

Aquanatal Guidelines

Guidance on
antenatal and postnatal
exercises in water



EXCELLENCE
MATTERS

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If the physiotherapist (or other person leading the class) is not a member of POGP, she may find it beneficial to discuss the content of the class further with an obstetric physiotherapist.

To find your nearest specialist women's health physiotherapist, visit:
pogp.csp.org.uk

Further advice and information booklets are also available from:
pogp.csp.org.uk

1. Introduction

These POGP guidelines are aimed primarily at physiotherapists working in women's health. It is hoped that they will also be of use to other health professionals, such as midwives, health visitors and personal trainers, who wish to establish new aquanatal classes, or are instructing for the first time. It is strongly recommended that new instructors attend an approved training course for aquanatal leaders (details in health magazines or websites). Instructors should comply with local trust/sports centre requirements regarding life-saving qualifications. The responsibility for the class members in an emergency situation has to be determined in consultation with those professions taking part and the pool management. There should be a written protocol with an annual review.

It is assumed that professionals using these guidelines will be teaching women who are in their childbearing year (from 3 months pregnant to 6 months after her baby is born). Postnatal participants must be 10 weeks post Caesarean section or 6 weeks post vaginal birth, as long as lochial bleeding has stopped. It would, therefore, be an advantage to use these guidelines in conjunction with the POGP booklets on safe exercise in pregnancy, following childbirth and pregnancy-related pelvic girdle pain (see appendix).

Aquanatal classes are very popular. The leader of an aquanatal class needs an understanding of both the physiology of pregnancy and the teaching of safe exercise in water. Women's health physiotherapists with experience in both obstetrics and health education are an obvious choice as instructors. POGP recognizes that it is essential that these physiotherapists should share their

expertise with other health professionals. The guidelines should ensure that classes conform to basic standards of good practice.

2. Benefits of aquanatal exercise

The benefits of exercise in water are many. Water gives a sense of well-being and relaxation. Pregnant women may feel lighter and have greater freedom of movement. Since most water-based movement involves concentric muscle activity, there is little or no soreness in the muscles after exercise in water. The women may well notice that they have more energy after the session and sleep better. There are also important physiological advantages, which will not be so immediately obvious. As the women are exercising in a supportive medium, there is less risk of injury or the jarring of joints. The hydrostatic pressure of the water may reduce lower-limb oedema and stimulate bowel function, and improve respiratory function. Diuresis is increased (see 7.2). Cardiovascular fitness and muscle tone can be increased. Abdominal tone and posture can be improved. Exercise in water during pregnancy reduces pain intensity, and as well as sick leave related to back and pelvic pain during pregnancy. Buoyancy is utilized to assist or resist exercises, and to support body weight (see 7.2).

Aim for maintenance of fitness level rather than great improvement.

Time should be allowed after the session for the class to get together and to have a drink before leaving. This can be a very good opportunity for problems to be raised, and for health education topics to be discussed. Finally, it should not be forgotten that aquanatal classes should be sociable, friendly, entertaining and fun!

3. Practical considerations

3.1 Venue

Aquanatal classes may be held in a public swimming pool, a sports and leisure centre, or in a hospital-based hydrotherapy pool.

3.2 Pool temperature

The temperature in the pool should be between 28°C and 32°C. Exposure to water colder than 28°C will make the women shiver in order to maintain core temperature. If the water is warmer than 32°C they may suffer from hypotension, fainting and excessive fatigue. The hydrotherapy pool may often be heated up to 35°C so additional care should be taken in this setting, especially as women, particularly when pregnant, react differently to excessive heat.

3.3 Privacy

A private session ensures a minimum of distraction. A good working relationship between pool managers and the aquanatal leader is essential. Any problems encountered by either party can be rapidly notified, and prompt action taken.

3.4 Equipment

Useful equipment includes woggles, floats, boards, table tennis bats, balls and swim collars. Some of these are usually available from the pool. No equipment should be introduced to the pool without prior permission from the pool manager.

3.5 Food and drinks

Dehydration should be avoided, and so access to drinks should be encouraged after the session. If drinks are not available at the pool, the participants should bring their own, and have these available on the poolside. Participants should be advised to

eat a light snack one hour before the class. The time taken over drinks can be used to very good effect for health education, drawing on the expertise of the course leaders.

3.6 Rest room/medical room

A room should be available in case of need. If a midwife is in attendance, she should be responsible for the medical needs relating to the pregnancy of the woman. If a midwife is not in attendance, good working relationships with local NHS midwifery teams should be established in order to improve care provision as appropriate.

