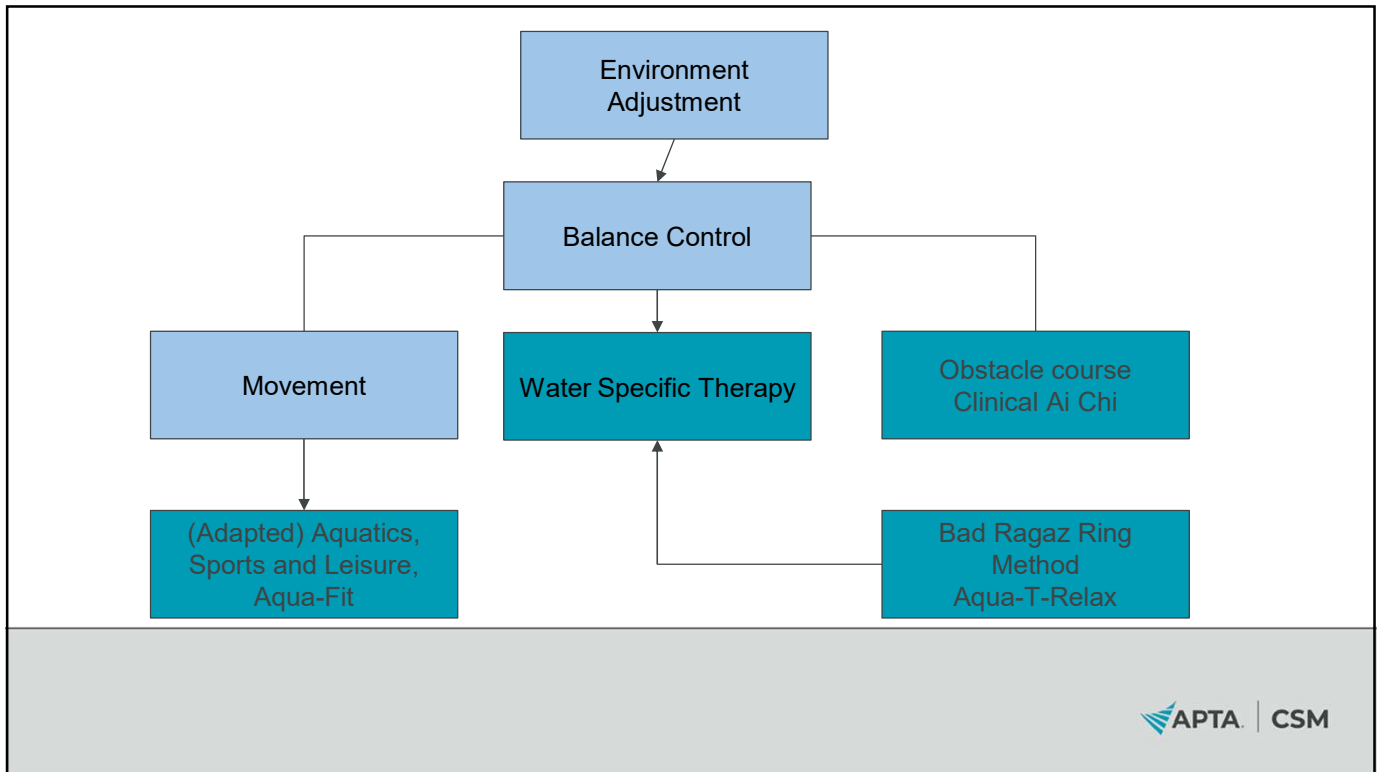
- **Targets neuromusculoskeletal goals:** muscle strengthening, pain reduction, core stability, and fall prevention to named some examples.
- **Unique Feature:** Elicits subtle muscle contractions difficult to achieve on land.
 - More specific target of the movement/activity.
 - Unique feature- can't do on land.

Benefits for different age groups

- **Diverse Application:** Pediatrics to Geriatrics.
- **Adaptability:** Evolved to address modern rehab needs, e.g., neuroinflammation and motor function

Key Principles of WST

- **1st need to be safe in the water**
 - Learning skills for water safety
- **Utilizes Water's Mechanical Properties:**
 - **Turbulence and wave transmission**
 - **Buoyancy and metacentric effects** impacting balance and stability
- **ICF**
 - The goal of therapy



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Environment Adjustment

It focuses on helping individuals, especially those with physical or neurological challenges, *adapt mentally and emotionally to the aquatic environment.*

- Overcoming Fear of Water: Gradual exposure to water and positive reinforcement help ease fears

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Environment Adjustment

- Understanding that water can support their body, allowing *freedom of movement* not possible on land.
 - Encouraging small, *achievable tasks* helps participants feel in control and boosts their self-esteem.
 - Confidence in the water is critical for *engaging* in more complex movements and exercises.

“A situation is only mentally
desired when physically
controlled”

McMillan

What are Metacentric Effects?

- The buoyancy-gravity relationship: applied in the metacentric effect construct. Both forces are almost equal, but opposite and with their centers at different places.
- This makes it easy to create stabilizing or destabilizing torques by changing the relationship. Stabilizing torques are mostly seen as various postural reactions (righting, equilibrium etc)



How is the Metacentric Effect Used in Therapy?

- **Postural Control Training**
- **Balance and coordination**
- **strengthening core muscles**
- **Motor learning**
- **Functional Movement practice**

The therapist intentionally challenges the alignment between the center of gravity and buoyancy, requiring the participant to engage the postural muscles to stabilize.



