



Aquatic Therapy Association of Chartered Physiotherapists

GUIDANCE ON GOOD PRACTICE IN AQUATIC PHYSIOTHERAPY 2015

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INTRODUCTION

1. BACKGROUND

The Aquatic physiotherapy Association of Chartered Physiotherapists (ATACP) definition of aquatic physiotherapy is: -

“A physiotherapy programme utilising the properties of water, designed by a suitably qualified Physiotherapist. The programme should be specific for an individual to maximise function which can be physical, physiological, or psychosocial. Treatments should be carried out by appropriately trained personnel, ideally in a purpose built, and suitably heated aquatic physiotherapy pool. “ATACP 2014”.

- 1.1 The ATACP carried out 2 surveys in 1995 and 2011/12 of pre-qualifying aquatic physiotherapy education ¹³. The earlier survey found that 53% of pre-qualifying programmes provided less than 4 hours aquatic physiotherapy theory teaching, and 46% of programmes less than 4 hours practical training during the course of the programme. In 2011/12, it was found that no undergraduate programme had more than 4 hours of either theoretical or practical training on the modality.
- 1.2 This document, therefore, seeks to provide advice on how to supplement preliminary learning that may have taken place at an undergraduate level, and guidance for those who may not yet have undertaken any learning about the principles and practise of aquatic physiotherapy. An undergraduate who qualifies without any further training in Aquatic Physiotherapy who practices unsupervised in a pool would have difficulty showing that they were working within their “Scope of Practice” should a problem arise during a treatment session, or if a complaint was made later.
- 1.3 The document has been developed by the ATACP. It should be used in conjunction with the CSP’s Quality Assurance Standards 2012. These standards apply to the practice of all physiotherapists, assistants and students, in any setting, so are applicable to all those involved in the use of aquatic physiotherapy as a modality of physiotherapy.

Users of this document are reminded of the CSP’s Code of Professional Values and, in particular, the requirement that “Members limit their professional activity to those areas in which they are competent and qualified to work safely and undertake continuing professional development [CPD] to maintain and develop their competence”. Physiotherapists who use aquatic physiotherapy as a physiotherapy modality should be able to demonstrate competence, based on knowledge of physical principles relating to aquatic physiotherapy and its safe application.

2. OBJECTIVES OF THIS GUIDANCE

This document has been written to provide guidance to physiotherapy managers, physiotherapists, physiotherapy students and non-physiotherapists (Including therapy support workers) working in aquatic physiotherapy settings about providing a safe and effective aquatic physiotherapy service for patients. Its particular focus is in highlighting the routes physiotherapists might take to develop and maintain their competence to practise physiotherapy in an aquatic physiotherapy setting. It emphasises the support physiotherapy managers might offer, to assist staff members achieve and sustain such competence. It provides guidance on which patients should not enter the pool environment and additional guidance on particular patient groups who require special considerations within it (e.g. tracheostomy patients). It is hoped this document will provide the necessary advice to ensure the development of a safe and competent workforce, able to organise and manage an aquatic physiotherapy service

OVERALL OBJECTIVE

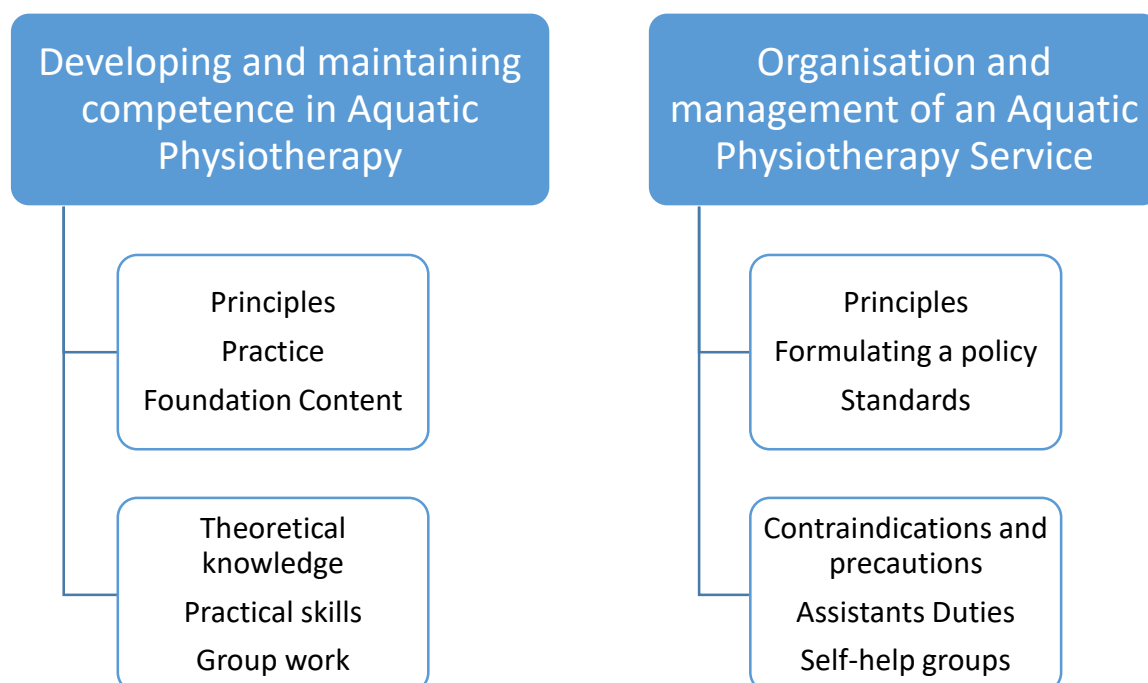
Providing a safe and effective aquatic physiotherapy service for patients and those working in the aquatic physiotherapy environment

Achieved via providing guidance/recommendations on

- Developing and maintaining competence in Aquatic Physiotherapy for physiotherapists and other staff as itemised above.

