

ESSENTIALLY MIDIRS

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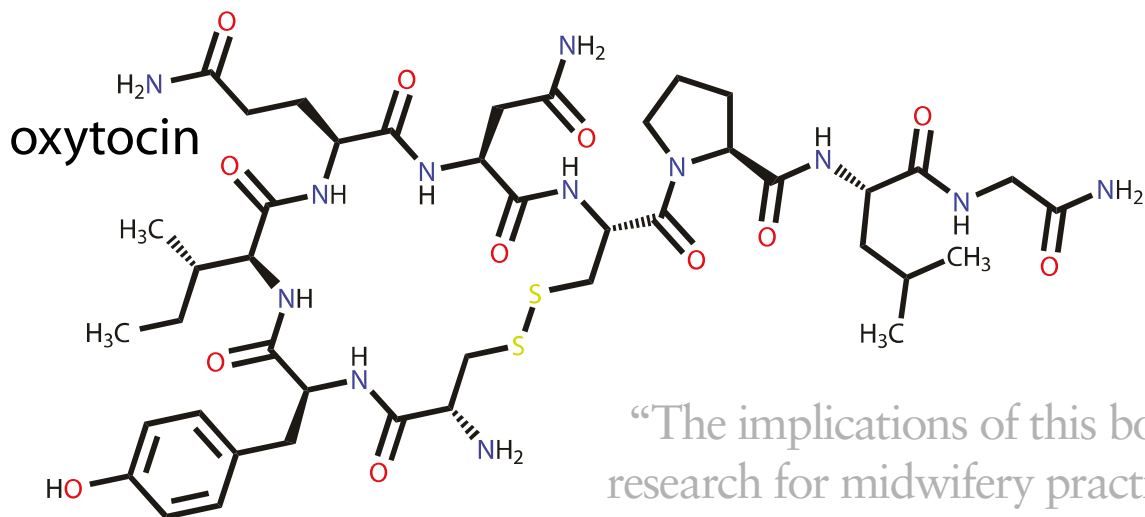


Inducing trust: does oxytocin augmentation affect decision making in labour?

Trust has long been described as a key component of effective and high-quality relationships in maternity care, particularly the midwife-mother relationship, and that mutual trust is a positive benefit of relationships that develop between midwives and women (Edwards 2010). A link between trust and oxytocin has been explored in a variety of ways in midwifery literature and research.

Tricia Anderson, influenced by the research of Kerstin Uvnäs-Moberg, described the trust-oxytocin feedback circuit in terms of a 'calm and connect' interaction and how it is the role of the midwife to promote a trusting environment in which the woman can 'let go' (Kennedy *et al* 2010). Trust, which has been developed and maintained in a midwife-mother relationship, provides a context where *'a skilled midwife can provide a sense of security that enables women safely to enter the*

disconnected state and thus facilitate the birth process' (Anderson 2010:125). Conversely trust which is broken can collapse the midwife-mother relationship in an instant and lead to a sense of betrayal, which can have a detrimental effect on a woman's labour, causing her oxytocin levels to drop as she becomes stressed, anxious or on her guard (Kennedy *et al* 2010). Michel Odent has championed the role of oxytocin and the need to keep birth as undisturbed as possible; he has raised the profile



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of a wide range of factors associated with oxytocin including attachment and what he calls the ‘capacity to love’ (Odent 2001). Midwifery literature recognises that trusting relationships can facilitate physiological oxytocin release and are crucial to good midwifery practice.

However, the question we should perhaps ask is, what happens when we administer artificial oxytocin, and does it have an effect on trust and trusting behaviour?

Oxytocin was first synthetically produced in 1955 and has been used in obstetrics since the 1960s to artificially induce and augment labour by stimulating uterine contractions (den Hertog *et al* 2001). The complex role and function of oxytocin in humans is not fully understood — the hormone, a neuropeptide produced in the hypothalamus and released into the bloodstream from the posterior pituitary gland (it can also be produced peripherally in the ovary, testis, adrenal, thymus and pancreas), is released in a pulsatile manner which cannot be precisely replicated in artificial administration. It is understood to have an effect on social behaviour, attachment and has a central role in childbirth and lactation. Oxytocin is released during labour, lactation, sexual activity, various social interactions and stress

events (Uvnäs-Moberg 2003, MacDonald & MacDonald 2010, Prevost *et al* 2014). Research into naturally occurring oxytocin levels in pregnancy and the postpartum period has only recently begun to be investigated and it seems there is wide variation in the range of endogenous plasma oxytocin levels, perhaps partly because of the difficulty in obtaining an accurate sample due to the pulsatile nature of oxytocin release, the role of oxytocin receptors and how oxytocin release is affected by the social aspects of the research context (Prevost *et al* 2014). There is also some evidence that the proliferation of oxytocin receptors in childbirth, rather than oxytocin levels, are of significance and that plasma levels are only one part of the complex system (MacDonald & MacDonald 2010). It has been suggested that higher endogenous oxytocin levels provide a protective factor in women at higher risk of psychosocial stress (Zelkowitz *et al* 2014).

