



The Hidden Risks of Floating Neck Rings for Babies

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Images of the first baby spa opened in Australia (Perth), a few years after baby spas started gaining popularity in China, show babies of various ages floating supported by purple neck rings in tubs, after which they receive a massage. The pictures conjure up a dream of busy parents: calm babies floating safely under supervision, their faces securely maintained above water, while adults can relax and sip smoothies on the side, confident that babies are having a treat. Floating tanks for adults are gaining popularity around the world after research has confirmed the benefits of floating in warm water, but do these benefits apply to young babies? And might neck rings have detrimental effects on the development of babies' spines and therefore nervous systems and brain development? Is this device missing the point about what babies can gain from being in water? STA and Birthlight would like to issue a message of caution about the use of neck rings for babies as a buoyancy aid for floating, from the perspective of baby swimming teachers concerned with promoting aquatic activities that best support infant development.

In today's world, babies spend a lot of time in contraptions that isolate them from human contact. Some are necessary, like safe baby car seats. Others like electric rocking cradles and chairs, bouncers and strollers, are marketed as labour saving for parents, enjoyable and even positive for babies. Floating neck rings are part of this global culture of baby contraptions. Parents do not have to get in the water and babies are kept safe from accidental submersion, but let's look at the hidden costs and risks. These are physical, neurological, and psychological, and as everything with babies, they are interlinked.

When babies hang vertically in water with their heads supported by a semi-rigid foam structure - particularly those under 5 months - concern arises about compression of the soft and subtle vertebrae in their necks, and strain in ligaments and muscles. Infant development is cephalo-caudal (proceeding from the head down), and head control is the first huge task babies master in their early months, followed by rolling. The main body movements that help babies to achieve these first milestones are restricted by neck rings. Even allowing for buoyancy, active kicking, (first involuntary and later voluntary), may put undue pressure on the neck because the neck ring makes the integration of upper and lower body movements difficult, if not impossible. Furthermore, this has an impact on the optimal development of the spinal curves. Babies are born with a C shape spine, without lumbar or cervical curves¹. It is integrated movements of their whole bodies that assist the formation of the spinal curvature, which will help them to sit, stand and walk. By maintaining a locked position of the upper back and pectoral muscles involved in early head movements, neck rings artificially create a spinal extension that may weaken rather than strengthen babies' lower backs in the medium to long term. Cranio-sacral connections² are now well recognised. Few babies are born without some compression in their neck and cranium, due to their fetal position in utero at the time of birth, even if they are born by caesarean section. Some may even have experienced having their cords round their necks. It seems a shame to lose the potential

¹ Elliott, L. 1999. *What's going on in there: How the Brain and Mind Develop in the First Five Years of Life*. New York: Bantam Books.

² <https://www.craniosacraltherapy.org/Whatis.htm>. *Introduction to Biodynamic Craniosacral Therapy*. by Michael Kern, DO., R.C.S.T., M.I.Cr.A., N.D. Life and motion. Life expresses itself as motion.

loosening of tension that being in water can allow and perhaps even to add further compression by using a neck ring.

Alternating between spinal extension and flexion is essential to help babies' primitive reflexes integrate and to support the emergence of postural reflexes. These are foundational layers for the patterns of movement that develop later. Babies need to be kept free as much as possible to practice the movement sequences allowing more mature patterns that supersede the primitive reflexes. As pointed by Sally Goddard Blyth, "Reflex integration is written into the developmental blueprint of every normal infant. Provided that the baby has space and opportunity to move, to exercise and to practice movements, the reflexes of infancy should wax and wane in accordance with nature's developmental plan"³. By fixating the baby's head position, the neck ring hinders the healthy development of the neuro-pathways accompanying the emergence of postural reflexes, while possibly encouraging a prolonged reliance on earlier primitive reflexes.

This is particularly important in the case of one of the main primitive reflex, the asymmetric tonic reflex that prompts babies to extend and turn their limbs to the opposite side of their heads. This reflex later gives way to the postural segmentary rolling reflex, the beginning of fun rotations and possibly the key foundation movement of early swimming. Babies floating in neck rings can move their arms and their legs, this is true, but they do so in a linear plane with hardly any scope for lateral movement. Neck rings inhibit full body rotation. In addition, the artificial vertical position maintained by the neck ring impairs babies' preferred body balance in water, usually at an angle of about 30 to 45 degrees to the water surface until well into their second year. Rotation is also key for the healthy development of the vestibular system, upon which our sense of balance and our proprioception, the ability to sense stimuli arising within the body regarding position, motion, and equilibrium, depends ever since mid-pregnancy. Vestibular stimulation is one of the great boons of baby swimming activities, as water allows rotations in 3D in contrast with land-based movements determined by gravity. If babies are encouraged to rotate early in water, they uniquely work out their way to surface to breathe after gaining strength and coordination of leg and arm movements in their second or third year.

When babies over three months are placed in neck rings, this may also interfere with the neuro pathways associated with the head-righting reflex that helps babies aged between 3 and 6 months respond to their spontaneous desire to sit up. It takes a disproportionate effort and muscular tension for babies in neck rings to try and right themselves up, which they are naturally driven to do. Neck rings not only fail to assist the fundamental evolution of primitive into postural reflexes, but they also make babies passive rather than enabling them to physically take advantage of challenges and opportunities while being in water. A device that claims total safety and apparent comfort for babies, yet deprives them of a freedom to move which we now know can have long term implications,⁴ cannot be promoted for routine use without serious warnings to all parents.