How is the Metacentric Effect Used in Therapy?

- Postural Control Training
- **Balance and coordination**
- strengthening core muscles
- Motor learning
- Functional Movement practice

By creating rotational forces, the metacentric effect helps train balance. Participants learn to control and counteract these forces, improving stability.



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How is the Metacentric Effect Used in Therapy?

- Postural Control Training
- Balance and coordination
- **strengthening core muscles**
- Motor learning
- Functional Movement practice

The rotational forces activate deep core and stabilizing muscles, helping build strength and improve functional posture.



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How is the Metacentric Effect Used in Therapy?

- Postural Control Training
- Balance and coordination
- strengthening core muscles
- **Motor learning**
- Functional Movement practice

The effect encourages participants to adapt and learn how to control their body in an unstable aquatic environment, which translates to improved control on land.



How is the Metacentric Effect Used in Therapy?

- Postural Control Training
- Balance and coordination
- strengthening core muscles
- Motor learning
- **Functional Movement practice**

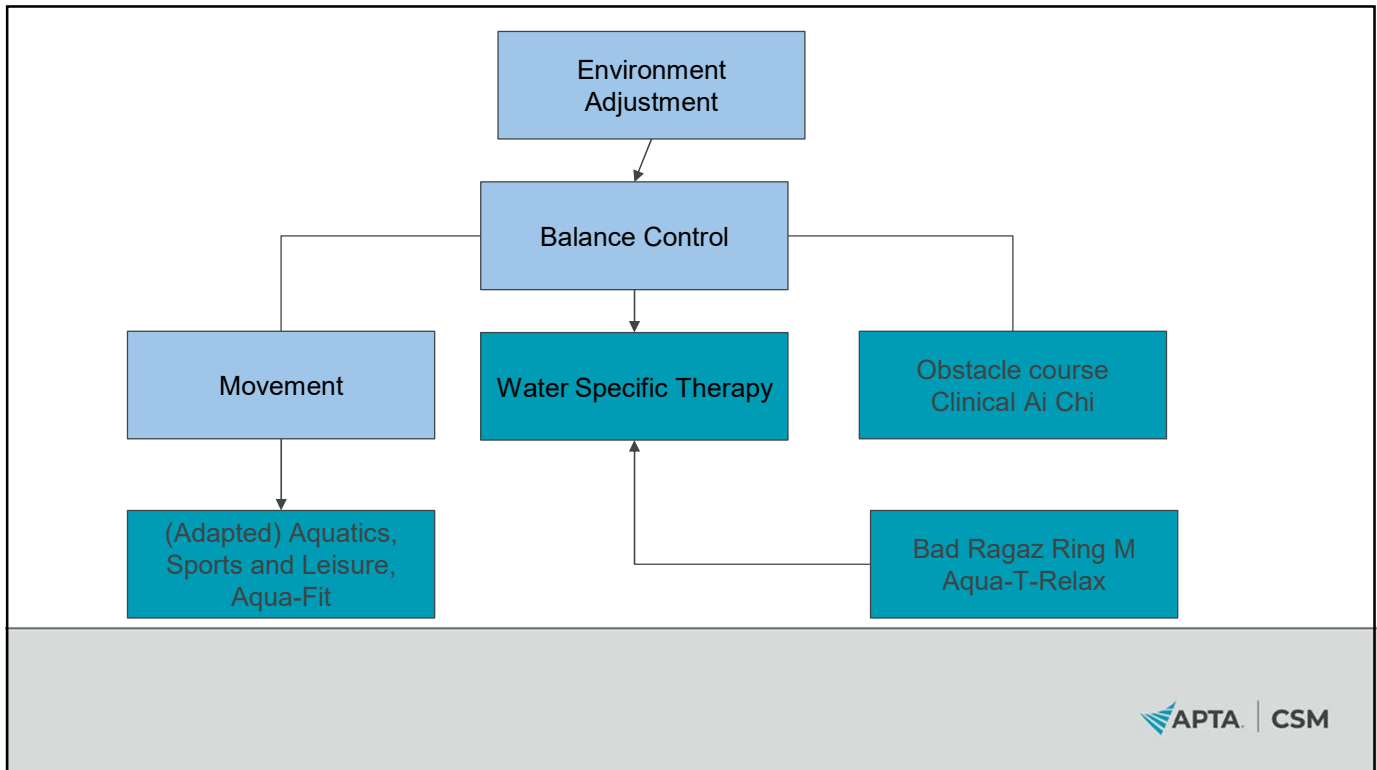
Tasks that involve rotation or changes in position (e.g., turning, rolling) simulate real-life movements, enhancing motor function and agility.



Example in Practice:

- Therapist may have a child with cerebral palsy float on their back while gently tilting their body.
- As the child rotates due to the metacentric effect, they are encouraged to use their core and limbs to stabilize or return to the original position.





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Some Principles of WST

- Repetition without repetition!
- Variety of speeds
- Adding obstacles
- Doing activity while carrying an object
- Changing depth of the water
- Altering the amount of turbulence
- Eyes open / Eyes closed
- Others?