3.7 Cost

This should be negotiated with the pool manager/hospital trust before the programme begins. Some public pools may offer a special price including both admission and a drink after the class.

4. Safety considerations

4.1 Records

Records of each member of the class should be kept carefully, including dates of attendance, home address, telephone number, parity, estimated date of delivery, name and address and contact telephone number of the GP or consultant. Any abnormality should also be noted.

4.2 Contraindications

The contraindications must be explained to the women (as in section 5).

4.3 Continued screening

At every session, the leaders should check with each participant that there has been no change in her condition since her last attendance.

4.4 Supervision

The member(s) of the teaching team should be in attendance at all times, with a lifeguard if appropriate (see 6.1). One member of the team should accompany the first woman who leaves the pool, and the other should remain at the poolside until the last leaves.

4.5 Special needs

The pool attendant must be made aware of anybody who has special needs. One extra observer may be required if a participant gives any cause for concern (e.g. epilepsy).

4.6 First aid

The leaders should know the location of the first aid box and telephone. A protocol should be in place for occasions when a participant might feel unwell, and the women must be made aware of this before they enter the pool.

4.7 Distress signals

It should be emphasized to the participants that, if one of them feels unwell, she should raise one arm as a signal, so that one of the leaders may reach her quickly. The leader(s) should know how to raise the alarm at the poolside, and be familiar with emergency procedures (see 6.1). If an emergency situation arises, the pool must always be cleared immediately of class members.

4.8 Slippery surfaces

The leaders should check for slippery surfaces, as balance may be impaired during pregnancy. The women may wish to wear 'slipper socks' in the pool to avoid slipping. The pool's normal rules (e.g. those forbidding running, eating sweets or chewing gum in the pool) should be observed.

4.9 Temperature

The temperature of the pool should be checked before the class (see 3.2).

4.10 No jumping into pool

There should be no diving or jumping into the pool.

4.11 Orientation

The layout of the pool should be explained to the women with reference to deep and shallow water, as well as safe pool access before they enter the water.

4.12 Drinks after the class

After the class, a drink, either a hot beverage or a fruit juice, is necessary to restore the women's blood sugar level. The time taken over drinks also allows the women's blood pressure to readjust. Allow 10 - 15 minutes for homeostasis to re-establish.

5. Screening

Each participant should be screened at/ or before her first class. It should be ascertained whether the woman can swim or has concerns about water. The course leader(s) should go through the contraindications of exercise in water with each woman to ensure that she understands them. The women should appreciate the need to report any change in their condition since the previous class to the course leader(s) at the start of each session (see 7.4). Any problems encountered during the exercise class should be reported, and activity should be stopped immediately and the woman asked to exit the pool.

These symptoms include

- tummy, severe calf or pelvic pain
- new vaginal bleeding

- shortness of breath, dizziness, faintness or palpitations
- difficulty in walking
- development of a persistent severe headache

Blood pressure should be taken, if possible, if there is any cause for concern. If blood pressure monitoring equipment is not available on site, the patient should be monitored visually, and onward referral should be made using the emergency services or GP/antenatal day assessment unit as appropriate. If the diastolic pressure is either below 50 mmHg or above 80 mmHg, it is normally inappropriate for a woman to participate in an aquanatal class. In the case of hypertension, the woman might be referred from a consultant management scheme since exercise is thought to be beneficial. However, it is not so much the absolute pressure levels, rather a change in these, that may indicate the need for closer monitoring.

CONTRAINDICATIONS include:

- heart disease
- restrictive lung disease
- persistent vaginal bleeding, especially after 12/40 weeks
- intrauterine growth restriction
- preterm rupture of membranes with or without amniotic fluid leakage
- poorly controlled diabetes, epilepsy, cardiac arrhythmias or thyroid function
- anemia (haemoglobin less than 100g/L)
- infections – (e.g. bronchitis, flu, ear, nose and throat and diarrhoea and vomiting)
- urinary or vaginal infection
- skin diseases or open wounds
- active tuberculosis

- significant urinary incontinence – if a sudden onset of urinary leakage is reported, this should be investigated and amniotic fluid leakage ruled out
- chlorine or bromine allergies
- eating disorders
- morbid obesity (body mass index over 40)
- heavy smoker (20+ cigarettes/day)

The following conditions also represent contraindications unless explicit consent from the treating consultant is obtained.