While synthetic oxytocin is routinely used to induce and augment labour, it operates differently to endogenous oxytocin, and even though we utilise its mechanical benefits, we do not fully understand its behavioural or psychological effects. Some emerging research suggests that exogenous oxytocin *can* affect babies, that it remains

present in mothers postnatally, and that it may have long-term effects which we do not yet understand (Tsimis 2013, Microbirth 2014, Prevost *et al* 2014). One of the suggestions Prevost *et al* put forward (2014) was that exogenous oxytocin administered during labour does have long-term effects and that research is urgently needed to determine what these physiological or psychological effects may be. While it is imperative to ask questions about the long-term implications of artificial oxytocin administration, are there other possible short-term effects which may be implicated from related disciplines?

Research into oxytocin in behavioural psychology and neuroendocrinology over the last decade has associated oxytocin with human trustworthiness and social behaviour, and suggests that oxytocin plays a key role in the neural circuitry of trust and trusting behaviour (Kosfeld *et al* 2005, Baumgartner *et al* 2008, Klackl *et al* 2013) and social decision making (MacDonald & MacDonald 2010). In neuroscience it is the field of neuroeconomics that has generated important new data, which contributes to our understanding of the role of oxytocin in complex ‘real-world’ social decision making contexts. Neuroeconomics uses a combination of neuroscientific tools with

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economic experiments involving monetary exchanges between investors and trustees, in trust and risk games to evaluate what role oxytocin plays in decision making and trusting behaviours. The games yield rich data as they are suited to experimentation while maintaining real features of social interaction. This body of research has led to work on the therapeutic uses of oxytocin for psychiatric disorders involving social behavioural deficits.

Studies from behavioural psychology appear to indicate that artificially administered oxytocin (in the form of a nasal spray) in a trial of participants randomised and double-blinded to a trust game, showed no change in their trusting behaviour after learning that their trust had been betrayed on a number of occasions, while participants receiving the placebo decreased their trusting behaviour: *'...those who received the placebo respond to the feedback with a decrease in trusting behaviour while subjects with oxytocin demonstrate no change in their trusting behaviour although they were informed that their interaction partners did not honor their trust in roughly 50% of the cases... subjects in the oxytocin group need significantly less time to make a trusting decision, consistent with the view that it is easier for them to overcome the trust-inhibiting force of betrayal aversion'* (Baumgartner *et al* 2008:644). Moreover, not only does the administration of oxytocin bias socially sensitive decision making and behaviours, it does this without the subject's conscious awareness (MacDonald & MacDonald 2010). The implications of this body of research for midwifery practice and obstetrics is significant because it raises the important question of whether oxytocin augmentation may cause behavioural changes in labouring women.

“The question of whether women are more vulnerable to coercive and directive care management when receiving oxytocin augmentation should be asked”

