FI Research Summary: Dads and Hormones

Substantial research has found no biologically-based differences between the sexes in sensitivity to infants (for review, see Lamb et al, 1987) or in capacity to provide intimate care (for review see, Parke, 2008). Levels of 'nurturing hormones' (see below) are the same in men and women exposed to 'infant stimuli' before their babies are born (Storey et al, 2000) and when interacting with them afterwards (Feldman et al, 2010). Fathers' responsiveness seems to vary depending on the degree to which they assume responsibility for the care of their infants (Lamb and Lewis, 2010).

It has long been known that fathers who undertake a lot of care bond more quickly with their babies and are likely to enjoy fatherhood more (Goodman, 2005; Barclay & Lupton, 1999; Henderson & Browse, 1991). But only relatively recently have researchers begun to understand the neuroendocrine and neurobiological changes brought about in human males (as in females) through proximity to infants and pregnant women, and through acts of caretaking. For example, we now know that:

- within fifteen minutes of holding a baby, human males experience raised levels of hormones associated with tolerance/trust (oxytocin), sensitivity to infants (cortisol) and brooding/lactation/bonding (prolactin); and that
- the more experienced a male is as a caregiver, the quicker and more pronounced are the hormonal changes (Atzil et al., 2012, Gray & Anderson, 2010).

Reports by fathers of pre-term infants, that the sooner they hold their babies, the sooner they experience feelings of warmth and love for them (Sullivan, 1999) may be related to such neurobiological changes.

Research into the relationship between testosterone levels and infant caretaking in males is also proving instructive:

- Testosterone levels drop in men who co-reside with a pregnant female (Berg and Wynne-Edwards, 2001), possibly as a result of the increases in some of the hormones mentioned above.
- Testosterone levels remain low after the birth (Gettler et al, 2011)and over the first year, reduced by about one third and found to be lowest in the dads actively involved in caretaking or co-sleeping with their babies (Gettler et al, 2013).
- Low testosterone in males is connected with greater sensitivity to infants (Fleming et al, 2002) and may also bolster a male's immune system, decreasing the chances of passing pathogens and infections to newborns (Bribiescas, 2013).

In rodents, complex brain changes have been found in both males and females that become parents and care for their 'pups'. Such changes – flexible thinking, managing feelings and paying more attention to others – persist long after the pups are weaned, making active rodent parents of both sexes 'smarter' (Lambert, 2012). There is also mounting evidence that the very structure of the human brain is altered by the cognitive challenges inherent in learning how to parent (Rilling, 2013).

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