

ICEA Position Paper

Water Labor & Water Birth

Position

It is well established in the research that maternal relaxation during labor may reduce the perception of pain, shorten the phases of labor and may reduce the need for medical interventions such as analgesia and anesthesia. The International Childbirth Education Association (ICEA) believes that for those women whose pregnancies are low-risk and where water immersion is not contraindicated, water labor and water birth may provide an environment for a gentle, physiologic birth.

Background

In nearly every culture, water signifies peace, calm and relaxation. From ancient times to the present, humans have used a warm bath to ease tension, quiet aching muscles and relieve pain. The therapeutic use of water, also called hydrotherapy, during labor and birth is also not new. Historically, Japanese women made use of warm labor pools to reduce labor pains and British midwives use warm water as a source of pain relief. France was the site of the first recorded waterbirth in 1805, however several individuals such as Igor Charkovsky, Dr. Michel Odent, Dr. Michael Rosenthal,

and Dr. Grantly Dick-Read introduced it officially in Russia, France, England and the US respectively (Avery, 2013; Sprague, 2011). Odent published his results of the first hundred waterbirths in the Lancet in 1983. His findings were that anxiety and pain trigger a stress response that leads to a reduction in uterine activity. Laboring in water could overcome this stress response by aiding relaxation, increasing endorphin release and reducing the perception of pain (Mollamahmutoglu, 2012).

Review of the Literature

Hydrotherapy expert Michel Odent outlined his research at the maternity unit at Pithiviers, recording a definite change in labor contractions after immersion – sometimes before immersion. This led Odent and his staff to believe that hydrotherapy not only actually worked, but the anticipatory feelings of pain relief may also release endorphins (Sprague, 2011). This may be the cause of the prominent benefit of birth satisfaction seen with waterbirths (Avery, 2013).

Women who utilize hydrotherapy for labor and birth should be deeply immersed in the water to cover the belly and up to the breast. “Full immersion” promotes optimum physiologic responses, primarily the stimulation of oxytocin and vasopressin (Avery, 2013; Sprague, 2011). Entering the pool between 3-5 cm cervical dilation and staying approximately 2 hours (120 minutes) allows for optimum relaxation and

labor progression. Some women who step out of the pool for 30 minutes and return, often experience enhanced dilation. Recommended temperature for the birth pool water is between 98° F and 101° F. Some resources recommend 95° F – 97.5 °F in order to maintain an optimal core temperature for mother and baby. A baby with hyperthermia may show signs of distress (Avery, 2013; Sprague, 2011).

Benefits of Water Labor/Birth: Maternal

Several studies have found significant benefits of water labor/birth for mothers. These benefits include:

- › Increased satisfaction with the birth (Sprague, 2011);
- › Reduction in the perception of pain (Mollamahmutoglu, 2012);
- › Increased endorphin release and increased relaxation (Mollamahmutoglu, 2012; Sprague, 2011);
- › Reduction in the need for pharmacologic pain relief (Cluett, 2009; Mollamahmutoglu, 2012; Sprague, 2011);
- › More ease for assuming various labor/birth positions (due to buoyancy) that leads to increased functional diameter of the true pelvis (Avery, 2013; Dahlen, 2013; Mollamahmutoglu, 2012);
- › Shorter first and second stage of labor due to a reduction in stress hormones and catecholamines, which inhibit oxytocin and labor progress (Cluett, 2009; Cortes, 2011; Mollamahmutoglu, 2012);
- › Less perineal trauma (Dahlen, 2013; Henderson, 2014);
- › Less postpartum hemorrhage (Dahlen, 2013).

Benefits of Water Labor/Birth: Fetal

Promotes positive maternal/infant bonding behaviors such as skin-to-skin contact (Sprague, 2011).

Safety of Water Birth: Baby

Apgar Scores

Authors of several studies have stated that there was no evidence of increased adverse effects with water labor/water birth for the newborn. There were no differences in NICU admissions or Apgar Scores (Avery, 2013; Cluett, 2009; Dahlen, 2013; Nutter, 2014; Mollamahmutoglu, 2012).