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Practical Applications in WST

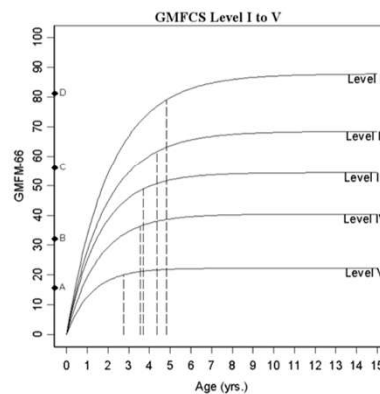
- Situations in which patients work actively with their own changes of body shape and/or added torques in stabilizing or mobilizing ways
- Reactive exercises (by – unexpected – perturbations)
- Changes of the punctum fixum and punctum mobile
- All variations between closed – and open kinetic chains
- Movements with a very low level of force or power
- High torques on the trunk without additional weights (as on land)

The Ontario Motor Growth Study

The Motor Growth Curves report patterns of gross motor development in children with cerebral palsy, classified according to each of the five levels of the Gross Motor Function Classification System (GMFCS) (Palisano et al., 1997). Children in this study were followed longitudinally for several years. The findings were published in a paper entitled 'Prognosis for Gross Motor Development in Cerebral Palsy: Creation of Motor Growth Curves', Rosenbaum et al., JAMA 2002; 288; 1357-63.

Motor Growth Curves from the Ontario Motor Growth Study

All 5 Curves (Levels I to V)



This graph shows the observed and predicted GMFM-66 scores for children in GMFCS Levels I through V. The curved solid lines indicate average performance. The horizontal dotted lines on the right of the figure indicate the level expected to encompass 50% of children's limits of development. The solid vertical line indicates the average age at which 50% of children are expected to reach 50% of their motor development potential. The dotted vertical lines indicate the age at which 90% of children are expected to reach 50% of their motor development potential. The dotted vertical line for Level I indicates low variation in age-50 values. The absence of 50% bands in level IV and level V indicates low variation in age-50 values.

JAMA 2002; 288;1357-63. Copyrighted 2002, American Medical Association.

Benefits for Children with Cerebral Palsy (CP)

- Improves pelvic stability and gait patterns.
- Enhances the ability to transfer weight during walking.
- Encourages motor learning for lateral movements, often difficult for children with CP.

TRUNK

- Trunk control is operational as rotational control in two positions: vertical and horizontal
- Therapeutically, vertical (but dynamic) positions are more important
 - (Suspended) sitting, squatting, standing with:
 - Medio-lateral stability
 - Dorso-ventral stability
 - Rotational stability
 - Multi-directional stability



Movements

Medial lateral stability

- **Trunk Stability:** Strengthens obliques, quadratus lumborum, and core muscles, improving posture and reducing spinal strain.
- **Upper Body Control:** Enhances scapular, head, and abdominal strength, supporting alignment and mobility.
- **Lower Limb Mobility:** Improves knee and foot movement, optimizing balance and reducing spinal stress.



Movements

Dorso ventral stability

- **Extension for Posture and Stability:** Prioritizes extension over flexion, improving alignment, balance, and functional movement through concentric and eccentric control.
- **Flexor Pattern Counteraction:** Helps correct flexor-dominated postures, common in conditions like cerebral palsy, promoting better motor control.
- **Full-Body Engagement:** Targets shoulders, hips, knees, and feet, enhancing mobility and coordination.



Movements

Rotational stability

- **Spinal Mobility:** Enhances rotation movement, improving flexibility and reducing stiffness.
- **Upper and Lower Limb Mobilization:** Promotes shoulder, hip abduction/adduction, and rotation, increasing joint range of motion.
- **Strength and Stability:** Focuses on scapulohumeral and hip strengthening, improving posture and functional movement.



Movements

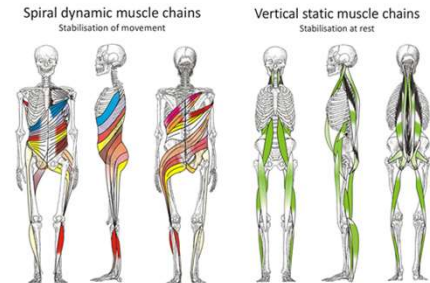
Multi directional stability

Enhances joint flexibility and control, supporting movement in all planes.

- **Trunk and Limb Strengthening:** Improves core and extremity stability, essential for functional tasks.
- **Concentric and Eccentric Control:** Builds strength and resistance, aiding in movement efficiency and injury prevention.
- **Real-Life Movement Simulation:** Encourages natural motion patterns like reaching, walking, and turning, integrating upper and lower body coordination.

Practical Applications in WST

- These movements encourage the body to explore its full range of motion, stretching muscles and mobilizing joints that may otherwise remain restricted due to spasticity or stiffness.
- Diagonal patterns particularly address spiral dynamics of movement, which can help reduce muscle imbalances.
- Based on PNF



