

GUIDELINE FOR THE USE OF WATER IN LABOUR AND BIRTH

Preamble

The therapeutic properties of warm water immersion have been known for centuries. Baths, showers and whirlpools have been used for comfort during labour for many years. Over the past decades, immersion in water for the birth of the baby has aroused interest in many countries and an increase in the number of women requesting this option for both hospital and out-of-hospital births is occurring.

The College of Midwives has reviewed the best available evidence and offers this guideline to assist midwives and women in their decision making process around the use of water immersion for labour and birth. The body of evidence in this area is small but growing.

Maternal and neonatal outcomes after water immersion for labour and birth have been assessed in two large surveys over a four-year period in England and Wales (Alderdice, Renfrew & Marchant, 1995; Gilbert & Tookey, 1999). Researchers reviewed 4693 and 4032 births where water immersion was used and found no difference in outcomes for women and their newborns compared to a cohort group of low-risk women who did not use water.

The perinatal mortality rate for these births was comparable to other low risk births in the UK. Water aspiration occurred in two babies born into water; however, no deaths were attributed to water birth. Admissions to special-care baby units were slightly lower for the water-born babies than admissions for other low-risk babies (Gilbert and Tookey, 1999).

Other researchers (Burns, 2001; Lenstrup et al, 1987; Rush et al, 1996; & Waldenstrom et al, 1992) have made similar outcome reports. A Canadian randomized control trial consisted of an experimental group of 393 women using the tub during labour and a control group of 392 women receiving conventional care. Women experienced less pain after water immersion than their non-immersion counterparts and over 80% of the water immersion group said they would use the tub in subsequent labours (Rush et al, 1996).

A small randomized controlled trial of 274 women compared the use of warm water immersion in the first stage of labour to their standard of care that excluded tub use (Eckert, Turnbull & MacLennan, 2001). They reported no differences between groups in maternal or neonatal morbidity or mortality with two exceptions. Babies born in the water immersion in labour group required more resuscitation efforts, and women who were randomized to the control group rated their overall experience of childbirth more positively. Interestingly, there were no differences between groups in APGAR scores, NICU admissions, and neonatal infections. The authors' conclusions that the use of water for labour and birth may contribute to adverse outcomes should be viewed with considerable caution. There are several methodological problems with this study these results are not congruent with the findings of several other larger trials of similar design and their statistical analysis does not support their recommendations. It is clear more research is needed into this form of care.

Cluett ER, Burns E. (2009) conducted a Cochrane Database Systematic Review which included 12 trials (3243 women). Water immersion during the first stage of labour was associated with a significant reduction in epidural/spinal analgesia needs, without adversely affecting labour duration, operative delivery rates, or neonatal wellbeing. One trial showed that immersion in water during the second stage of labour increased women's satisfaction with their birth experience. Further research is needed to assess the effect of immersion in water on maternal and neonatal morbidity. Results for the first stage of labour showed there was a significant reduction in the epidural/spinal/paracervical analgesia/anaesthesia rate among women allocated to water immersion compared to controls (478/1254 versus 529/1245; risk ratio (RR) 0.90; 95% confidence interval (CI) 0.82 to 0.99, six trials). There was also a reduction in duration of the first stage of labour (mean difference -32.4 minutes; 95% CI -58.7 to -6.13). There were no differences for Apgar score less than seven at five minutes (RR 1.58; 95% CI 0.63 to 3.93, five trials), neonatal unit admissions (RR 1.06; 95% CI 0.71 to 1.57, three trials), or neonatal infection rates (RR 2.00; 95% CI 0.50 to 7.94, five trials).

Of the three trials that compared water immersion during the second stage with no immersion, one trial showed a significantly higher level of satisfaction with the birth experience (RR 0.24; 95% CI 0.07 to 0.80).

Henderson et al (2014) conducted a prospective observational study of 2,505 labouring women who used a birthing pool in obstetric units in Italy from 2002-2005. Maternal outcomes were favorable for low-risk women and were associated with lower intervention rates compared with concurrent controls. Authors also reported that adverse neonatal outcomes were rare.

Evidence suggests that water immersion during the first stage of labour reduces the use of epidural/spinal analgesia and duration of the first stage of labour. There is limited information for other outcomes related to water use during the first and second stages of labour, due to intervention and outcome variability. There is no evidence of increased adverse effects to the fetus/neonate or woman from labouring in water or waterbirth. A lack of data for some comparisons prevented meaningful conclusions. The studies are variable and considerable heterogeneity was detected for some outcomes.

