



### *Kangaroo Care*

Kangaroo care is a way of holding a preterm or full term infant so that there is skin-to-skin contact between the infant and the person holding it. The baby, wearing only a diaper, is held against the parent's bare chest. Kangaroo care for preterm infants is typically practiced for two to three hours per day over an extended time period in early infancy. With babies who are medically stable, there is no maximum duration for kangaroo care. Some parents may keep their babies in-arms for many hours per day.

The label kangaroo care was chosen to describe this strategy because the method is similar to how a kangaroo is carried by its mother. It is estimated that more than 200 neonatal intensive care units practice kangaroo care today compared to less than 70 in the early 1990s. One recent survey found that 82 percent of neonatal intensive care units use kangaroo care in the United States today.

Researchers have found that the close physical contact with the parent can help to stabilize the preterm infant's heartbeat, temperature, and breathing. Preterm infants often have difficulty coordinating their breathing and heart rate. Researchers also have found that mothers who use kangaroo care often have more success with breastfeeding and improve their milk supply. Further, researchers have found that preterm infants who experience kangaroo care have longer periods of sleep, gain more weight, decrease their crying, have longer periods of alertness, and earlier hospital discharge.

Kangaroo Care (also Kangaroo Maternal [Mother] Care or Skin-to-Skin Contact and Breastfeeding) is a method used to restore the unique mother-infant bond following the sudden separation during the birth experience particularly in premature births. It

consists of skin-to-skin contact, exclusive breastfeeding, and support for the mother-infant pair (Kirsten, Bergman, & Hann, 2001).

### *Traditional hospital care of premature and small newborns*

In many western cultures, the birth process has become a medical procedure. Once a baby is delivered, he or she is tended to by health professionals who provide medical care for the baby apart from the mother and for the mother apart from her baby. Often, infants are removed from the mother to be washed, weighed, measured, and sometimes given artificial nourishment (London, Ladewig, Ball & Bindler, 2006). This is physiologically and emotionally disruptive to a baby who has been securely positioned for months in the womb, in constant contact with the mother and her familiar rhythms.

When the newborn is premature or a small size, there are additional concerns and stressors. Neonatal intensive care nurseries (NICU) have developed to provide specialized, direct care in an environment that is noisy and bright and totally unfamiliar. Incubators with thermostats are used to keep the baby warm and visible. The people around the new infant have foreign voices. The pace of the environment is remarkably different from that of the uterus and physiologically the newborn exhibits increased responses to the dramatic change that has taken place. The neonatal attachment has been essentially interrupted. Artificial temperature regulation, feeding, and lack of physical contact can have significant deleterious effects on even normal, term newborns. For the premature infant, the effects are compounded.

### *Description of kangaroo care*

Kangaroo care seeks to provide restored closeness of the newborn with mother and/or father by placing the infant in direct skin-to-skin contact with one of them. This ensures physiological and psychological warmth and bonding. The kangaroo position provides ready access to nourishment. The mother's body responds to the needs of the infant directly, helping regulate temperature more smoothly than an incubator, her milk adjusts to the nutritional and immunological needs of her fragile infant, and the baby sleeps more soundly.

### *Historical notes on kangaroo care*

Not all areas in the world have resources to provide technical intervention and health care workers for premature and low weight babies. In 1978, due to increasing morbidity and mortality rates in the Instituto Materno Infantil NICU in Bogotá, Colombia, Dr. Edgar Rey Sanabria, Professor of Neonatology at Department of Paediatrics - Universidad Nacional de Colombia, introduced a method to alleviate the shortage of caregivers and lack of resources. He suggested that mothers have continuous skin-to-skin contact with their low birth weight babies to keep them warm and to give exclusive breastfeeding as they needed. This freed up overcrowded incubator space and care givers.

Another feature of kangaroo care was early discharge in the kangaroo position despite prematurity. It has proven successful in improving survival rates of premature and low birth weight newborns and in lowering the risks of nosocomial infection, severe illness, and lower respiratory tract disease (Conde-Agudelo, Diaz-Rossello, & Belizan, 2003). It also increased exclusive breast feeding and for a longer duration and improved maternal satisfaction and confidence. (Charpak et al., 2005)

### *Indications for kangaroo care*

Originally babies who were eligible for kangaroo care were pre-term infants, less than 1500 grams, and breathing on their own. Cardiopulmonary monitoring, oximetry, supplemental oxygen or nasal continuous positive airway pressure (CPAP) ventilation, intravenous infusions, and monitor leads do not prevent kangaroo care. In fact, babies who are in kangaroo care tend to be less prone to apnea and bradycardia and have stabilization of oxygen needs. (London, Ladewig, Ball & Bindler, 2006; Robles, 1995).

During the early 1990's, the concept was advocated in North America for premature babies in NICU and later for full term babies. Research has been done in developed countries but there is a lag in implementation of kangaroo care due to ready access of incubators and technology.

### *Method of managing kangaroo care*

Typically in kangaroo care, the baby wears only a diaper and is held in an upright position on a parent's bare chest - tummy to tummy. During this time, which may last 1 hour or longer, the parent is comfortably seated while holding their infant. The baby may also be tied in a head-up position to the mother's bare chest with a strip of cloth in a manner that extends the baby's head and neck to prevent apnea. The mother wears a shirt or hospital gown with opening to the front. The cloth wraps around and under the baby's bottom to create flexion.

