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'Kangaroo mother care' helps preterm babies survive ... but offers benefits for all

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Kangaroo mother care: the marsupials have got it right. Lilla Frerichs

Author



Julia Petty

Senior Lecturer in Children's Nursing,
University of Hertfordshire

It's become increasingly clear over decades of studies that the early days, months and years of a child's life are critical for their future 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 future health and well-being that are still evident even after 20 years.

This technique, known as "kangaroo mother care" is generally associated with caring for low-birthweight premature babies. It features skin-to-skin contact between a mother (or father) and their newborn, frequent and exclusive or nearly-exclusive breastfeeding, and early discharge from hospital.

A previous study between 1993 and 1996 had examined a group of small, premature babies 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 and growth, and fewer severe infections. For this new study, led by Nathalie Charpak of the Fundación Canguro in Bogotá, Colombia, alongside a team of medics and academics drawn from universities in Colombia and Québec, Canada, around 500 of the nearly 700 original participants were contacted and studied again between 2012 and 2014. The benefits relating to IQ, social and behavioural development were long-lasting and still evident 20 years later.

The question is, why does kangaroo mother care have this affect? It is not an easy question to answer. Kangaroo mother care is a group of interventions, which makes it difficult to know where the effects of one start and those of another end. That said, what each element of kangaroo mother care has in common is the closeness between parent and baby, in comparison to a typical approach of nursing preterm babies within an enclosed incubator. 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.



Edith's twin boys, strapped to their grandmother's chest in the Queen Elizabeth hospital in Blantyre, Malawi. DFID, CC BY

Importance of the physical bond

How can physical closeness at one time of life have physical and emotional benefits that last decades? The link between physical closeness and the psychological process of bonding and attachment is well documented. 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 stimulates the release of the hormone oxytocin. This plays a crucial role in a mother's bonding behaviour, in turn positively affecting her 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.

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. The **Brazelton Centre**, an expert centre in infant behaviour, has asserted that a premature baby's nervous system becomes more easily organised while in a calm environment without excessive stimuli. Kangaroo mother care provides 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.



Incubator care is common, but doesn't have the same positive benefits as kangaroo mother care. Jacoplane, CC BY-SA

Given their vulnerability, the brains of premature babies are at risk of abnormal 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 also the part played by a favourable environment to which a baby is exposed – something kangaroo mother care appears to provide. There is evidence in both humans and animals that suggests that brain development is influenced by the quality of care given to babies in early postnatal life.

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. Exposure to parent talk in the neonatal intensive care unit has been found to be a significantly stronger predictor of preterm baby vocalisations than talk from other adults, for example.

All this poses another question: whether the effects of kangaroo mother care apply to babies beyond only those born prematurely? The principles of closeness and the avoidance of separation are supported by research that indicates that a positive nurturing environment is linked to better psychological outcomes for the child. It seems that 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 the physical development of the brain and the child's psycho-emotional development.

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 the child's later health and well-being. Cost free and straightforward, kangaroo mother care should be promoted to all parents and their babies in any setting as early as possible in order to promote the closeness that can have a demonstrable and long-lasting effect on the child.

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