- unstable blood pressure or pre-eclampsia
- history of miscarriage or premature labour
- cervical suturing because of cervical weakness
- vaginal Bleeding
- placenta praevia (or low-lying placenta)

Screening should aim to identify all contraindications and precautions to inclusion within the aquanatal class. This includes highlighting any modifications required as a result of musculoskeletal dysfunction caused or exacerbated by the pregnancy - including pelvic girdle pain, upper or lower back pain, and neck pain.

Neither epilepsy nor diabetes, if well controlled, need exclude a woman from aquanatal exercise, although these women may prefer to have a friend or family member with them in the pool to alert staff to any problems. Lifeguards or joint instructors should keep an especially close eye on any woman who has highlighted a medical need prior to starting the class, or who develops any issues during the class.

Refer to the 'Good Practice in Hydrotherapy' guidelines for more information (see appendix).

Participants should be advised not to swim immediately before, or directly after, their first class so that they can assess accurately the benefits, or otherwise, of the class. Many women are surprised at the level of fatigue they may experience initially.

6. Instructing

6.1 The team

Where possible, two qualified professionals should lead an aquanatal class: a women's health physiotherapist and a midwife make an ideal combination. The physiotherapist and midwife may decide to run a 'joint' session, where each has responsibility for part of the programme.

When two or more professionals are involved, it is recommended that protocols are written outlining specific responsibilities for each health professional. A qualified lifeguard should always be present to be responsible for all life-saving duties in the public pool. Local pool regulations must be observed. In the hydrotherapy pool, the leader(s) should follow their own local Trust policies and procedures. The instructor should be qualified in life-saving techniques according to local requirements, and be familiar with safety protocols, including fire alarms, fire exits and emergency procedures (see 4.7).

6.2 Number of participants

There must be at least one leader to every ten women in a session; therefore, a group of ten women should have one leader plus one lifeguard. A group of twenty women would have one leader plus two lifeguards. An ideal group would have no more than twenty women.

Check for local guidelines and local requirements.

6.3 Insurance

A chartered physiotherapist who is teaching a class has insurance cover under their subscription to the CSP. Attendance at a formal aquanatal course is not deemed as essential by the CSP, as long as it is within the scope of practice of the physiotherapist – who must have adequate hydrotherapy and obstetric knowledge (see appendix). Midwives and other professionals should check the insurance cover provided by their own professional registration. A public pool is usually well insured, but this should be checked. Whoever is giving instruction is personally accountable for the safety of the exercises.

6.4 Referral

A woman may be referred to an aquanatal class by a hospital consultant, general practitioner, physiotherapist, midwife or health visitor, from a parentcraft class or antenatal clinic, or she may refer herself. Advertisements in GP's surgeries, birth registration packs provided by midwives, antenatal classes, health clinics and leisure centres may encourage women to participate in the class, but careful screening of every woman is necessary to ensure her safety.

7. Principles of teaching

7.1 Aims and objectives

The physiotherapist who becomes involved in teaching exercise classes should have a clear idea of the aims and objectives of the class, and a working knowledge of safe exercises for the woman in her childbearing year. In addition, she would be well advised to participate in a training course for aquanatal leaders.

Once the venue for the class is found, and its benefits and limitations assessed, the class may start.

7.2 The Principles

The principles of teaching water-based exercise are broadly similar to those of teaching exercise on land, for example: giving exercise safety tips, frequent teaching points, clear demonstrations of exercises and correct phrasing (music). However, it must be remembered that the exercises that are chosen, and the speed and range of movement gained when performing them, are affected by basic hydrotherapy principles.

Note that: The depth of the starting position will affect ability and range of movement (see 7.6).

Other factors such as buoyancy, turbulence and streamlining will change the effect of the exercise.

Buoyancy can assist or resist movement. Using buoyancy-assisted exercise reduces weight-bearing on the joints, and may allow a greater freedom and range of movement – floats may be used. Buoyancy-resisted exercises, with or without floats, can be used for muscle strengthening.

Turbulence is created when limbs move against the resistance of the water. The faster the movement, the more difficult it becomes, and increased strength and control are needed.

Streamlining can make certain exercises easier or more difficult. Moving the arm through the water leading with the edge of the hand is easier than with the palm facing the direction of movement. It is more difficult still when a float is held in the hand.

Hydrostatic pressure is another positive feature of water-based exercise because the pressure assists venous return, and can be of help with moderately swollen extremities. However, diuresis will also increase, and pregnant women may need to leave the pool to urinate during the class. Care must be taken leaving and entering the pool, with procedures in place to ensure safety.