The tight bundling is enough for the mother's breathing and chest movement to stimulate the baby's breathing. Because of the close confines of being attached to his (her) mother's chest, the baby is enclosed in a high carbon dioxide environment which also stimulates breathing. Fathers can also use the skin-to-skin contact method.

Beginning kangaroo care 30 minutes to 2 hours after birth seems to be the most effective time period

for successful breastfeeding. Many advocates of natural birth encourage immediate skin-to-skin contact between mother and baby after birth, with minimal disruption. Babies must be kept warm and dry. This method can be used continuously around the clock or for short periods per day gradually increasing as tolerated for infants who are compromised by severe health problems. It can be started at birth or within hours, days, or weeks after birth. Proponents of kangaroo care encourage maintaining skin-to-skin contact method for about six weeks so that both baby and mother are established in breastfeeding and have achieved physiological recovery from the birth process. (Mohrbacher & Stock, 2003; London et al., 2006)

The practice of babywearing is used by many parents of both preterm and full term newborns to facilitate kangaroo care. A variety of slings and other carriers may be used, some are designed specifically for neonates and the classic “upright between the breasts” positioning, and some are intended for a wider variety of positions and ages.

### *Benefits of kangaroo care*

#### **For mothers**

- Enhanced attachment and bonding (Tessier et al., 1998)
- Increased milk volume, doubled rates of successful breastfeeding and increased duration of breastfeeding (Mohrbacher & Stock, 2003)
- Physiologically her breasts respond to her infant’s thermal needs (Ludington-Hoe et al., 2006)
- Resilience and feelings of confidence, competence, and satisfaction regarding baby care (Tessier et al., 1998; Conde-Agudelo, Diaz-Rossello, & Belizan, 2003; Kirsten, Bergman, & Hann, 2001)

#### **For preterm and low birth weight infants**

- Normal temperature, heart rate, and respiratory rate (Ludington-Hoe et al., 2005)
- Breast milk is readily available and accessible, and strengthens the infant’s immune system

- The maternal contact causes a calming effect with decreased stress and rapid quiescence (McCain, Ludington-Hoe, Swinth, & Hadeed, 2005; Charpak et al., 2005)
- Reduced physiologic and behavioural pain responses (Ludington-Hoe, Hosseini, & Torowicz, 2005; Johnston et al., 2003)
- Increased weight gain (Charpak, Ruiz-Pelaez, & Figueroa, 2005)
- Enhanced mother-infant bonding (Dodd, 2005)  
Positive effects on infant’s cognitive development (Feldman, Eidelman, Sirota, & Weller, 2002)
- Less nosocomial infection, severe illness, or lower respiratory tract disease (Conde-Agudelo, Diaz-Rossello, & Belizan, 2003)
- Restful sleep (Ludington, Hosseini, & Torowicz, 2005);
- Earlier discharge (London et al., 2006)
- Possible reduced risk of sudden infant death (see [www.infactcanada.ca](http://www.infactcanada.ca))
- Normalized infant growth of premature infants (Charpak, Ruiz-Pelaez, & Figueroa, 2005)
- May be a good intervention for colic (Ellett, Bleah, & Parris, 2002)
- Possible positive effects in motor development of infants (Penalva & Schwartzman, 2006).

#### **For institutions**

- Shorter hospital stay
- Advanced healthcare technology only used in addition to kangaroo care
- Different monitoring of infants
- More parental involvement, with greater opportunities for teaching and assessing
- Better use of healthcare dollars

#### **For the community**

- Less morbidity and mortality especially in developing countries
- Opportunities for teaching during pregnancy and follow-up in preparation for postnatal implementation

- Decreased use of financial resources
- Promotion of total family health.

### *Scientific findings*

Research support has provided evidence that kangaroo care contributes to breastfeeding longer and more frequently; health and survival of premature infants; quiet alertness and deep sleep; less time in incubators; earlier discharge; less crying and distress; fewer illnesses; and fewer readmissions to hospital. There is evidence of better maternal milk supply; increased confidence of mothers; father's participation and acceptance; and empowerment.

Studies have illustrated a greater need for: follow-up research for use of kangaroo care for infants with colic (Ellett, Bleah, & Parris, 2004); for increasing the perception of support parents feel when unexpected set-backs occur (Tessier et al., 1998); for further exploration of the effects of kangaroo care on preterm infants and on making recommendations for kangaroo care routinely for low birth weight infants (Dodd, 2005); clearly defining the effectiveness of the various components of the kangaroo care intervention in different settings and for different therapeutic goals (Penalva & Schwartzman, 2006).

### *Books on Kangaroo Care*

*Kangaroo Care: The Best You Can Do to Help Your Pre-term Infant*, by Susan M. Luddington-Hoe and Susan K. Golant (Bantam Books, 1993).

*Kangaroo Mother Care*, by Bergman (Geddes Productions, 2003)

*More information on Kangaroo Care is available at the March of Dimes website: [http://www.marchofdimes.com/prematurity/5430\\_6074.asp](http://www.marchofdimes.com/prematurity/5430_6074.asp)*