One of the main benefits of baby swimming in which babies are supported in their parents' arms is precisely that babies can enjoy freedom of movement in an unbounded space yet within holds that are not static but constantly responding to the fluid properties of water.

³ Goddard Blyth, Sally. 2002. *Reflexes Learning and Behaviour: A Window into the Child's Mind*. p.27. Goddard Blyth, Sally. 2005. *What babies and children really need: How Mothers and Fathers Can Nurture Children's Growth for Health and Wellbeing (Early Years)*. Stroud: Hawthorn Press. p.154.

⁴ Hannaford, Carla. 2007 (1995) *Smart Moves: Why Learning is not All in your Head*. Great River Books.

Touch, in water as on land, is vitally important to enable babies' safe self-expression through body language.⁵ Second by second, the mutual adjustments of parent and baby in water, particularly if the parent is relaxed, are not only conducive to babies' spontaneous movements that correspond to their developmental stage, but are also part of communication and a mutual learning process. The fact that babies are social and learn through inter-personal and intimate relations mediated by loving care⁶ is now too well known to be ignored for the sake of using a new gadget on the block. The benefits of being in a large tub or pool with a parent are incommensurate with the limited sensory stimuli that babies floating in neck rings may receive; besides greater freedom of movement, tactile contact with a loved person is crucial to promote the integration of the senses, or 'synaesthesia' that underscores babies' learning as an intersubjective process⁷. In water, the undistracted moments of intimacy that allow parents to get to know, understand and respond to their babies are magical triggers for more neuro-pathways, those that consolidate babies' sense of being securely loved. Babies' memory has recently been shown to be far more developed, even before birth, than we thought was possible even two decades ago⁸. The fetal experience of floating within the safety of the mother's body, with alternating periods of activity and rest, needs to be continued in this way after birth, if at all. The connection with the aquatic environment can enhance togetherness and belonging in a dynamic engagement with a parent to build trust, strengthen the bonding process and lead to secure attachment.

The experience of a close bond is perhaps what draws more and more fathers to baby swimming as a guys' 'to-do-thing' with their babies. The neurophysiology of attachment is possibly one of the most interesting areas of late twentieth century scientific research on parenting.⁹ To place babies in neck rings on their own in water is to seriously miss out on what the water can uniquely offer to promote and mediate a dynamic connection between parents and their babies. As Shawn Tomlinson puts it, "a neck ring creates a vacuum where the baby is incapacitated and cannot connect with anyone or anything. There are no safe boundaries to touch or feel. Self-expression through body language, which the water ideally facilitates, is lost because movements are restricted." Following Tiffany Fields, Shawn points out further that tactile contact, crucially missing in the baby spa experience, "provides a feedback loop for body awareness and body mapping. This happens especially in water, where sensory integration or dysfunction can happen so easily due to all the senses being exposed and stimulated." While disengaging from the world in floating tanks can be wonderfully relaxing for stressed adults, it is not what babies want nor need.

When they are not asleep, babies want to grow by being active. In their intense first year of life, babies learn by finding their midline, rolling over, sitting up, crawling, and eventually walking. Water expands babies' opportunities to explore the reflexes, movement patterns and pathways for sensory and motor development that help them reach and integrate these milestones, and water parenting facilitates self-awareness, effective movement strategies

⁵ Fields, Tiffany. 2014. *Touch* (updated second edition). MIT Press. P.5. See also Miami Touch Research Institute: www6.miami.edu/touch-research

⁶ Murray, Lynne. 2014. *The Psychology of Babies: How relationships support development from birth to two*. London: Constable. Gerhardt, Sue. 2004. *Why Love Matters: How affection shapes a baby's brain*. London: Routledge.

⁷ Bullowa, Margaret ed. *Before Speech: The Beginning of Interpersonal Communication*. (See chapter by C. Trevarthen on synaesthesia and inter-subjectivity)

⁸ Dirix, C et al. 2009. Aspects of Fetal Learning and Memory. *Child Development* Volume 80, Issue 4. Pages 1251–1258

⁹ Sunderland, Margo. 2016 (second updated edition). *The Science of Parenting*. Dorling Kindersley.

and integrated relationships. The risks linked to the frequent use of a device that restricts both movement and closeness for babies in water must be carefully evaluated, so that parents can make better informed decisions – a view that is supported by STA, as the leading provider of baby swimming teaching.

About Birthlight

For the last 20 years, Birthlight's teaching methodology has focused on the belief that a lifelong love of water and enjoyment of swimming are best generated by a confident and loving handling of babies in water, by swimming with babies and by imparting gentle progressive methods towards unaided swimming, without ever resorting to forceful conditioning.

www.birthlight.co.uk



About STA

Founded in 1932, STA is a registered charity whose objective is 'The preservation of human life by the teaching of swimming, lifesaving and survival techniques'. As an accredited awarding body, STA is also recognised internationally for its range of swimming teaching, lifesaving, first aid and pool plant management qualifications – and is the UK's leading expert in baby swimming teaching.

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