Further research is needed. This guideline will be updated as more evidence becomes available.

Potential Advantages of Water Immersion

- The buoyancy of water enables a mother to move more easily;
- Blood pressure is lowered;
- Comfort and relaxation may be enhanced;
- Maternal sense of control may increase, which in turn enhances emotional well-being;
- Warm water increases maternal relaxation reducing pain perception;
- The need for pharmacological pain relief may be reduced;
- Length of labour may be reduced;
- Improved perineal stretching may reduce trauma

Potential Disadvantages of Water Immersion

- Decrease in uterine contraction strength and frequency, especially if used before active labour is established;
- Neonatal water aspiration;
- Maternal hyperthermia may contribute to fetal hypoxemia;
- Neonatal hypothermia is possible if water temperature is too cool;
- Blood loss estimation and assessment is difficult in the water;
- Risk of acquiring blood-borne infection or sustaining back injury for caregivers

Recommended Criteria for the Use of a Water Pool

- An uncomplicated pregnancy of at least 37 weeks gestation;
- Established active labour (i.e. regular contractions; dilation of the cervix (3-4 cm in nulliparas and 4-5 cm in multiparas) and descent of the presenting part);
- Normal fetal heart rate

Contraindications for Birth in a Water Pool

- Pre-term labour (<37 completed weeks);
- Maternal infection with a blood-borne pathogen such as Hepatitis B or C or HIV¹;
- Maternal fever;
- Atypical or abnormal fetal heart rate;
- Mobility problems that may prevent leaving the pool when necessary;
- Caution should be used when considering water immersion if sedation has been administered to the woman². Individual responses to sedation vary; the woman must be able to get in and out of the tub without difficulty and be fully conscious and aware of her surroundings while in the water. She should never be left alone.
- Narcotic analgesia administered to a woman within 4 hours of delivery is an absolute contraindication³. Women should be advised that there is no available research regarding the risk to the newborn of birth in water following the administration of narcotics at any point in labour.

Recommendations for the Use of Water Immersion for Labour and Birth

- Midwives should discuss the potential advantages and disadvantages of water immersion for labour and birth with each woman prior to labour.
- The woman's vital signs and the fetal heart rate must be within normal limits and documented prior to entering the pool.
- The fetal heart should be monitored according to accepted guidelines. Use of a waterproof Doppler device is recommended.
- The water temperature should be monitored and maintained between 36 and 37.5 C to prevent hypo- or hyperthermia. The temperature may be monitored with a floating thermometer.
- The woman's temperature should be monitored and she should leave the water if her temperature exceeds 37.5 degrees C.

¹ The diluting effect of the water can make exposure to HIV and HCV a lower-level risk, however exposure to HBV can be significantly higher.

² International Clinical Practice Guidelines for use of water immersion in labour and birth; Australia, New Zealand, USA.

³ There is an increased rate of respiratory depression in newborns requiring resuscitation if a narcotic is given to a woman in labour (NRP 2011).

- The woman should be encouraged to maintain adequate hydration and leave the pool to urinate at regular intervals.
- The woman should be asked to leave the water if there are any concerns about her or her baby's well-being.
- An alternative birth place should be set up close to the pool.
- The water should be kept as clean as possible. Stool and blood clots must be removed from the tub immediately. The tub should be drained, cleaned and refilled if the pool is being used over a number of hours or if contaminants cannot be easily removed.
- The baby should be born completely underwater with no air contact until the head is brought to the surface, as air and temperature change may stimulate breathing and lead to water aspiration.
- At birth, the baby's head must be brought to the surface immediately. Care should be taken to avoid undue traction on the cord. Care should be taken to maintain the newborn's temperature to prevent hypo- or hyperthermia.
- Women should be informed of the potential risks of a waterbirth if meconium is present.
- Intramuscular injection should not be given under water.
- The placenta may be best delivered outside of the tub to accurately assess maternal bleeding.
- Birth pools that are being used in hospital or that will be used again by another birthing mother should be cleaned between uses with a chlorine-releasing agent to kill any blood-borne pathogens.

As when caring for any mother or newborn, the midwife is responsible for using her clinical judgment, responding appropriately to problems that may arise, and for documenting her actions.

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