- Organisation and management of an Aquatic Physiotherapy Service

Providing a safe and effective Aquatic Physiotherapy Service for patients



The dual objectives are further subdivided into objectives as shown above. They were selected through a consensus process by experts in the field as acknowledged at the end of this document.

- 2.1 The overall guidance given in this document will need to be considered in the light of the needs of the local service, and of the individual physiotherapist and patient.

The sections in this document contain information to answer the many 'Frequently Asked Questions' from pool managers and clinicians, such as advice on writing a pool policy and ideas for running a self-help group. They also include sections to help physiotherapy staff and their managers identify training requirements and relevant standards from The Chartered Society of Physiotherapy (CSP) that deal specifically with pool management.

- 2.2 This document is based around best practice, and although references are used extensively it is **not** a systematic review of evidence regarding aquatic physiotherapy.

PART ONE

3. PRINCIPLES OF DEVELOPING AND MAINTAINING AN INDIVIDUAL'S COMPETENCE TO PRACTISE AQUATIC PHYSIOTHERAPY

- 3.1 Working in water is potentially hazardous for both patients and physiotherapists, and requires a different approach to land based therapy. Physiotherapists, and others who manage physiotherapy services, should ensure that those using aquatic physiotherapy have

undertaken a structured programme of learning that has developed their competence in aquatic physiotherapy such that it can be recognised as an integral part of their scope of professional practice. Preparation for using aquatic physiotherapy could be through work-based learning that includes personal learning and supervised practice with experienced practitioners, or through attendance at a formal course, such as the ATACP-recognized Foundation Programme or Intermediate course. Section 5 sets out the content of the Foundation Programme, as devised by ATACP, as an illustration).

- 3.2 Appropriate arrangements for relevant CPD to maintain and update the skills and knowledge of physiotherapists whose pre- and/or post- qualifying education includes aquatic physiotherapy, but who have not practised the modality for some time, should be made in accordance with CSP Professional Values 1.2 and 4.1
- 3.3 If a physiotherapist who has not yet undertaken learning and development in line with the guidance in this document were required to work in a pool, he or she should be directly supervised by a physiotherapist whose learning and development does fulfill these requirements.
- 3.4 Physiotherapists should identify their initial learning needs that arise from this guidance. The implementation tool in section 6 can be used for this purpose (see also paragraph 3.5). This is also the opportunity for the individual to articulate any existing experience or learning that is relevant to aquatic physiotherapy. There should be encouragement to recognise the relevance and transferability of professional knowledge and skills between specialties.
- 3.5 Three implementation tools can be found in section 6. These outline the physiotherapy skills required in the Aquatic physiotherapy setting. They are designed to be used by physiotherapists and physiotherapy assistants/technical instructors, or by other professionals working in an aquatic physiotherapy setting. They provide both a checklist of learning and a self-assessment tool for an individual to identify their specific learning needs. They can also be used as a structure for peer or external assessment of competence. Each physiotherapy service will need to define the range of modalities that are offered locally, adjusting it as appropriate. There are spaces at the end of the tools to include additional modalities. These tools are successfully used in a number of hospitals around the country.
- 3.6 Physiotherapists using aquatic physiotherapy are subject to the same provisions as for any area of practice: that is, they should work in ways that are safe for patients and themselves, and that meet professional, ethical and legal requirements. Among the key elements are consent, competence, and person-centred practice. Any programme of learning should ensure these elements are thoroughly integrated into developing knowledge, skills and understanding of the modality.
- 3.7 When the learning needs of the physiotherapist have been agreed, a plan of action, with Specific, Measurable, Achievable, and Realistic and Timed (SMART) objectives should be formulated ⁽³⁾ This can be integrated into a Personal Development Plan, in order that appropriate time and resources can be allocated.

4. THE PRACTICE OF DEVELOPING AN INDIVIDUAL'S COMPETENCE TO PRACTISE AQUATIC PHYSIOTHERAPY

As stated earlier, physiotherapists using aquatic physiotherapy should adhere to the CSP's Professional Values and Quality Assurance Standards 2012, applying the criteria statements within the context of an aquatic physiotherapy setting / environment. The following paragraphs refer to supplementary aquatic physiotherapy-specific guidance-relating to Standards 8 and 9

Standard 8 – Management & Treatment

- Appropriate information relating to the service user and the presenting problem is collected. For information collection the following may be valuable sources of information:

- *Medical Notes*
- *Referral letters (including weight bearing status)*
- *Multidisciplinary team notes*
- *Contraindications and Precautions (see Appendix Three)*
- *Manual Handling risk assessment, where relevant. Local assessment tools should be used*
- *Level of water confidence. This will be obtained from the subjective pre-immersion assessment and the objective assessment in the water.*

- Analysis is undertaken following information gathering and assessment in order to formulate a treatment plan, based on the best available evidence.
- Appropriate treatment options are identified based on the best available evidence, in order to deliver effective care
- For treatment planning, the physiotherapist should consider not only the 'hands on' treatment, but also the overall management of the patient. This includes consideration of the following:

- *Entry /Exit (use of hoist) – this should form part of the risk assessment*
- *Depth of Water – this should form part of the risk assessment*
- *Length of treatment time*
- *Starting positions*
- *Progression/modifications of exercise*
- *Use of buoyancy aids*
- *Use of other aquatic physiotherapy equipment*

Standard 9 - Evaluation of clinical care and services

Taking account of the patient's problems, a published, standardised, valid, reliable and responsive outcome measure should be used to evaluate the change in the patient's health status.