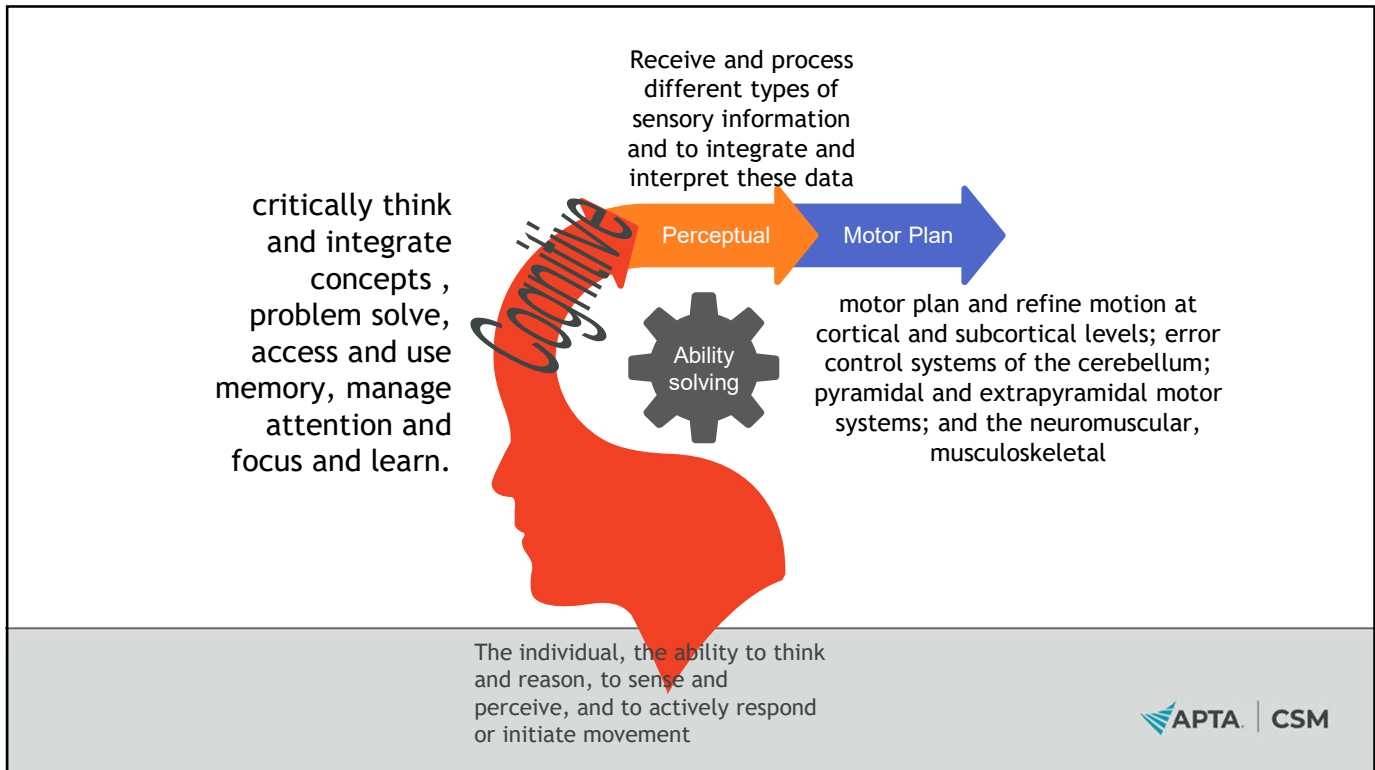
Principles of Disengagement The WST Principles in Motor Learning

- Change in supports
- Change in fluid mechanics
- Change in general mechanics
- Change in exercise physiology

In order to progress

- Active practice
- Repetition without repetition in open skills





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- **TASK:** Transition from supine to sit
- **INDIVIDUAL:** 6yo girl
- **ENVIRONMENT:** pool

A photograph of a 6-year-old girl in a pool, transitioning from supine to sit. She is wearing a floral swimsuit and is being supported by an adult. The pool has a stone-like wall in the background.

A Venn diagram illustrating the motor control model. It consists of three overlapping circles: a light blue circle labeled "Task", a light green circle labeled "Individual", and a light green circle labeled "Environment". The intersection of all three circles is labeled "Motor Control".

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Motor Skill Development

Progressive tasks: Rotational movements, counter-rotations, and reaching.

Functional tools: Use of toys and weights for therapeutic objectives.



Motor Skill Development

Gradual complexity: From static to dynamic tasks to build confidence and skill.

Example: Transitioning from stationary reaching to walking and reaching combined.

WST

- **WST Focus:** Motor learning in water to improve function on land
- ***Bridging*** aquatic and land-based therapy

Therapeutic Advantages of Aquatic Therapy

- **Joint Load Reduction:** Enables movement with minimal pain.
Ex: Children with juvenile idiopathic arthritis performing squats in water, alleviating joint stress.
- **Motor Skill Development:** Repeated movements enhance neuroplasticity.
Ex: Practicing stepping motions in water to improve gait mechanics on land.

Therapeutic Advantages of Aquatic Therapy

- **Aerobic Capacity and Endurance:** Safe cardiovascular exercise.

Ex: Walking/ running to improve stamina and heart health.

- **Freedom of Movement:** Empowering children with restricted mobility.

Ex: A wheelchair-bound child experiences independent walking in water.

Key Hydrodynamic Properties that Aide in Pediatric Rehab / Therapy

- **Buoyancy:**
 - Decreases gravitational effects
 - Enables easier movement
 - Reduces strain on joints
- **Low Impact Environment:** Safe for exercise and movements

Example: A child with spasticity practicing overhead arm movements with reduced resistance.

Key Hydrodynamic Properties that Aide in Pediatric Aquatic Therapy

- **Viscosity:**
 - Provides adjustable resistance for strength training
 - Allows more time to react and work on balance

Example: Pushing a kickboard underwater to strengthen shoulder and core muscles.

