

Taking the plunge: reevaluating waterbirth temperature guidelines

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The idyllic setting of the coastal blue-green waters of the Mediterranean, near Costa Blanca in Spain, is the backdrop for the third birth of Robert and Nika. An adventurous couple who sought out a unique birth experience, they traveled from the US to Spain in order to birth their baby in the ocean. As a safety precaution they hired a doctor from England to "attend" them. The doctor spent more time playing with the older children and swimming in the ocean than he did providing medical care for a healthy 30 year old mother giving birth to a rather large baby in a shallow tide pool. The couple sent me photos and video of the event and when I have shown it occasionally in classes, the first and foremost question is, "what is the temperature of the water?"

The only problem in addressing this question is, no one bothered to check it at the time. Coastal waters in Spain vary according to the season and currents, but in late August, when this baby was born, one can presume that the highest temperature during the day was in the mid 70s Fahrenheit (24 Centigrade).

In a recent review of the available waterbirth literature, there are only a few mentions about the water temperature, but always in the context of regulating the high temperatures. Cefalo and Hellegers¹ went into great detail in their 1978 piece about thermoregulation and cardiac output in pregnant sheep, stating that temperatures greater than 1.5 degrees Celsius above baseline experienced a sudden drop in cardiac output for the mother and a significant rise in fetal heart rate. Brown also mentions high temperatures in 1978 in the *Journal of Nurse-Midwifery*.² She clearly states that a "warm tub bath seems to be a useful, noninterventionist technique to add to the list of comfort measures for labor." Waldstrom and Nilsson confirm a high temperature restriction, but do not address low temperatures.³ In 1993, the discussion of possible fetal demise from high water temperatures came

¹ Cefalo, R., Hellegers, A. (1978) Cardiovascular and respiratory effects of induced hyperthermia in the ewe and the fetus. *American Journal of Obstetrics and Gynecology* 131 (6), 687-94

² Brown, C. (1982). Therapeutic effects of bathing during labour. *Journal of Nurse-Midwifery*, 27(1) 13-16.

³ Waldenstrom, U. & Nilsson, C. (1992). Warm tub bath after spontaneous rupture of the membranes. *Birth*, 19, 57-63.

into the popular press, especially in the UK. Rosevear et al reported two adverse outcomes in 1993, following labor in water.⁴ By 1997, Michel Odent recommended water temperatures of 98.6 Fahrenheit (37 Celsius) or lower and immersion time of no greater than two hours.⁵

Women were encouraged to get out, walk around, cool off and then get back in for another two-hour period of immersion especially if the birth was not immanent. In the US, the high temperature restriction has been incorporated into hospital policies to not exceed 101 Fahrenheit (38.33 Celsius). Most hospitals require the recording of the temperature onto the labor record every two hours. The bath is usually filled at a temperature that is "comfortable for the mother." This is a phrase that is heard many times in labor units. Not many mothers desire water temperatures higher than 101 Fahrenheit (38.33 Celsius).

There are some mothers that request lower temperatures in the birth pool. Hot muggy days of late summer lead women to request temperatures that can help them relax and cool off. The warm water aids in the relaxation of the mother, but the buoyancy effect gives her just as much relief. We all observe the ease with which she changes positions in the birth pool, knowing that the body weight distribution is 75% less in water that is up to her breast level. The ability to move about freely in the birth pool aids in speeding the labor process and helping baby shift and move through the pelvis.

What about the water temperature effects on the baby? Do you need to warm up the water before baby is born? There have been expressed concerns about the lower temperatures effecting the breathing of the newborn. There has also been conjecture, but no hard data to support the practice of topping the water off to reach a temperature of at least 100 Fahrenheit (37.8 Celsius).

Paul Johnson mentions that the breathing mechanisms in newborns are stimulated by a change in air pressure. He does conjecture that the water temperature being

⁴ Rosevear S., Fox R., Marlow N. , Stirrat, G. (1993). Birthing pools and the fetus. *The Lancet*, 342, 1048-49

⁵ Odent, M (1997) Can immersion stop labor? *Journal of Nurse Midwifery*, Vol 42, No 5 pp 414-416

similar to that of amniotic fluid could be a possible inhibitory factor, thus suggesting that lower temperatures could possibly stimulate a breathing response.⁶

Current research and observation being done in Germany, Japan and Russia, suggests that lower temperatures at the time of birth contribute to a slightly more vigorous baby.^{7 8 9}

It is well known that babies who are born in water at temperatures at 99 – 100 Farenheit (37.2 – 37.78 Celsius) and who are immediately brought to the surface to initiate breathing take a slightly longer time to begin moving and breathing than air born babies. The transition period is about one full minute. It is reported that when babies are born at slightly lower temperatures the adjustment time is less. The typical temperature utilized in some midwifery practices in Germany is between 92 – 95 Farenheit (32-35 Celsius). The film, *Birth Into Being*, entirely filmed in Russia,¹⁰ which includes two births in the Black Sea, illustrates the ability for the baby to adapt to the lower temperatures of the water. Anthropologically, there are a few verbal references to women giving birth in shallow ocean and river waters, much like the modern Russian and Eastern European women who seek the natural (in nature) experience. The average water temperature in the shallow areas of Nova Svyet, where many births take place off the coast of the Ukraine, is between 78 – 85 Farenheit (25.5 – 29.4 Celsius). The babies that are born there are not in danger of gasping, though they might suffer from hypothermia, if not kept directly with their mothers.

What does this mean for the labor unit in the UK or the US? Taking the temperature of the water and regulating it thermostatically has become an entrenched practice on many units. While some women request the water to be much hotter than 101 Farenheit, (38.3 Celsius) many want it slightly cooler. There is simply no research available that tells us that the cooler temperatures will impact the baby's breathing mechanisms or lead to cold stress. There is only careful observation from a wide variety of midwives throughout the world. The documented research tells us that

⁶ Johnson, Paul. (1996). Birth under water--to breathe or not to breathe. *British Journal of Obstetrics and Gynaecology*, 103: 202-208.

⁷ Personal correspondence and interview, Cornelia Enning, Hebamme, Germany, July – November 2000

⁸ Personal interview, Fusako Sei, Japan, April 2002, Vienna, Austria

⁹ Personal correspondence and interview, Elvira Zakablaukovskia, MD, Russia July 1999.

¹⁰ *Birth Into Being: The Russian Waterbirth Experience*, Global Maternal/Child Health Association, Win/Win Productions in cooperation with Alexi and Tatyana Sargunas, USA 28 min (2000)

higher temperatures cause the baby to experience a rapid heart rate and we have set the high parameter. But there is no evidence, other than the mother's comfort, that should have us set a low parameter.

In conclusion, there is no reason for midwives, nurses or support persons to stress over keeping the water at a set temperature, other than the mother's physical comfort. If we listen to the German and Russian midwives, there might even be a reason for the baby to be born into water that is cooler than we have previously thought. Waterbirth guidelines were set and protocols established based on very little data. Waterbirth in the mid to late 1980's was a grand experiment that fortunately was well documented. Waterbirth is teaching us to be flexible, to be keen in our observations and to document the outcomes for birth so that we can all learn from the retrospective data.

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