Guidance – Physiotherapists are advised to refer to the CSP outcome measures database <http://www.csp.org.uk/effectivepractice/outcomemeasures/online/database.cfm> or to locally agreed condition-specific measures. As an alternative, MYMOP (Measure Yourself Medical Outcome Profile) has the advantage of being applicable to any condition, and is available from Dr C Paterson, Warwick House Medical Centre, Taunton, TA1 2YJ, (www.hsrc.ac.uk/mymop).

For implementation of the treatment the physiotherapist should consider and ensure that:

1. They can demonstrate effective use of hydrostatic and hydrodynamic principles in the development, progression, and evaluation of treatment programmes. (See Implementation Tools in section 6).
2. They can demonstrate effective therapeutic handling skills in all aspects of the treatment programme, and can demonstrate safe moving and handling of clients in all aspects of aquatic physiotherapy management.
3. They can demonstrate a working knowledge and understanding of...

- Physical principles of immersion
- Physiological effects of immersion
- Pool management
- Theory of exercise in water
- Safety issues in general
- Evacuation drill

Physiotherapists need to understand the evidence base, which underpins each skill, so as to develop the capacity to assess the appropriateness of using each one in specific situations. The tools in section 6 outline the physiotherapy skills required in the aquatic physiotherapy setting. Each physiotherapy service should define the range of techniques, which are offered, and therefore the tool for standard nine should be adjusted as appropriate. There are spaces at the end of the tool to include additional modalities.

The individual should use the tool to identify his/her specific learning needs

Aquatic physiotherapy treatments may not necessarily take place within a hospital setting; for example they may be in school pool, fitness centre, home pool or public leisure centre. *No matter where the sessions take place, any treatment plan must be regularly evaluated to ensure that is effective and relevant to the patients changing circumstances and health status.*

Following a course of aquatic physiotherapy, the physiotherapist should discuss the treatment and outcomes with the referring professional as appropriate. This may be as a verbal or written report. It is of great benefit to set some time aside to debrief and review the patient's treatment. This can then be documented as a learning experience and included in the CPD portfolio

There are resources within the physiotherapy service, which assist in the delivery of effective aquatic physiotherapy. These may include:

- Access to expert opinion – e.g. other members of the physiotherapy team, Members of the ATACP committee.
- CSP Industrial Relations Department Paper No. 12 – “Hazards in Aquatic physiotherapy”.
- Access to departmental resources, e.g. aquatic physiotherapy file, aquatic physiotherapy textbooks
- Aquatic physiotherapy Papers on the various databases
- “Aqualines” (Journal of the ATACP)
- iCSP Aquatic Network
- PWTAG Guidelines

5. ATACP ACCREDITED FOUNDATION AQUATIC PHYSIOTHERAPY PROGRAMME - GUIDANCE ON TAUGHT ELEMENT CONTENT

The Foundation aquatic physiotherapy Programme is designed as a starting point for post-qualifying aquatic physiotherapy education and the total programme equates to approximately 86 hours of learning. This includes the submission of a case study plus a written and practical assessment of skills and reasoning. . The ATACP recommends that the taught element of this Programme is facilitated by a tutor accredited by the ATACP, and would normally total around 13 hours of theoretical and practical tuition. Of this, students should spend 6 hours in the pool. . Successful completion of the taught element would normally allow a therapist to have the skills and reasoning abilities to work safely and effectively unsupervised in a pool The ATACP recommend that there should be ongoing reflection and further learning following attendance of any course. This can be formally assessed and recognised if physiotherapists undertake the ATACP Foundation Course and assessment process as highlighted

previously. It is important to note that the Taught element and the assessment parts of the programme are funded separately.

Aims of the Foundation Aquatic physiotherapy Course

- *To equip a physiotherapist with the knowledge and clinical reasoning skills necessary to work safely and unsupervised in a pool*

Session One (3 – 4 hours)

Hydrostatics and Hydrodynamics

Learning Outcomes for session:

By the end of the session the participant should be able to: -

- *Discuss the relevant physical principles of water*
- *Relate these principles to therapeutic techniques in the water*
- *Relate 1 and 2 both to the treatment of patients, and to the changes that specific conditions may cause to a person's "Physical Properties"*
- *Demonstrate an understanding of the physical principles of water to strengthening techniques in the pool*
- *Appreciate and experience the effects of buoyancy, turbulence and the metacentre on a body in water.*

Taught Session 1 – Suggested Content

1. Principles of Water (e.g. Refraction)
2. Density
3. Relative Density – Archimedes Principle
 - Human Body – floating & sinking – areas of differing densities
 - Human Body – changes through life
 - Salt & fresh water
 - Other materials of differing relative densities (e.g. wood, iron, plastic)
4. Buoyancy/Up thrust – application of same e.g. weight relief, resistance to movement
5. Centre of buoyancy
6. Meta centric effect – restoring and stabilising torques, weighted keel effect
7. Hydrostatic pressure effect (Physiological effects of hydrostatic pressure to be discussed in the afternoon session)
8. Turbulence – high & low velocity, streamlining/unstreamlining
9. Viscosity – relationship to density & drag. Cohesion & adhesion.

Practical Session 1

Application of Hydrostatics & Hydrodynamics, and Muscle Strengthening Techniques

- Floating with & without air in lungs
- Floating different objects
- Weight relief related to buoyancy and different depths
- Metacentre – altering shape under water – resultant rotation – shifts of centre of buoyancy
- Turbulence – static body – different depths & different body positions. Drag – moving body, streamlining & unstreamlining, walking – position of therapist & its effect, bats, speed changes.
- Effect of refraction e.g. extended elbow with joint line at water surface.
- Buoyancy assisted, resisted – levers, floats, counterbalanced, relevance of different starting positions in all these
- Concentric & Eccentric – buoyancy related
- Isometric – buoyancy, turbulence – static body, drag – moving body & Metacentre

- Application of all the above to different muscle groups – working in twos or threes – participants to work out correct method of gaining all the above – share with the whole group.