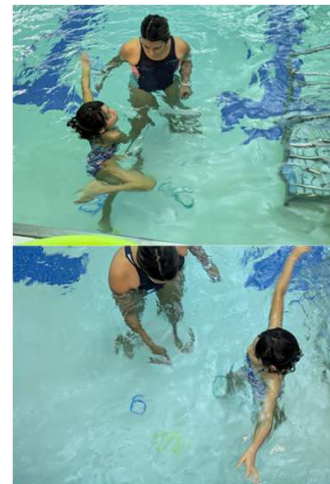


Key Hydrodynamic Properties in Therapy

Hydrostatic Pressure:

- Improves circulation, reducing swelling and inflammation
- Enhances sensory feedback for balance

Example: Standing still in chest-deep water to improve proprioceptive input.



WST Therapeutic Goals in Pediatrics

- postural control
- core stability
- coordination



Task-Based Exercises:

- Focuses on improving specific motor skills
 - **Progression:** Exercises progress from stable postures to dynamic balance and movement.



Balance Training:



- **Water's instability** challenges and improves *proprioceptive* and *vestibular* systems.
- **Improved Functional Abilities**
 - **Safe Environment:** Allows children to *practice functional tasks* like standing, walking, and transitioning without the fear of falling.
 - **Daily Activities:** Exercises are designed to *enhance skills transferable to daily living*, such as sitting and reaching.

Postural Control and Core Stability



- **Turbulence and Resistance:** The water's resistance and turbulence stimulate the core muscles, enhancing postural control.
- **Motor Learning in Water:** Tasks improve muscle coordination and balance, which can translate to better function on land

Psychological and Emotional Benefits

- **Increased Confidence:** Success in water-based tasks boosts self-esteem and motivation.
- **Enjoyable Therapy:** Aquatic therapy is often perceived as play, making it more engaging for children.



Example Exercise Progression in WST for CP, ataxia or other motor challenges

- **Dynamic Balance:** Challenging balance while moving through water.
- **Stability Training:** Learning to maintain posture in the water
- **Functional Skills:** Practicing transitions and walking patterns in water

Integration with IATF Guidelines

- WST aligns with the International Classification of Functioning, Disability, and Health (ICF)
- Addressing functional goals through evidence-based aquatic motor learning.
- Emphasizes adaptability to individual needs, making it an effective framework for pediatric therapies.

