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Kangaroo mother care: the long-term benefits of closeness in the early days of life

It's become increasingly clear over decades of studies that the early days, months and years of a child's life hold overwhelming significance for their future outcomes, including both physical and mental health. The remarkable findings of a recent study suggest that close skin-to-skin contact between mother and baby combined with breastfeeding in the early days creates demonstrable improvements to the child's outcomes that are still evident even after 20 years (<http://pediatrics.aappublications.org/content/139/1/e20162063>).

Known as kangaroo mother care

(http://www.who.int/maternal_child_adolescent/documents/9241590351/en), this technique is associated with the care of low-birthweight premature babies and is defined as skin-to-skin contact between a mother (or father) and their newborn, frequent and exclusive or nearly-exclusive breastfeeding, and early discharge from hospital. The study examined a group of small, premature babies, first studied between 1993 and 1996 in order to determine the benefits of kangaroo mother care at one year of age. At the time, short-term benefits were found to include improvements in IQ, growth and less severe infections (<http://pediatrics.aappublications.org/content/108/5/1072.long>). Approximately 500 of the near 700 participants were studied again between 2012 and 2014 and long-lasting benefits relating to IQ, social and behavioural development were still evident 20 years later. The question is why.

It is not easy to answer that question since kangaroo mother care is a group of interventions making it difficult to know where the effects of one start and another end. That said, what each element of kangaroo mother care has in common is the closeness between parent and baby. It may be that the benefits of the technique are tied up with the physical and emotional closeness and avoidance of separation that it offers.

Importance of the physical bond

But how can physical closeness at one time of life have lasting emotional benefits? The link between physical closeness and the psychological process of bonding and attachment is well

documented (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3468719>). In neonatal care, the effects of separation may have a profoundly negative effect on the bonding process, which in turn may affect the baby's psycho-emotional development.

Skin-to-skin contact between the baby and the body or chest of the parent may cause several physical changes in both. For example, it stimulates the release of the hormone oxytocin which plays a crucial role in a mother's bonding behaviour, in turn positively affecting mood and interactions with the baby. Close physical contact can also decrease babies' cortisol levels, a chemical associated with the stress response and a reduction in the signs of pain.

Brain Development

Premature babies are born at a period when the body is maturing fast. Any interruption to this process due to being deprived of an optimal environment inside the womb, can significantly affect development. Brazelton, a leading expert in infant behaviour (<http://www.brazelton.co.uk>) has asserted that a premature baby's nervous system becomes more easily organised while in a calm environment, without excessive stimuli. Kangaroo mother care can provide this through the calming effect of close contact, mimicking to some extent that experienced in the womb. Several other studies since have corroborated this idea ([http://www.earlyhumandevlopment.com/article/S0378-3782\(07\)00054-0/abstract](http://www.earlyhumandevlopment.com/article/S0378-3782(07)00054-0/abstract) <http://pediatrics.aappublications.org/content/129/5/e1322>).

Because the brain of a premature baby is vulnerable, it is at risk of abnormal brain development, and subsequent problems later in life. However, the human brain's plasticity affords it the potential to compensate for injury. In this case, it's not only the link between physical closeness and psychological stability that is important but it is also the part played by a favourable environment to which a baby is exposed – something kangaroo mother care appears to provide. Certainly, there is a body of evidence in both humans and animals suggesting that brain development is influenced by the quality of care given to babies in early postnatal life (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2818078>).

Studies of brain volume in children born prematurely have shown that premature birth can reduce an area of the brain known as the [caudate nucleus](#). Charpak's study proposes that the group of babies the team studied might have experienced an increase in the volume of the

caudate nucleus through the interplay of the plasticity of their brains and the effects of kangaroo mother care.

Enhancing connections

Finally, the close and constant presence of a parent may provide the baby with learning experiences that they might not receive, such as interactivity and communication. It has been found that exposure to parent talk in the neonatal intensive care unit was a significantly stronger predictor of preterm baby vocalisations than talk from other adults

(<http://pediatrics.aappublications.org/content/128/5/910.long>).

All this poses a final question, of whether the effects of kangaroo mother care can be applied to babies other than those born prematurely. The principles of closeness and the avoidance of separation are supported by research that indicates a positive nurturing environment is linked to better psychological outcomes for the child

(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3621015> <http://www.bjdd.org/new/105/81to95.pdf>).

It seems this combination of biology and the environment in the early days and weeks after birth is vital for any child, as they form the early foundations for both psycho-emotional development and physical development of the brain.

So although the exact nature of how parental closeness leads to improved child outcomes is not clear, studies reveal a close relationship between early emotional connection and later outcomes. Kangaroo mothercare is a free healthcare intervention that should be offered and promoted to all babies and their families in any setting as early as possible to promote the closeness that can have a demonstrable and long-lasting effect on the child.

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