If this content is not completed in the morning practical session it must be done in the second session with joint mobility.

Session 2 (3 – 4 hours) – Suggested Content

Learning Outcomes for session:

By the end of the session the participant should be able to: -

- *Demonstrate an understanding of the effects of immersion on the physiology of the human body.*
- *Relate these changes to the safe screening of patients prior to Aquatic physiotherapy*
- *Evaluate the effectiveness of aquatic physiotherapy in a variety of clinical settings.*

Taught Session

1 Physiological effects of immersion

- Head out of water (HOWI) Thermoneutral, hydrostatic pressure & central fluid shift – related to supine at night – compare supine & vertical in pool
- Haemodynamic changes – haemodilution
- Cardiovascular changes – Cardiac output, BP, stroke volume, heart rate, changes in all with different temperatures.
- Temperature
- Respiratory – vital capacity, residual volume, airways resistance, shift of diaphragm, central vascular engorgement, increased work of breathing
- Renal – suppression of sympathetic activity, suppression of Anti diuretic Hormone, increased diuresis – Potassium & Sodium
- Sensory – effects on central nervous and autonomic nervous systems

2 Value & Uses of Aquatic physiotherapy

- Benefits – reasons for the benefits related to immersion, including benefits of exercise
- Role of Aquatic physiotherapy – integrating into existing rehabilitation or as sole modality,, timing of the intervention, available evidence base
- Appropriate use of Aquatic physiotherapy (including disadvantages) including appropriate selection of clients, discharge planning and exit strategies, signposting onto community facilities/self help groups for long term conditions.

3 Contraindications

- Interactive session to cover all things they have read or heard of or that are relevant to their own practice.
- Discussion regarding the relevance of each, & whether absolute or relative precautions.

Practical Session 2

Learning Outcomes of session:

By the end of the session the participant should be able to: -

- *Demonstrate the ability to confidently use various flotation devices in regard to patient handling*
- *Demonstrate the ability to utilise the physical properties of water to improve range of movement for patients with stiff joints or tight soft tissues*

- *Demonstrate safe therapeutic handling of a patient in water*

1 Handling Skills

- Use of floats, getting patients in and out via steps or hoist, changes of patient position vertical to supine and reverse without floats
- Point of balance – minimal support – no gripping – different holds with progression from maximal to minimal
- Groups – planning of changes of position, how to remove floats from all members of the group at the same time, adequate space, position of therapist, observation skills.

2 Joint Mobility

- Utilisation of buoyancy to assist, slow movements if buoyancy counterbalanced
- Passive joint mobility utilising drag

3 Stretching techniques

- Contract-relax – position for buoyancy with float or manual resistance to contraction – contract to end of range for 3 seconds relax for 2, stretch to end of range for 6.
- Participants to work out starting positions for different muscle actions – at least one for knee, one for hip, one for shoulder and one for trunk.
- Slow prolonged stretches using buoyancy.

Session 3 (3 – 4 hours)

Learning Outcomes of session:

By the end of the session the participant should be able to: -

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- *Demonstrate an understanding of the main Health and Safety legislation, and its implications on running a Aquatic physiotherapy service*
- *Demonstrate an understanding of water disinfection related to the pool environment.*
- *Relate the above to maintaining a safe environment for staff and users including the ability to risk assess.*

Taught session 3 - Pool Management

1. Safety precautions
 - Slips, falls,
 - Storage of equipment and chemicals,
 - Assistance to patients,
 - Footwear & walking aids,
 - Equipment care & maintenance including floats & hoist,
 - Air & water temperature, ventilation
2. Hygiene – laundry, use of showers, skin care, pool cleaning regimes
3. Infection control
 - Water treatment,
 - Monitoring & recording
 - Care of filters including backwashing
 - Microbiology,
 - Discussion on footbaths & footwear
4. Emergency evacuation – policy & procedures
5. Role of assistants
6. Record keeping – documentation, patient numbers, water temperature

7. Overall pool management responsibilities

Practical Session 3

Learning Outcomes of session:

By the end of the session the participant should be able to: -

- *Demonstrate treatment skills including Relaxation, Stabilisation, and Balance work.*
 - *Relate these skills to the management of a variety of patient problems*
1. Reinforce handling skills from previous afternoon, vertical & horizontal rolls
 2. Relaxation (this may be moved to the end of Practical session 4),
 - Individual,
 - Different floats,
 - Different holds,
 - Sea weeding from trunk, arms, from between knees, in groups
 - Individual choice of floats, inner tubes
 3. Rhythmic stabilisations –
 - Holding against drag,
 - Holding against Metacentric effect
 - Trunk
 - Varying length of lever
 - Shoulders, knees, elbows, hips.
 4. Balance work – including progression

Session Four (3 – 4 hours) Guided Student Learning

Learning Outcomes of session:

By the end of this session the participant should be able to: -

- *Demonstrate clinical reasoning skills in devising a treatment programme for patients with a variety of problems*
- *Demonstrate an appropriate selection of treatment techniques for these patients*

Treatment planning session (Including initial revision of practical techniques already covered) Class Based (working in groups of 2 – 3)

- Profile of specific condition (May include a group scenario)
- Treatment goals
- Condition specific precautions
- Treatment profile including time of re – assessment
- Programme to meet goals
- Programme progressions
- Clinical reasoning re programme (water principles used)
- Justification for use of Aquatic physiotherapy

Discuss Programme

Practical Session 4

Implementation in the Pool

- Presentation of programme in water – approx 15 minutes per group

- Feedback from all at end of whole session
- Ensure all participants demonstrate something different
- General discussion on techniques, group work to devise new exercises

Note: - There is an education document produced, that lays down the requirements for both tutor and participant prior to the delivery of the Foundation Course.