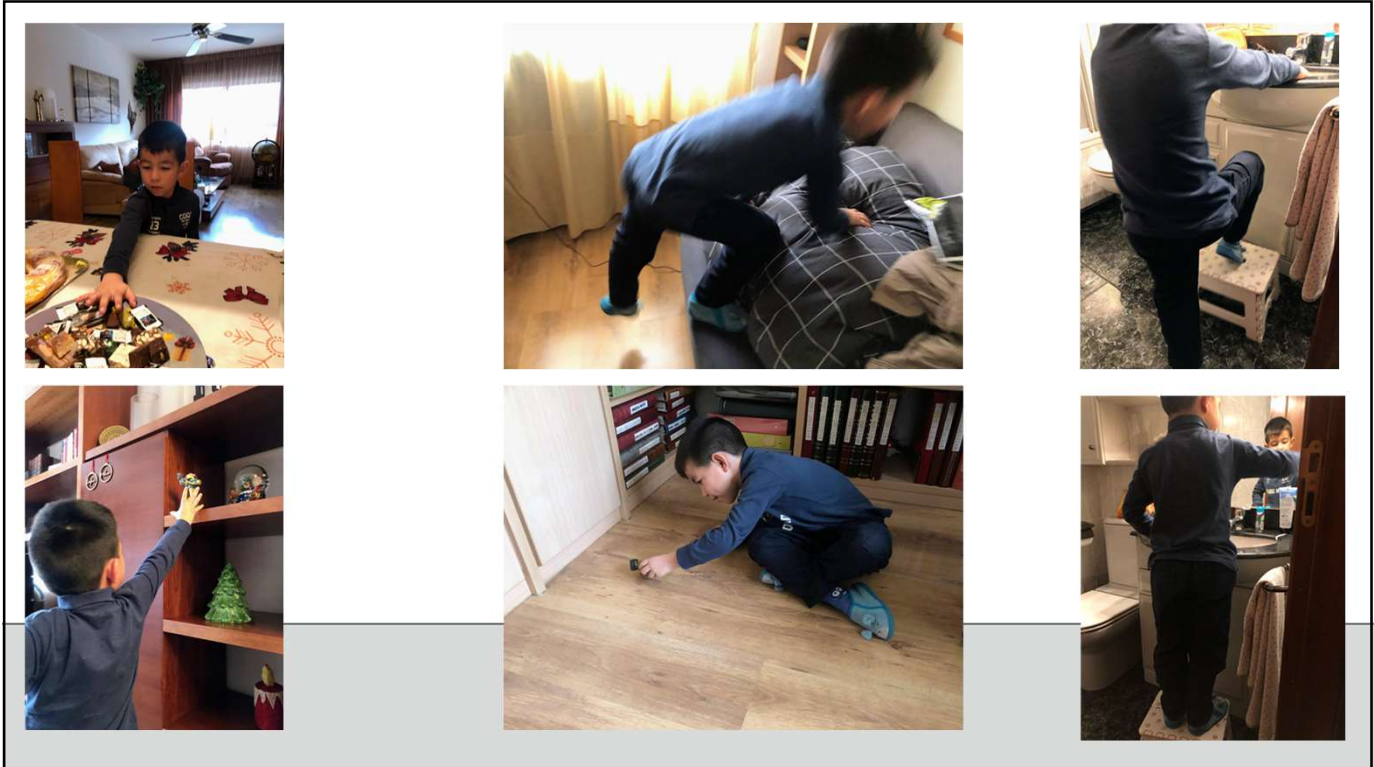


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Dosage

Variable of an exercise	Easy	More difficult
Water depth	Deep	Shallow
Basis of support (feet)	Wide	Unipedal
Support: poolside, therapist	Yes	No
Attention	Focus on balance	Focus on environment
Visual control	With	Without (even eyes closed)
Kind of support	Full foot support	Partial foot support
Multiple tasks	Without	With
Disturbance: waves, turbulence, metacentric effects	Without	With
Velocity, acceleration	Low	High
Use of arms	With "swim" movements	Without "swim" movements
Use of arms	Arms wide (large inertia)	Arms close to the body
Direction, symmetry	Without rotational movements	With rotational movements
Rhythm	Steady	Changing
Repetitions	Few	Many
Range of Motion	Small	Large
Leverage and frontal plane	Short and small	Long and large

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WST Evidence Based Research in Pediatrics

- Supports the effectiveness of WST in aquatic therapy on gross motor function in children.
- Aim to provide empirical evidence supporting the efficacy of aquatic therapy as a treatment modality for children with CP.
- WST offers a valuable therapeutic approach for pediatric clients with cerebral palsy and other neuromusculoskeletal impairments, addressing motor deficits, improving functional abilities, and enhancing quality of life.

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Review

Aquatic Therapy in Children and Adolescents with Disabilities: A Scoping Review

Anna Ogonowska-Slodownik ^{1,2,*}, Oliwia Jakobowicz ¹, Lyndsay Alexander ³, Andresa R. Marinho-Buzelli ⁴,
Catherine Devion ⁵ and Natalia Morgulec-Adamowicz ^{1,6}

Published November 20, 2024

Included:

52 publications, various designs

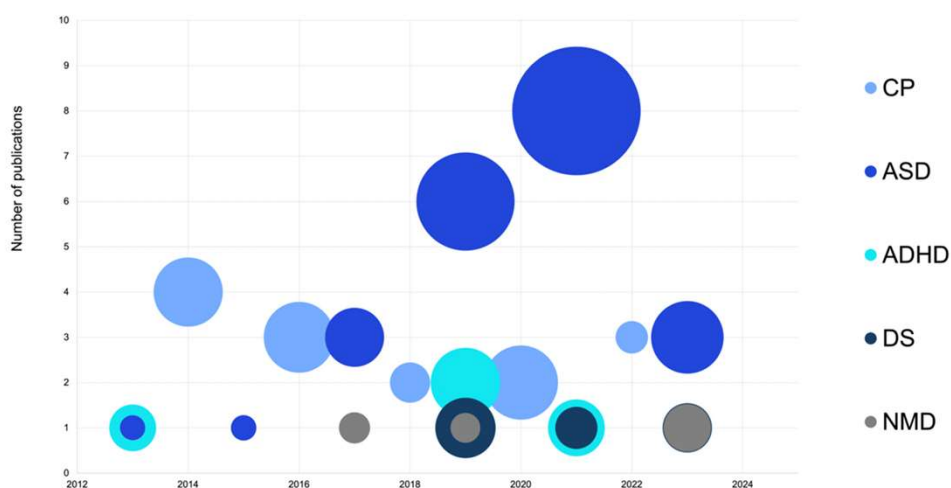
46% about ASD > mostly about swimming

442 participants in 21 studies



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Publications 2012 -2024



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	Partici- pants	Inter- vention	Delivery setting	Duration (weeks)	Frequency (times/week)	Session duration (min)	Exercise volume (min/week)
Adar et al. 2017 [30]	CP		1:1	6	5	60	300
Adin, Pancar 2023 [62]	ASD			6	3	60	180
Alaniz et al. 2017 [50]	ASD			8, 16, 24	1	60	60
Ansari et al. 2020 [31]	ASD			10	2	60	120
Ansari et al. 2021 [33]	ASD			10	2	60	120
Ansari et al. 2021 [32]	ASD			10	2	60	120
Ballington, Naidoo 2018 [34]	CP		1:1	8	2	30	60
Bekhet et al. 2023 [75]	ASD		1:1	2	6	30	180
Caputo et al. 2018 [63]	ASD			40	1.2	45	45, 90
Chang et al. 2014 [64]	ADHD			8	2	90	180
Conklin et al. 2023 [72]	CP			8	2	30	60
de Araujo et al. 2018 [35]	CP			8	2	35	70
Declerck et al. 2016 [36]	CP			10	2	45	90
Deplazzi et al. 2021 [37]	CP			10	2	40	80
Einaggar et al. 2022 [38]	CP			12	3	45	135
Esmailiyan et al. 2023 [73]	CP		1:1	8	3	60	180
Faraji et al. 2023 [39]	ASD			8	3	45	135
Fatorechchy et al. 2019 [51]	CP			8	2	50	100
Fragala-Pinkham et al. 2014 [52]	CP		1:1	14	2	60	120
Fruhauf et al. 2020 [65]	OTHER			1	1	60	60
Georgieva et al. 2023 [66]	DS			44	2	40	80
Guelita-Rodriguez et al. 2021 [16]	ASD		1:1	28	2	60	120
Hattabi et al. 2019 [67]	ADHD			12	3	90	270

H = Halliwick

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Table 1. Domains of reported benefits.