7.3 Acoustics and visibility

Acoustics in swimming pools are notoriously poor. When demonstrating an exercise, a leader should speak clearly, slowly and loudly enough for everyone to hear. Depending on the environment she is working in, a microphone may be available and useful. The class will find it easier to follow her, and she will be better placed to observe it, if she is on the poolside rather than in the water. Observation by the instructor is most important. It is obviously more difficult to spot poor quality of movement under water that is rippling. Verbal correction of exercises performed incorrectly should be followed by repeating precise vocal and physical demonstrations of the exercise, and then by using eye contact with an individual if necessary.

7.4 Hypermobility

Exercises involving excessive hip extension should be discouraged so as to avoid an increase in lumbar lordosis, although gluteal strengthening exercises can be taught with care. Breast stroke should be avoided so as to prevent neck extension. Using a breaststroke leg action could exacerbate or provoke pelvic joint pain. Care should be taken with abduction and adduction against resistance, as in wide side-stepping exercises and low squats. Women should be reminded to stop and inform the class leaders if any exercise causes discomfort. If musculoskeletal discomfort is experienced

after the class or the next day, the instructor should be informed before the next class begins (see 5).

7.5 Spacing

The members of the class should be well spaced in the pool.

7.6 Depth of water

Ideally, the depth of water should be such that its surface is at the level of the xiphisternum. This does not compromise balance or produce a drag on breast tissue. Very shallow water prevents exercises from being performed properly, and if the water is too deep, the women may find movement too difficult and also find it hard to keep their feet on the bottom of the pool.

7.7 Fatigue

Excessive fatigue and undue shortness of breath should be avoided. The optimum length of a session is 45-60 minutes. Some leaders may wish to include a short relaxation session if the temperature of the water is warm enough (see 8).

7.8 Hypothermia

In order to avoid hypothermia, there should be no prolonged standing in or out of the pool. The women should be advised not to get the tops of their heads wet because this increases the loss of body heat. It is important to remember that the body cools down 5x more quickly with exercise in water compared to on land. Towels can be left at the poolside and warm showers must be available.

7.9 Alternative exercises

It should be stressed to the women that they need not do any exercise with which they are unhappy or uncomfortable. The

instructor should be prepared to offer an alternative exercise to take into account for:

- respiratory conditions
- vertigo
- nausea

7.10 Clothing

The leader should wear comfortable, cool clothing since she is likely to become very hot. Flat, non-slip shoes should be worn to comply with pool regulations.

The participants should wear a bathing costume, or bikini and T-shirt. A sports bra worn under swimwear may also be more comfortable and supportive during the later second and third trimesters.

If the class is held in a public pool with male lifeguards, further advice may need to be given to participants regarding suitable clothing for women of ethnic minorities (e.g. adding leggings and a T-shirt over swimwear).

8. Essential components of the class

It is suggested that every class should incorporate the following components:

- 1 Posture check, possibly before entering the pool, with tips on maintaining it correctly in the water; continue with posture checks throughout the class
- 2 Warm-up in the water
- 3 Aerobic exercises
- 4 Breathing awareness
- 5 Strengthening and endurance of relevant muscle-groups
- 6 Co-ordination activities

- 7 Stretch. Stretches should involve all muscle groups used in section 5
- 8 Relaxation (optional) - if the participants are warm enough in the water, this can be an enjoyable way to end the class
- 9 Posture check on transferring from water to dry land
- 10 Pelvic-floor muscle exercises - these can be taught in the water, but if not, then an ideal alternative time is during the coffee break, which also provides an opportunity for the women to talk, either to each other or with the instructor, about any problems they may have (see section 2)

9. Choreography

9.1 Exercise to Music

A degree of skill and practice is required to match the pace of teaching exercises to participants in water, rather than on land, particularly when the teacher is standing on the edge. Often, insufficient time is allowed for the women to perform the exercise against resistance and turbulence while maintaining balance and good posture. This can result in inaccuracies of movement, as well as reduced benefit from the exercises.

Generally, the beat of the music needs to be slower than for a land-based class to allow for the effects of water resistance. The instructor needs to perform the exercises slowly and deliberately. While music can add an element of fun and provides a focus, classes can be held successfully without the aid of music.