A formal assessment of Practical skills and Theoretical (Case Study and Short question paper) knowledge is available for participants wishing to formally demonstrate their competency in Aquatic physiotherapy

6. AN IMPLEMENTATION TOOL FRAMEWORK FOR THEORETICAL KNOWLEDGE, PRACTICAL SKILLS AND GROUP WORK

6.1. The principles of safe and effective practice in the aquatic physiotherapy pool

1. The physical principles of aquatic physiotherapy							
	Buoyancy	Hydrostatic Pressure	Turbulence	Metacentre	Moment of inertia	Speed of Movement	
Understands and can explain							
Understands practical application							
Applies theory of exercise in water							
2. The physiology of immersion							
	Cardiovascular changes		Respiratory changes	Renal changes	Pain mechanisms including the SNS		
Understands and can explain							
Applies to cautions and contraindications							
3. Pool management (PWTAG/ATACP Standards refer)							
	Chemical testing of the water	Microbiological testing of the water	Major Contamination Strategy	Cleaning the Pool	Procedure for checking equipment	Care of filters (backwashing)	
Understands and can explain							
Can apply in Practice							
Understands and can apply procedure if levels outside normal parameters							

4. Practical and safety issues							
	Evacuation Drill	Showering	Use of the Hoist	Entering / leaving the pool & surrounds	Cautions	Contraindications	Percentage of Weight Bearing
Understands and can explain							
Can apply in Practice							
5. Therapeutic handling							
	A person with Involuntary or Uncontrolled Movements	A person with an orthopaedic condition with decreased weight bearing	A person with increased tone	A person with decreased tone	A nervous Person with decreased water confidence	A person in a great deal of pain	
Understands and can explain							
Can apply in Practice							

6.2 A journey through aquatic physiotherapy treatment (This can be personalised to your particular requirements)

	Exercise group	Strengthening exercises	Stretching or mobilising exercises	Bad Ragaz techniques	Halliwick Concept	Watsu TM	Stabilisation
Assessment / selection							
Selection of techniques							
Applies Techniques							
Monitors persons' progress							
Modifies techniques accordingly							

Understands progression							
Evaluates Outcome							

6.3 Group work in the aquatic physiotherapy pool (This can be adapted to your particular requirements)

	The back programme	The hip Programme	The knee programme	The ankle programme	The shoulder programme		
Understands the inclusion criteria							
Knows the exercises in the programme							
Demonstrates the exercises effectively							
Can facilitate the whole group							
Encourages group discussions							
Can monitor each individual participant							
Modifies specific exercises as needed							
Evaluates Outcome							
Competent to discharge / refer on							
Knowledge of local pools / facilities							
Routinely advises on ongoing exercise							

PART TWO

7. PRINCIPLES OF THE ORGANISATION AND MANAGEMENT OF AN AQUATIC PHYSIOTHERAPY SERVICE

7.1 An aquatic physiotherapy pool requires a policy to ensure both its smooth running, and to maintain legally required Health and Safety standards. Section 8 of this document provides guidance on writing such a policy.

7.2 Particular hazards relating to pools include: -

- Slippery surfaces
- Waterborne infections and skin irritations
- Chemical hazards
- The need to maintain good quality water that is clean physically and microbiologically, as well as being comfortable to work in while protecting the plant, surfaces, and equipment.
- Emergency situations such as cardiac arrest require specific skills to evacuate the patient safely to earliest treatment.
- A pool carries a proportion of heavily dependent patients that demand good manual and patient handling skills. Refer to CSP Manual Handling Guidelines 2014 Version 4.

7.3 Hazards can also relate to the treatment and management of the patient. For example:

- Certain conditions or matters related to a condition (See-Section 10 – contraindications and precautions)
- Insufficient staff numbers or training
- Acute fear of water by, or accidental immersion of, a patient
- Boisterous or aggressive behaviour by patients or staff
- Alcohol or other substances

7.4 The Aquatic physiotherapy service must have a named therapist in overall charge, who has the appropriate skills, experience, and competence to manage the service.

7.5 Emergency procedures

Evacuation procedures must be in place that allows safe, effective and rapid removal of a patient from the water in case of an emergency. These evacuation methods will have been agreed with the Health and Safety Officer of the hospital/school / education body and are to be practiced at least annually under the direction of the senior physiotherapist in charge of aquatic physiotherapy. In hospital pools it is recommended that the manager of the Resuscitation team is also involved in drawing up these plans. All staff, carers or parents involved in pool sessions should be familiar with the evacuation procedure. The ATACP recommends the use of a water rescue board for this manoeuvre.

7.6 School swimming pools are frequently used for a variety of different sessions such as swimming lessons; exercise in water, and for aquatic physiotherapy treatment sessions. Local Education Authorities are increasingly requiring qualified lifeguards to be present during aquatic physiotherapy sessions, and this has become an area of concern to many physiotherapists and physiotherapy assistants working in these facilities. However, lifeguards are only a legal requirement for public pool sessions and not for pools designed for medical or therapeutic purposes (while in use for such purposes)⁽⁹⁾. There is therefore no legal requirement for physiotherapists or physiotherapy assistants to hold a lifeguard certificate, or for a lifeguard to be present at the time of aquatic physiotherapy sessions carried out in schools, provided that:

- A full risk assessment has been carried out in conjunction with the Health and Safety Officer of the school / education body, taking into account factors such as depth and size of the pool, rescue equipment available, etc.
- The physiotherapist is competent in the use of aquatic physiotherapy, as described in this document, and the frequency of practice is in line with section 5.6.