Domain	Benefits
Functional performance	Motor performance [11,30,34,35,39,43,45,47,49,51,52,55,59–61,72] Functional performance [38,53,66] Balance [33,38,69] Strength [73]
Physiological domain	Body composition [28,42,45,48,70] Sleep [32,58,71] Pulmonary function [28,53,62,68]
Psychosocial domain	Behavior [31,40,54,64,70,74,76] Social skills [15,43,63,65] Cognitive function [13,40,67] Mental health [44,47] Academic [40] Enjoyment [11,13,56] Health-related quality of life [30,46]
Aquatic Skills	Core aquatic skills [56,60,61,75] Swimming skills [36,57] Water safety [50]

Color = WST

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REVIEW

Open Access

Aquatic therapy for spastic cerebral palsy: a scoping review

Aomeng Xiang^{1,2†}, Yanxin Fu^{1,2†}, Chengshuo Wang^{1,2}, Dan Huang¹, Jingman Qi^{1,2}, Ruoxuan Zhao^{1,2}, Liang Wu^{1*}, Chunliang Fan^{1*} and Qin Zhang^{1*}

Ballington (2018) discovered that AT resulted in a clinically meaningful improvement of 4.25 points in mean GMFM-66 in CP, consistent with the conclusions reached in this scoping review



Conclusions: AT can improve the gross motor function, cardiopulmonary function, daily living, and social communication ability of patients with spastic CP.

Cerebral palsy in under 25s: assessment and management

NICE guideline
Published: 25 January 2017

NICE National Institute for Health and Care Excellence

Guidance Standards and indicators Life sciences British National Formulary (BNF) British National Formulary for Children (BNFC) Clinical Knowledge Summaries

[Home](#) > [NICE Guidance](#) > [Conditions and diseases](#) > [Neurological conditions](#) > [Spasticity](#)

Spasticity in under 19s: management

Clinical guideline [CG145] Published: 25 July 2012 Last updated: 29 November 2016

1.2.14 Direct muscle-strengthening therapy towards specific goals using progressive repetitive exercises performed against resistance.

1.2.2 Offer a physical therapy (physiotherapy and/or occupational therapy) programme tailored to the child or young person's individual [General principles](#) and aimed at specific goals, such as:

- enhancing skill development, function and ability to participate in everyday activities
- preventing consequences such as pain or contractures.

Task-focused active-use therapy

A physiotherapy technique where a specific goal is identified and the child or young person carries out exercises or activities using the affected limb or limbs to improve their performance.

TA | CSM

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External Evidence CP

Based on 13 studies (Pedro scores between 2 and 8)

Topics:

1. Gross Motor Function Classification Scale levels
2. Distribution over the body
3. ICF levels of measurement
4. Kind of intervention

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GMFCS levels		1	2	3	4	5
Amount						
Thorpe 05	CT	2	2	2		
Getz 06	CT	11	2	12	11	8
Getz 07	CT		1 di	11 di		
Özer 07	RCT					Unknown
Fragala 08		1 hemi	1 di			
Aidar 07						Unknown
Chrysagis 09	RCT				Unknown, no level 5	
Kelly 09		1 di / 2 he	1 di	1 quadri		
Retarekar 09				1 di		
Fragala 09		1 di / 2 he				
Fragala 10					Unknown, no level 5	
Ballaz 10		2 quadri	3 di / 1 he	3 di / 1 qu	1 di / 1 qu	
Dimitrijevic 12	RCT					

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Ballington SA, Naidoo R. The carry-over effect of an aquatic-based intervention in children with cerebral palsy. (2018). African Journal of Disability.

Background: Children with CP are more likely to have lower levels of physical activity than their peers, which has negative implications for their health. However, aquatic exercise can be used to improve levels of fitness among children with CP.

Objective: Determine the carry-over effect of an aquatic-based programme (postural control and balance) on land (walking, running and jumping) in children with CP, post aquatic intervention.

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The carry-over effect of an aquatic-based intervention in children with cerebral palsy.

Method: The study used a pretest-post-test, randomized group, cross-over design. Children aged 8–12 years ($n = 10$) were divided into intervention ($n = 5$) and control ($n = 5$) groups. The intervention group participated in two 30-min sessions a week, while the control group continued with normal activities. Pre- and post-intervention testing was conducted using gross motor function measurement. The 10-point programme of the Halliwick Concept was used.

The carry-over effect of an aquatic-based intervention in children with cerebral palsy.

Results: Results demonstrated that the aquatic therapy had a significant effect on gross motor function scores.

The aquatic programme-based group showed increased motor function following the intervention, compared to the control group ($z = -2.803$, $p = 0.005$).

The aquatic-based therapy **improved the average score for gross motor function measurement, post-intervention.**

The carry-over effect of an aquatic-based intervention in children with cerebral palsy.

Conclusion: Together with conventional modes of therapy, aquatic-based programs should be integrated and considered as an essential, ongoing mode of treatment for children with CP, in order to ensure long-term gross motor function improvements.

The effectiveness of hydrotherapy in the treatment of social and behavioral aspects of children with autism spectrum disorders: a systematic review. 2014.