References

- Anderson T (2010). Feeling safe enough to let go: the relationship between a woman and her midwife during the second stage of labour. In: Kirkham M ed. *The midwife-mother relationship*, 2nd ed. Basingstoke: Palgrave Macmillan:116-43.
- Baumgartner T, Heinrichs M, Vonlanthen A *et al* (2008). Oxytocin shapes the neural circuitry of trust and trust adaptation in humans. *Neuron* 58(4):639-50.
- den Hertog CE, de Groot AN, van Dongen PW (2001). History and use of oxytocics. *European Journal of Obstetrics and Gynecology and Reproductive Biology* 94(1): 8-12.
- Edwards N (2010). There's so much potential... and for whatever reason it's not being realised: women's relationships with midwives as a negotiation of ideology and practice. In: Kirkham M ed. *The midwife-mother relationship*, 2nd ed. Basingstoke: Palgrave Macmillan:91-115.
- Hoge EA, Anderson E, Lawson EA *et al* (2014). Gender moderates the effect of oxytocin on social judgements. *Human Psychopharmacology* 29(3):299-304.
- Kennedy HP, Anderson T, Leap N (2010). Midwifery presence: philosophy, science and art. In: Walsh D, Downe S eds. *Essential midwifery practice: intrapartum care*. Oxford: Wiley-Blackwell:105-23.
- Klackl J, Pfundmair M, Agroskin D *et al* (2013). Who is to blame? Oxytocin promotes nonpersonalistic attributions in response to a trust betrayal. *Biological Psychology* 92(2): 387-94.
- Kosfeld M, Heinrichs M, Zak PJ *et al* (2005). Oxytocin increases trust in humans. *Nature* 435(7042):673-6.
- MacDonald K, MacDonald TM (2010). The peptide that binds: a systematic review of oxytocin and its prosocial effect in humans. *The Harvard Review of Psychiatry* 18(1):1-21.
- MicroBirth* (2014). Directed by Harman T, Wakeford A [Film]. Brighton: Alto Film.
- Odent M (2001). *The scientification of love*. London: Free Association Books.
- Prevost M, Zelkowitz P, Tulandi T *et al* (2014). Oxytocin in pregnancy and the postpartum: relations to labor and its management. *Frontiers in Public Health* 2(1):1-9.
- Rilling JK, DeMarco AC, Hackett PD *et al* (2014). Sex differences in the neural and behavioral response to intranasal oxytocin and vasopressin during human social interaction. *Psychoneuroendocrinology* 39:237-48.
- Scheele D, Striepens N, Kendrick KM *et al* (2014). Opposing effects of oxytocin on moral judgement in males and females. *Human Brain Mapping* 35(12):6067-76.
- Tsimis M (2013). *Study finds adverse effects of pitocin in newborns*. <http://bit.ly/1yyT8ZM> [Accessed 5 November 2014].
- Uvnäs-Moberg K (2003). *The oxytocin factor: tapping the hormone of calm, love and healing*. Cambridge: Da Capo Press.
- Zelkowitz P, Gold I, Feeley N *et al* (2014). Psychosocial stress moderates the relationships between oxytocin, perinatal depression, and maternal behavior. *Hormones and Behavior* 66(2):351-60.

We need to urgently ask whether the artificial administration of oxytocin in labouring women increases their trust of care providers and reduces their capacity to make fully informed and truly shared decisions. We know that men and women have different responses to oxytocin (Hoge *et al* 2014, Rilling *et al* 2014) and while we cannot draw any conclusions from these studies, which are largely conducted on male participants, the association between oxytocin administration and trusting behaviour cannot be ignored — because of its potential for biasing decision making by women being given artificial oxytocin in the social situation of care provision. Some studies suggest that oxytocin has the specific effect of increasing altruistic behaviours in women and suppressing their own needs for the benefit of others. This observation could suggest that artificial oxytocin administration has the potential to render women especially susceptible to making decisions that may not be in their own best interest (Scheele 2014). The question of whether women are more vulnerable to coercive and directive care management when receiving oxytocin augmentation should be asked. Could the cascade of interventions associated with oxytocin augmentation

result, in part, from the pharmacological effect of artificial oxytocin on a woman's prosocial bias towards her care providers, and could her capacity to evaluate subsequent intervention be impaired? It would be important to ask how oxytocin augmentation might affect a woman's pre-existing beliefs and knowledge about birth, and evaluate to what extent a woman's birth preferences could be 'reshaped' under its influence during in-labour negotiations with her care providers.

It is suggested that trusting relationships create the most advantageous setting in which a woman may physiologically produce her own optimal levels of endogenous oxytocin. Conversely, the relationship between a woman and her care provider may be open to question due to — as yet — unconsidered behavioural consequences resulting from artificial oxytocin administration. Trustworthiness is a fundamental quality of ethical care provision and practitioner integrity, and if there is a possibility that women's trust in care providers may be pharmacologically enhanced by oxytocin augmentation then this needs to be urgently evaluated as an ethical imperative.



Mariamni Plested

Mariamni Plested RM, BSc (Hons), MA (Oxon)

Mariamni is a qualitative midwife researcher with a special interest in women's experiences of childbirth and midwifery attitudes around 'high-risk' or unconventional birth choices. Other research interests include the spirituality of birth, birth art, creativity in midwifery practice, and hermeneutic phenomenology. She currently divides her time between research projects based in the UK and graduate study in the USA where she is a PhD student at Marquette University exploring the meaning of 'trust' in midwifery relationships. She also runs 'The Nativity Studio' making birth art with families and birth workers, and blogs at midwifemariamni.wordpress.com.