- The recommended minimum staffing level of one therapist in the water and one therapist or assistant poolside is strictly adhered to.
- All clients are assessed for their suitability to undergo aquatic physiotherapy, in accordance with established contraindications and precautions (See Section 10).
- The pool facility complies with the requirements of the PWTAG/ATACP, with regard to water temperature, quality, and number of bathers for the pool size.

8. GUIDANCE ON FORMULATING A POOL POLICY

This outline for good practice was agreed by expert opinion of the ATACP September 2005 and further agreed May 2013

8.1. It is essential that all departments conducting aquatic physiotherapy programmes have documented policies and procedures and that all staff working in aquatic physiotherapy are familiar with these. They should be reviewed and updated annually to ensure they remain current. Physiotherapists, who use pools under the management of other organisations such as other NHS trusts, education or the leisure industry, have a responsibility to familiarise themselves with the policies and procedures for the pool they use.

The following headings cover those items considered important to be included in all departmental aquatic physiotherapy pool policy and procedure documentation. Detail will reflect local requirements and practices.

8.2 Statement of Policy

Responsibility

- i) Responsibilities of all staff involved
- ii) Delegated responsibility

Risk Assessment of environment

- i) Grading of risk
- ii) Identified corrective actions
- iii) Controls in place
- iv) Review dates recorded

Referrals to aquatic physiotherapy

- i) Type of referrals
- ii) Sources of referral

Patient assessment and screening

Emergency procedures

- i) Responsibilities
- iii) Staff training and training records
- iv) Equipment

Evacuation regimes

- i) Procedure in medical emergencies
- ii) Staff training and training records
- iii) Procedure for fire evacuation

Pool maintenance

- i) Cleaning regimes
- ii) Pool chemistry
 - Maintenance of correct levels - refer PWTAG/ATACP Standards
 - Tests to be carried out - Daily checks and recording/Weekly checks and recording
- iii) Bacteriological tests - type and frequency

Daily procedures including

- 1.1 Visual checks
 - 1.2. Water temperature
 - 1.3. Air temperature
 - 1.4 Humidity check
 - 1.5 Removal and replacement of cover
 - 1.6 Equipment checks
 - 1.7 Security
- iv) Filter care
 - Annual inspection of filters
 - Sand replacement
 - v) Backwashing routine
 - Frequency
 - Timing to allow sufficient fresh make up water
 - Recording of user numbers to determine fresh water requirement

Pool emptying schedule

- i) Reasons for emptying
- ii) Contamination by non organic substances
- iii) Major service, repair or refurbishment
- iv) Excessive chlorine (partial)
- v) Excessive bacteriological contamination
- vi) Procedure for emptying and refilling

Procedure in event of fouling by stools

- i) Formed stool
- ii) Diarrhoea or vomit

Staff knowledge

- i) Physiotherapists, and other professionals
 - Refer to this document
 - CPD portfolio
- ii) Roles and responsibilities of assistants and technical instructors
- iii) Documentation

9. STANDARDS FOR THE MANAGEMENT OF THE AQUATIC PHYSIOTHERAPY POOL

The following standards are produced from "Swimming Pool Water Treatment and Quality Standards (Pool Water Treatment Advisory Group) 2017 with kind permission

Criteria

- 1.1 The pool water temperature is maintained within the thermoneutral range 32 to 35.5 degrees Celsius, with the optimum being 34 to 35 degrees Celsius.
- 1.2 The ambient temperature in the pool hall is maintained within the range 25 to 30 degrees Celsius.
- 1.3 The ambient temperature in the change and rest areas is maintained within the range 22 to 26 degrees Celsius.
- 1.4 The atmospheric humidity level is maintained within the range 50 to 60% with a preferred maximum of 60%.

- 1.5 The pool water is treated with a disinfectant agent maintained at a level which protects bathers from pathogens.

Guidance: Recommended disinfectants are chlorine/chlorine donors, ozone with chlorine residual and ultraviolet light with chlorine residual. Due to the high incidence of skin rash associated with bromine, the ATACP would not recommend its use in aquatic physiotherapy pools.

- 1.6 Disinfectant levels are maintained within the following parameters:
If disinfected using chlorine only:

- Free chlorine within the range 0.5 to 3.0 parts per million (ppm) ideally 1-2ppm
- Total chlorine within the range 0.5 to 4.0 ppm
- Residual chlorine is never more than 1.0 ppm and is less than half the free level.

If disinfecting with chlorine and ozone:

- Free chlorine maintained at approximately 0.5 ppm.
- In slipstream ozone systems free chlorine is maintained at approximately 1 to 4 ppm (this is because 20% of the water is treated)
- Ozone levels are less than 1 mg/litre.

If disinfecting with chlorine and ultraviolet:

- Free chlorine is maintained within the range 0.5 to 1 ppm

- 1.7 The pH of the pool water is maintained within parameters which ensure optimum effectiveness of disinfectant and protection of pool and plant. The pH is within the range 7.0 – 7.6 preferably 7.2 – 7.4

- 1.8 The total alkalinity is maintained within the range 80 to 200 ppm.

- 1.9 The calcium hardness is maintained within the range 80 to 200 ppm.

- 1.10 Water balance is maintained within the parameters of the Langelier saturation index of 12.1 +/- 0.5.

- 1.11 To ensure the above parameters are met, pool water is tested at the following frequency:

Chlorine – free and total	three times a day
pH	as for chlorine
Total alkalinity	once a week
Calcium hardness	once a week
Water balance	once a week

- 1.12 Samples of pool water are laboratory analysed for bacteriological counts once a week

- 1.13 Tests are conducted for the following:

- a. Plate counts
- b. Colliforms
- c. Escheria Coli
- d. Pseudomonas species
- e. Pseudomonas Aeruginosa

The use of the aquatic physiotherapy pool is managed so as to ensure maximum safety for all pool users.