Systematic Review: to examine the effectiveness of hydrotherapy on social interactions and behaviors in the treatment of children with ASD's.

Study Inclusion Criteria:

- aged 3-18 years
- Students with ASDs at a high-functioning level.

The effectiveness of hydrotherapy in the treatment of social and behavioral aspects of children with autism spectrum disorders: a systematic review. 2014.

Procedures/Interventions:

- 4 studies met inclusion criteria
- Participants in studies were between 3–12 years of age
- Duration of intervention in the studies ranged from 10–14 weeks
- All 4 studies based interventions on the Halliwick method

The effectiveness of hydrotherapy in the treatment of social and behavioral aspects of children with autism spectrum disorders: a systematic review. 2014.

Summary of results from studies indicated hydrotherapy:

- positive impact on the social interaction and behaviors in children with ASD
- reduction in participants' stereotypical movements
- improved participants' social interactions and behaviors
- improvements in academic behavior, aggressive behavior, defiant/disruptive behavior, and social competence
- improvements in social, emotional, school and physical function
 - Why does this matter to the PT/PTA's?

Effect of aquatic exercises approach (Halliwick-therapy) on motor skills for children with autism spectrum disorder. 2017.

Introduction:

Investigate the effect of aquatic exercise approaches (Halliwick) using the 10 point program on motor skills for children with Autism spectrum disorder

Methods:

Aquatic program implemented for 10 weeks, 3x/week

CARS (childhood autism rating scale) and physical tests (20 meter run, standing broad jump, mushroom float, walking in pool) completed before and after 10 point Halliwick program

Effect of aquatic exercises approach (Halliwick-therapy) on motor skills for children with autism spectrum disorder. 2017.

Results:

Significant difference in all physical tests but no difference in pre/post test with CARS

Conclusion:

10 weeks of aquatic exercise (specifically using the Halliwick method) can affect motor abilities of children with Autism

Evidence and Research in WST for CP

- **Studies Indicate Improvements:**
 - Enhanced gross motor function and balance
 - Comparison with land-based therapy shows complementary benefits
- **Need for Further Research:**
 - Strengthen evidence for WST in CP treatment plans

WST's Impact on Pediatric Therapy:

- Valuable in managing motor deficits and enhancing quality of life for children with CP
- Continuous research and development essential for optimized therapy plans
- **Future Directions:** Best practices for integrating aquatic therapy for improved land-based function.

Take Home Points...

Safe and Supportive:

Reduces the fear of falling and minimizes joint strain, creating a secure rehabilitation environment.

Playful Therapy:

Makes rehabilitation fun and engaging, increasing motivation and participation.

Enhanced Motor Skills:

Water resistance challenges movement, improving coordination, strength, and control.

Improves Balance and Posture:

Supports better alignment and stability, crucial for functional mobility.

Take Home Points...

Targeted CP Rehabilitation:

Addresses key challenges in cerebral palsy, promoting neuromuscular development.

Boosts Functional Skills:

Focuses on improving real-life movements, enhancing independence in daily tasks.

Evidence-Based Benefits:

Research shows improved gross motor function, balance, and quality of life.

Take Home Points...

Effective Alternative:

Complements or even surpasses land-based therapies for some children.

Holistic and Inclusive:

Suitable for all abilities, fostering both physical and emotional growth.

Strong Research Support:

Backed by scientific evidence, validating its effectiveness in pediatric rehabilitation.



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If you can't go to Valens...Inertia brings Valens to you!



International Certification Course
Halliwick Aquatic Therapy
& Water Specific Therapy
 March 10-14, 2025- Sun City, AZ

"The Halliwick Concept combines the unique qualities of the water with rotational control patterns in an attempt to facilitate improvements in the body's neurological, musculoskeletal, and psychosocial systems." -- Andrea Salzman

"Halliwick is motor learning in water to be used in water."

"Water Specific Therapy is a therapeutically functional treatment, adapted to the biomechanics of the human body and based on the specific characteristics of water: the buoyancy-gravity relationship, flow conditions and waves." -- Urs Gsemper

"Water Specific Therapy is motor learning in water to be used on land"

This course has been pre-approved by the Arizona Physical Therapy Association for 52.5 hours

***This certification is recognized by the Association of International Aquatic Therapy Faculty (IATF)**

Scan QrCode



BRAIN FITNESS: Aquatic Motor-Cognitive Therapy
 March 15-16, 2025- Sun City, AZ

A brand new course with ground-breaking research
 Aquatic Motor-Cognitive Therapy uses the added "immersion effect" on brain metabolism to include attentional networks during motor control with a focus on fall prevention at various levels of exertion: move, think and get tired!

"This concept is a very recent development, based on the emerging notion that movement is important for brain functioning: brain vasculature health and brain plasticity."

This course has been pre-approved by the Arizona Physical Therapy Association for 15 hours

***This is the only offering of these courses in the United States!**

These courses are hosted by: **inertia**

Contact us with any questions:
 602.733.6393 beyondrelief@msn.com www.inertiatherapy.com



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- Lambeck J. Water Specific Therapy as a tool for physical conditioning in pediatrics. En Hernández, E. Hernández E, Lambeck J.(2016). Abstracts book of the congress "Comprehensive Aquatic Therapy put into Practice". Red Mexicana Terapia.
- <https://www.halliwicktherapy.org/en/iatf-information> 2024 Copyright © Johan Lambeck / Urs Gamper
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