9.2 Music

If an iPod or CD player is connected to the mains, a circuit breaker must be used. A battery-operated machine is, of course,

safer. Check with the pool manager that the pool has a Phonographic Performance Ltd (PPL) licence to cover playing of commercially recorded music. If not, you will have to purchase your own licence. There are many sources of pre-recorded or web-downloadable music available for purchase.

10. Postnatal exercise in water

Exercise in water classes may also be taught to postnatal women. The information above is mostly relevant apart from the following points:

- Sometimes the class may be taught with a mix of antenatal and postnatal women. Sometimes the class may be suitable for mother and baby. If the baby is being introduced to the pool, then current regulations must be observed. If the mother alone is exercising, then she should be advised to make arrangements for her child since many leisure centres do not provide crèche facilities for children under two years of age. The leisure centre facilities should be determined prior to advertising the class. Some venues allow babies to be brought in car seats or similar, and placed on pool surrounds under adult supervision. Toddlers should not be permitted into the pool area. The instructor needs to be flexible with the type of exercises taught, and able to offer a greater range of progressions and alternatives.
- It is not necessary to have a midwife or second health professional in attendance for postnatal-only classes.
- The physiological benefits of exercise are the same as for any other non-pregnant woman, but with the emphasis being on regaining rather

than maintaining a level of fitness. Another advantage of being in a postnatal class is that the instructor can correct the effects of pregnancy, such as poor posture or weak abdominal muscles, and structure the class to focus on the most relevant muscles to retrain. Emphasis should be on regaining abdominal stability and muscle balance.

- Full screening is necessary, although some different questions need to be raised, such as when was the baby born, have you had a 6-week GP check, did you have a Caesarean delivery, how do you feel today and are you breastfeeding? (See introduction.) If the mother has pelvic girdle pain, is still bleeding or is excessively fatigued, she should be advised not to participate.
- The components of the class will need to be adapted to reflect the needs of the participants.
- The post-session drink/chat also provides a chance for the mothers to talk and debrief their experiences with the health professional available, if needed. The physiotherapist may be able to identify, advise or refer for treatment to the appropriate health professional those with problems relating to being a new mother. These may include continence, musculoskeletal and psychosexual problems, and suspected postnatal depression. Once the new mother has completed her aquanatal course, the instructor is well placed to advise her on the types of exercise to pursue next. She is in a key position to encourage the mother and her new baby to exercise for life.

11. Further reading

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Cirullo J (1997) Aquatic exercise for the obstetric and gynecologic patient, in Ruoti RG, Morris DM, Cole AJ (eds) *Aquatic Rehabilitation* Lippincott

Evans GM (1997) Aquanatal exercise, in Champion MR (ed) *Hydrotherapy: Principles and Practice* Butterworth-Heinemann

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Montoya, A.V., Buitrago, L.O., Aguilar de Plata, A.C., Escudero, M.M., and Ramírez-Vélez, R. (2010) Aerobic exercise during pregnancy improves health-related quality of life: a randomised trial. *Journal of Physiotherapy – Australian Physiotherapy Association*, 56(0).

National Institute for Health and Clinical Excellence (NICE) (2008) Antenatal Care for Uncomplicated Pregnancies (NICE Clinical Guideline CG62) NICE

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Waller B, Lambeck J, Daly D (2009) Therapeutic aquatic exercise in the treatment of low back pain: a systematic review *Clinical Rehabilitation* Jan;23(1), 3-14.

12. Appendix

Hydrotherapy is:

"A therapy programme utilizing the properties of water, designed by a suitably qualified physiotherapist specifically for an individual to improve function, carried out by appropriately trained personnel, ideally

in a purpose-built, and suitably heated hydrotherapy pool" (HACP 2006).

Physiotherapists providing hydrotherapy sessions should have knowledge and training in line with the standards set by the CSP, as specified in the following documents:

Chartered Society of Physiotherapy (CSP) (2012) *Quality Assurance Standards for Physiotherapy Service Delivery*. CSP, London.

Hydrotherapy Association of Chartered Physiotherapists (HACP) (2006) *Guidance on Good Practice in Hydrotherapy*. Information Paper No. 39. CSP, London.

www.csp.org.uk

<https://atacp.csp.org.uk/content/guidance-good-practice-aquatic-physiotherapy-2015>

Booklets and online resources

Fit and Safe: Exercise in the Childbearing Year

Pelvic Girdle Pain and Other Common Conditions in Pregnancy

Fit for Pregnancy

Fit for the Future

These and other booklets available via the POGP website: pogp.csp.org.uk