Criteria

- 2.1 For individual treatment, an adult requires 4 square metres of pool space.
- 2.2 For group treatment, each patient requires 2 square metres of pool space.
- Guidance: The disabilities of group members and the design of the pool should determine numbers in any group.*
- 2.3 For all forms of treatment, there is an additional minimum of one poolside staff member, either present within the pool area or within earshot.
- 2.4 Physiotherapists should not work in the pool for more than 3 hours within any normal working day.

10. CONTRAINDICATIONS AND PRECAUTIONS

10.1 Absolute: If the following are present aquatic therapy is not to be considered:

- Acute vomiting or diarrhoea
- Medical instability following an acute episode such as CVA, DVT, or Status Asthmaticus – if in doubt then check with the patients consultant
- Proven chlorine / bromine allergy
- Resting angina
- Shortness of breath at rest
- Uncontrolled cardiac failure / paroxysmal nocturnal dyspnoea
- Weight in excess of the evacuation equipment limit of the pool (refer to your local manual handling policy)

10.2 Relative: If the following are present aquatic therapy may be considered after a risk benefit analysis

- Acute systemic illness / pyrexia – if acute infection may need to check body temperature.
- Irradiated skin due to radiotherapy. Be aware that irradiated skin “will always be more sensitive to heat” and “wounds will heal more slowly” (Brooks 1998). Also be aware that Chlorine can cause a skin irritation.
- Known aneurysm
- Open infected wounds – please refer to your local infection control policies.
- Poorly controlled epilepsy
- Unstable diabetes - be aware of any drop in blood sugar and ensure patients have snacks available on the pool side.
- Oxygen dependency as exercising in water increases oxygen consumption. (Gleim and Nicholas 1989 as cited in Hall 1990).

10.3 Precautions: (General)

- Fear of water
- Behavioural problems

- Incontinence of urine – patient can be catheterised during session
- Epilepsy (Controlled). Clients who suffer from Epilepsy can attend Aquatic Therapy but the Epilepsy needs to be controlled by medication such as Rectal Diazepam which the pool staff need to be trained in administering. *Some have buccal midazolam as their rescue medication, which can be given orally, hence no need to immediately evacuate out of pool to administer.*
- Haemophilia (check factor 8 or 9) – may need to take clotting factors prior to exercise. Swimming is actually very beneficial for clients with Haemophilia. (Von Mackensen. et al. 2009)
- Hypotension
- Renal failure
- Widespread MRSA – only as a precaution on poolside as chlorine kills MRSA in the water (Tolba et al 2008)
- Poor skin integrity e.g. open / surgical wounds
- Pregnancy if water temperature exceeds 35 C (CSP 2009)
- Contact lenses and conjunctivitis
- Hearing aids / grommets
- Impaired vision / sensation / hearing
- Invasive tubes in situ - PEG sites do not need to be covered.
- Risk of aspiration
- Incontinence of faeces (less than 2 hourly) – bowel management programme should be established
- Tracheostomy – see Tracheostomy SKIPP document on the CSP website www.csp.org.uk.

10.4 Precautions (For use in specialised centres etc)

- Low calorie intake - “ensure that hydrotherapy is not used as a means to reduce weight “ by drawing up a contract with the client (CSP 2006)
- Prone to blackouts
- Sick cell anaemia – swimming in cold water may trigger a painful crisis in some children. “Cold exposure increases blood viscosity” and can lead to “even further sickling”. (Resar, Oski 1991). In some communities Thalassaemia may also be a possible issue
- Inefficient thermoregulation. Be aware that clients can get very cold whilst they are leaving the pool and are still wet. Conversely a hydrotherapy pool room can become very humid in the summer.
- Thyroid deficiency. “metabolism of thyroid hormone ... may be associated with deficient thermoregulation”. (Beard et al. 1990)
- Neutropaenia. Avoid swimming pools when the clients white blood cell count is very low (University of Pittsburgh Medical Centre, 2006)

10.5 Note:

- It is conceivable to lapse on absolute contraindications if patient terminally ill. A risk benefit assessment should be discussed with the child / parent/ carer / medical or nursing team.
- The NHS no longer recommend that children have Polio vaccination prior to going in a pool (NHS Choices 2015)
- Remember to screen carers or parents entering the pool, especially if pregnant.
- Head lice can be transferred from one person to another via the water.
- Fungal infections, especially between fingers can be highly contagious
- Babies have inefficient thermoregulation
- Swim nappies cause babies to sink – use specially designed swim pads.

References at end of Document

11. GUIDANCE FOR ASSISTANTS' DUTIES

The following list of **possible** duties for assistants working in the aquatic physiotherapy environment, devised by ATACP, is provided for guidance.

11.1 Departmental duties

- Take weekly sample of pool water for microbiological testing, in accordance with PWTAG/ATACP standards
- Check and record pool chemistry/temperature, three times a day. Any readings outside normal parameters to be reported to the senior aquatic physiotherapist and estates
- Check, clean and maintain pool equipment e.g., floats, pool bench, and swimwear.
- Ensure that the floor and steps are kept free of standing water before, during and after patient treatment sessions.
- Ensure linen stocks are maintained and laundered.
- Ensure that clear access to pool and changing areas is maintained.
- Ensure that suction equipment is operational and in position prior to patient sessions.
- Ensure that stair rails are kept dry.
- Report any Health and Safety hazards to the senior aquatic physiotherapist.