Breathing/Drowning

There are several factors that inhibit the baby from inhaling water during the birthing process. Barbara Harper, Director of Waterbirth International, explains the factors in this way:

“Approximately 24 to 48 hours before the onset of spontaneous labor, the fetus experiences a notable increase in the prostaglandin E2 levels from the placenta, which causes a slowing down or stopping of the fetal breathing movements (FBM). With the work of the musculature of the diaphragm and intercostal muscles suspended, there is more blood flow to vital organs, including the brain. You can see the decrease in FBM on a biophysical profile, as you normally see the fetus moving these muscles about 40% of the time. When the baby is born and the prostaglandin level is still high, the baby’s muscles for breathing simply don’t work, thus engaging the first inhibitory response. A second inhibitory response is the fact that babies are born experiencing acute hypoxia or lack of oxygen. It is a built in response to the birth process. Hypoxia causes apnea and swallowing, not breathing or gasping. If the fetus were experiencing severe and prolonged lack of oxygen, it may then gasp as soon as it was born, possibly inhaling water into the lungs. If the baby were in trouble during the labor, there would be wide variabilities noted in the fetal heart rate, usually resulting in prolonged

bradycardia, which would cause the practitioner to ask the mother to leave the bath prior to the baby's birth. The reduced temperature differential is another factor thought by many to inhibit the newborn from initiating the breathing response while in water. Finally, the reflex to begin breathing is only initiated after innervations of the trigeminal nerves in the face, nose and mouth are stimulated with a combination of room air and complete removal from the water. Once activated, the pulmonary circulation begins for the first time with oxygen rich blood flowing into the lungs and carbon dioxide removed" (Harper, 2012).

Cord Avulsion

Cord avulsion or snapping of the umbilical cord is a rare phenomenon but may occur during a waterbirth. During a waterbirth, there may be a strong instinct to bring the baby above the level of the water immediately after the birth. This may cause rapid cord traction with a higher tension than a land birth. Risk factors for cord avulsion in both land births and water births include cord abnormalities such as abnormal insertion of the cord into the placenta, limited length of the cord, tumors or hematomas. Cues that a cord avulsion has occurred include a sudden change in the color of the water to deep red (due to a gush of blood), sudden release of cord tension, visual confirmation of a detached cord, snapping sound as newborn is lifted from the water, and signs of neonatal hemorrhagic shock. With increased professional and parent education, the incidence of cord avulsion can be greatly reduced (Schafer, 2014).

Reduced Group B Strep

The literature demonstrates a GBS rate of 1 in 4432 for waterbirths and 1 in 1450 for land births. Theories for the rate phenomenon, according to Cohain, includes (1) inoculating the baby with mother's intestinal flora at birth protects against GBS infection; (2) water washes off the GBS bacteria acquired during the descent through the vagina; (3) the water dilutes the GBS bacteria and mixes it with a multitude of other intestinal bacteria that compete with GBS; (4) early onset GBS is elicited by complications and interventions at birth, which occur

less often at water-births; (5) kangaroo care at birth promotes healthy newborns; (6) GBS and antibiotic-resistant GBS are more prevalent in hospital environments, where waterbirths are not an option; (7) a higher rate of underreporting of adverse events at waterbirths compared to dry births; and/or (8) a massively successful international campaign has covered up the reporting of all deaths and disease from GBS after waterbirths. GBS is not a contraindication to waterbirth (Avery, 2013; Cohain, 2010).

Contraindications for Waterbirth

The research shows that contraindications for waterbirth include mothers desiring a VBAC (vaginal birth after a cesarean), Pitocin augmentation/induction or where telemetric EFM is not available. Maternity units may elect to add to the list of contraindications the use of analgesia or anesthesia, multi-fetal gestation, and gestational age less than 37 weeks (Avery, 2013; Harding, 2012).

Implications for Practice

According to Avery, warm water stimulates large, high-velocity afferent nerve fibers, blocking smaller, slower pain fiber impulses, thus reducing the amount of painful stimuli reaching the reticular activating system in the cerebral cortex (The Gate Control Theory). Coupled with the hydrostatic pressure decreasing muscular tension and the buoyancy of the water enabling mothers to assume optimal positions, water labor and birth are highly beneficial with the least amount of risks to either mother or baby (Avery, 2013).

