

KMC and Brain Development .

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Maternal infant skin-to-skin contact (SSC) is the actual intervention underlying what we commonly called Kangaroo Mother Care. Both SSC and the total KMC strategy (kangaroo position, nutrition and discharge) are becoming increasingly accepted, but there is less information on a coherent scientific rationale. I present such a rationale, built on the central dogma of all biological processes: “the DNA makes proteins, which make the brain, which with more DNA makes everything else” (Panksepp). The adaptation in epigenetics, sensory experience for developmental neuroscience, and reproductive fitness in evolutionary biology converge holistically in this understanding. The common thread in all these is the environment. In the field called “evolutionary biology” a key concept is the “Environment of Evolutionary Adaptedness” (EEA). For human infants this is the mother’s chest, defined in essence as SSC. The place determines the behaviour, which by definition for a mammal means breastfeeding. An infant that is safe with mother and breastfeeding must be at home. This is KMC.

The environment is never static, and the EEA spans a spectrum from “expected” through “harsh” to “hostile”. Genetic and neurological adaptations in harsh environments allow the organism to achieve “reproductive fitness”, by trading optimal development and well-being for a shorter lifespan with rapid reproduction. The mechanisms whereby this is achieved have recently been revealed, they are triggered by maternal separation, leading to “toxic stress”, autonomic activation with high cortisol. The concept of “allostasis” further elaborates how long term adverse effects follow from early life events. The basis of this understanding comes from mammal research on maternal neonate separation models. Early in 2012, the AAP published a summary of the above scientific rationale, entitled “Early adversity, Toxic Stress and the role of the Paediatrician” (Garner). This fails however to emphasise the relevance of this research to the neonatal period.

My own recently published research will be presented showing that maternal separation trebles autonomic nervous system tone, and dramatically impacts quality of sleep, compared to SSC. These findings are consistent with the science presented. In terms of our evolutionary biology, this suggests that infants should not sleep alone, and any clinical care in the absence of mother may be experienced as “toxic stress”. SSC is currently seen as a non-invasive intervention; the challenge for the future is to view it as the normal care environment.

The scientific rationale is actually that what we call KMC is actually our normal biology, and brain development is only normal in the normal place: skin-to-skin contact on mother. What we should be studying and describing is the harm to normal brain development, caused by toxic stress that follows maternal infant separation.