11.2 Duties relating to patients

- The reception of patients.
- Aiding patients to prepare for treatment, and to redress after pool sessions as appropriate.
- Escort patients to and from the pool.
- Use hoist as necessary.
- Advise the physiotherapist if information given informally by patients is relevant to their treatment or progress
- Be part of the team ensuring the crash team know where the pool is
- In the pool – assist with patient handling, support and assist the physiotherapist during group work, and undertake exercise regimes with patients under the instruction/supervision of the physiotherapist.
- Toileting

This is not an exhaustive list, for example non physiotherapists such as sports therapists may run aquatic physiotherapy services in fitness centres, either as individual or group sessions, with back up from assistants on the pool side.

More general guidance on delegating tasks to assistants can be found in CSP Information Paper 6 ⁽⁵⁾

11.3 Training for assistants or other professionals working in a pool environment (Note that the implementation tools Section 6 are also a relevant tool for assessing and identifying learning needs)

11.3.1 All assistants should be trained in: -

- Emergency procedures.
- Basic life support.
- Moving and handling.
- Manual handling of patients.

11.3.2 In addition they should be aware of the basic requirements of pool management, including

- Emergency pool evacuation techniques.
- Resuscitation equipment and use.
- Procedures for accident/incident reporting.
- Knowledge of potential hazards.
- Knowledge of Infection Control policies and procedures including AIDS/HIV & MRSA.
- Importance of pool hygiene – floors, linen, equipment storage, and use of showers.
- Knowledge of departmental procedures.
- Importance of aspects of pool management: -
- Correct chlorine/bromine/pH readings.
- Correct temperature.
- Correct air temperature/humidity.
- Accurate records

- Appreciation of the effects, purpose and value of aquatic physiotherapy

It is important to remember that experienced assistants and technical instructors can, when considered competent by the physiotherapist, run certain aspects of the pool on their behalf.

12. Guidance On Running a Self Help Group

Many Aquatic physiotherapy services run Self Help Groups in their pools.

These are frequently used for patients who have received local aquatic physiotherapy, found it beneficial, and who would like to continue.

12.1 Advantages of these groups are:

- Promoting and enabling self-help & peer support
- Facilitating continued improvement
- Reducing rate of re-referral
- Utilisation of unused pool time
- Income generation
- Promoting patient led support for aquatic physiotherapy

12.3 Suggestions

- Patients pay in advance for a block of sessions, and no refunds are available. (In order to be cost-effective, the department must have enough revenue coming in to cover the cost of staffing.)
- The role of the staff member is for safety purposes only.
- No exercises are taught or corrected, to prevent staff members taking on legal liability for patient. Patients and staff must be made aware of this.
- Patients should have a copy of their suggested aquatic physiotherapy exercise routine from the physiotherapist.
- Lunchtime sessions may be preferable, because of access to trained staff in case of an emergency.

12.4 Considerations

- Administration: booking in, payment etc.,
- Payment of staff
- Lone working policy (if after normal working hours)
- Emergency Evacuation
- Insurance
- Risk assessment
- Training of carers in use of the hoist

Patients with conditions such as, R.A. Osteoporosis and Ankylosing Spondylitis may have access to local aquatic physiotherapy facilities via their support groups.

A good example is the National Ankylosing Spondylitis Society, which is a national network, organising regular exercise classes, supervised by a physiotherapist. Financial support and insurance are organised at national level.

12.5 Outside hirers

Alternatively, the pool can be hired out to outside users. In this case, it is advisable to draw up a contract stating agreements, i.e.

- Financial arrangements
- Responsibilities
- Skills and training required (CPR, emergency procedure)

- Cancellation and contingency plans
- Insurance

Note - This guidance was formally adopted by expert opinion of the ATACP in October 2003 and re-validated October 2013.

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This is not intended to be an exhaustive reference list. Jenny Geytenbeek's 2008 review (Australian Physiotherapy Assoc) is a systematic review done across all types of pool users and is available on the Aquatic network of iCSP

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Further reading

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Access to departmental resources, e.g. Aquatic physiotherapy file, Aquatic physiotherapy textbooks

“Aqualines” – (Journal of the ATACP for ATACP members only)

DOCUMENT CONTROL/ACKNOWLEDGEMENTS

This document was originally produced by the Hydrotherapy Association of Chartered Physiotherapists (HACP) in 2006, and was reviewed/revised by its successor ATACP in 2014/15. The document recommendations were formulated using a combination of formal and informal methods, based on the available evidence base and including expert opinion.

This document was subjected to an external peer review during its draft final stage and the authors wish to acknowledge the assistance of both stakeholders and intended users in this process.

This document will be updated in 2020. Any changes to Aquatic Physiotherapy practice/recommendations occurring prior to this date would be communicated through the provision of addendums on the ATACP website.

Acknowledgements

The Aquatic physiotherapy Association of Chartered Physiotherapists (ATACP) would like to thank all who have helped in the development of this paper. The Work of the following people in particular should be acknowledged:

Anne Jackson PhD MSc BA (Hons) MCSP HT	Formerly Worthing & Southlands Hospitals, West Sussex
Heather Maling MCSP HT	Ysbyty Ystrad Fawr, Ystrad Mynach, Caerphilly
Mike Maynard MCSP DSA (CSP) HT	Pilgrim Hospital, Boston, Lincolnshire
Jacqueline Pattman MCSP HT	The Princess Royal Hospital, Haywards Heath, Surrey
Ankie Postma MCSP HT	Basildon Hospital, Essex
Alison Skinner FCSP HT	Formally University College London
Helen Whitelock MCSP HT	Formally Royal National Hospital for Rheumatic Diseases, Bath
Susie Grady MSc BSc (Hons) MCSP	Ramsay Healthcare, The Jacob Centre, Sawbridgeworth, Herts