For those mothers seeking a physiologic birth with minimal interventions, water labor and water birth are safe options and provide comfort in labor and relief of labor pain using a convenient non-pharmacologic method.

Waterbirth Workshops are available world-wide to provide childbirth educators, doulas, nurses, midwives and physicians, with further research data to instill

confidence, explore procedures, and reduce fear
(Russell, 2014).

The Need for More Research in the Future

A joint statement was published from the American Academy of Pediatrics (AAP) Committee on Fetus and Newborn and the American College of Obstetricians and Gynecologists (ACOG) Committee on Obstetric Practice assessing the use of water as a part of labor and birth, relieving or shortening labor and adding to maternal satisfaction (ACOG, 2014).

The report from the committees concluded that “immersion in water may be appealing to some and may be associated with decreased pain or use of anesthesia and decreased duration of labor”. The report went further to state, “there is no evidence that immersion in water during the first stage of labor otherwise improves perinatal outcomes.”

However, a Cochrane Review of the literature included 12 trials (3243 women). Water immersion during the first stage of labor significantly reduced epidural/ spinal analgesia without adversely affecting labor duration, operative delivery rates or neonatal well-being. One trial showed that immersion in water during the second stage of labor increased women’s reported satisfaction with their birth experience (Cochrane, 2009).

References

- American College of Obstetricians and Gynecologists. (2014) Immersion in water during labor and delivery. Committee Opinion No. 594. *Obstetrics & Gynecology*, 123: 912-5. (Joint statement with the American Academy of Pediatrics).
- Avery, M.D.(editor) (2013) *Supporting a Physiologic Approach to Pregnancy and Birth: A Practical Guide*. Wiley-Blackwell Publishing.
- Cluett, E. and Burns, E. (2009) Immersion in water in labour and birth. *Cochrane Database Systematic Review Issue 2*, NO. CD000111.
- Cochrane Review <http://summaries.cochrane.org/CD000111/immersion-in-water-in-labour-and-birth>.
- Cohain, J.S. (2010-11) Waterbirth and GBS. *Midwifery Today International Midwife*. Winter: (96): 9-10.
- Cortes, E., Basra, R., and Kellerher, C.J. (2011) Waterbirth and pelvic floor injury: a retrospective study and postal survey using ICIQ modular long form questionnaires. *European Journal of Obstetrics, Gynecology and Reproductive Biology*, Mar, 155(1): 27-30.
- Dahlen, H.G. et al. (2013) Maternal and perinatal outcomes amongst low risk women giving birth in water compared to six birth positions on land. A descriptive cross sectional study in a birth centre over 12 years. *Midwifery*, Jul, 29(7):759-64.
- Harding, C. et al. (2012) *Evidence Based Guidelines for Midwifery-Led Care in Labour: Immersion in Water for Labour and Birth*. Royal College of Midwives.
- Harper, B. (2012) In deep: Seven secrets of successful waterbirth. *Essentially MIDIRS*, Vol 3, No. 5.
- Henderson, J. et al. (2014) Labouring women who used a birthing pool in obstetrics units in Italy: prospective observational study. *BMC Pregnancy Childbirth*, Jan, 14: 14-17.
- Mollamahmutoglu, L. et al. (2012). The effects of immersion in water on labor, birth and newborn and comparison with epidural analgesia and conventional vaginal delivery. *Journal of the Turkish-German Gynecological Association*, 13: 45-49.
- Nutter, E. et al. (2014) Waterbirth: an integrative analysis of peer-reviewed literature. *Journal of Midwifery and Womens Health*, May, 59(3): 350-4.
- Russell, K. et al. (2014) Effecting change in midwives’ waterbirth practice behaviours on labour ward: an action research study. *Midwifery*, Mar, 30(3): e96-e101.
- Schafer, R. (2014) Umbilical Cord Avulsion in Waterbirth. *Journal of Midwifery and Womens Health*, Vol. 59, No. 1.
- Sprague, A. (2011) *Water Labour, Water Birth: A guide to the use of water during childbirth: A guide to the use of water during pregnancy labour and birth*. Annie Sprague; 4th edition.

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10/2015 ©