

## A recent advance in first hour feeding – breast crawl

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### Abstract

**Introduction:** Ideally the baby should receive breast feed as soon as possible and preferably within one hour of birth. Breast milk is right of every new born. Initiation of breast feeding in early hours, very minute after birth is crucial. **Material and methods:** A prospective cohort observation study done on 200 research cases & similarly control cases were selected from full term newborn babies delivered vaginally, in one of the tertiary care teaching hospital of central India. **Results:** Out of 200 full term babies, 166 babies able to successfully crawl within 50 min. temperature maintenance were found in 98% of BC babies and 64% of non BC babies. Blood sugar normal in 100% of BC babies and 35% of non BC babies. 100% of breast crawl babies were healthy and 95% of BC babies achieved good weight gain after 15 days follow up. **Conclusions:** Breast crawl helps in faster effective achievement of feeding skill by the baby, getting colostrums, which has many antibodies and anti-infective properties, prevent hypothermia as well as hypoglycemia and boosting neurodevelopment of babies nervous system.

**Keywords:** Breast crawl, Breast feeding, Hypoglycemia, Hypothermia

### Introduction

Mother-infant separation postbirth is common in Western culture. Early skin-to-skin contact (SSC) begins ideally at birth and involves placing the naked baby, head covered with a dry cap and a warm blanket across the back, prone on the mother's bare chest. According to mammalian neuroscience, the intimate contact inherent in this place (habitat) evokes neurobehaviors ensuring fulfilment of basic biological needs. This time may represent a psychophysiological 'sensitive period' for programming future physiology and behaviour [1].

Every new born, when placed on her mother's abdomen, soon after birth, has the ability to find her mother's breast all on her own and to decide when to take the first breastfeed. This is called the 'Breast Crawl'. It was first described in 1987 at the Karolinska Institute in Sweden (Windstorm et al, 1987) [2]. Breastmilk makes the world healthier, smarter, and more equal: these are the conclusions

of a new Lancet Series on breastfeeding. The deaths of 823 000 children and 20 000 mothers each year could be averted through universal breastfeeding, along with economic savings of US\$300 billion [3].

Breastfeeding obviously needs no further justification, but the ways of getting it to work remain very much understudied; we need to know what's going to be the most effective way in helping to offset the long trend away from breastfeeding. Regarding micronutrient supplements, we need to learn how to make sure that children are getting vitamin A and iodine and other interventions that we know work, but where we have yet to crack the nut of how to get them to scale [4].

The human female's nipple-areolar complex (NAC) is the point of arrival of a natural progression from birth to breastfeeding, linked to functional, chemical and biophysical cues that promote the breast crawl soon after birth [5]. For the first time, that a temperature gradient may support mother-infant thermal identification and communication in the

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breastcrawl and in the natural progression of the continuum from birth to breastfeeding [5].

Mother-infant separation post birth is common. In standard hospital care, newborn infants are held wrapped or dressed in their mother's arms, placed in open cribs or under radiant warmers. Skin-to-skin contact (SSC) begins ideally at birth and should last continually until the end of the first breastfeeding. SSC involves placing the dried, naked baby prone on the mother's bare chest, often covered with a warm blanket.

According to mammalian neuroscience, the intimate contact inherent in this place (habitat) evokes neuro-behaviors ensuring fulfilment of basic biological needs. This time frame immediately post birth may represent a 'sensitive period' for programming future physiology and behaviour[1].

So we're very hopeful that the moment is here, and now it's up to us to capitalize on this to make a lasting difference for everybody, starting with this most powerful intervention of all, breastfeeding.

## Material and Methods

**Settings-** Department of paediatrics & neonatology and Department of obstetrics and gynaecology in one of the tertiary care teaching hospital of central India.

**Study Design-** A prospective cohort observational study on 200 babies born in Dr BRAM Hospital Raipur CG.

**Inclusion criteria-** 200 newborn babies of gestational age more than 36 weeks, with Apgar score above 6, weight above 1800 gm, normal and healthy, born by normal vaginal deliveries in labour room of dept of obstetrics and gynaecology medical college Raipur were selected.

**Exclusion criteria-** Those babies born of out born and inborn LSCS, Apgar <6, weight <1800 gm and with congenital anomalies were excluded.

**Summary of The Procedure-** Procedure for Breast Crawl for optimum results

Discuss it with the mother during antenatal visits and Orient the staff to the technique of breast crawl. Avoid labour analgesia as far as possible. After

delivery if the baby has cried well immediately after birth and is stable she/he does not need oro-nasal suction. Dry the baby nicely except for the hands. Raise the mother's head on the pillow so that the mother can see her baby easily during the Breast Crawl. Show the baby to the mother with a cheek to cheek contact. The mother may like to whisper a holy message to the baby. Now keep the naked baby on the mother's abdomen with the head in between the bare, unwashed and unwiped breast. Cover the baby and mother together with a cloth, to keep warm, while skin to skin contact continues. The mother's hand can support the baby's back.

This will help in maintaining the baby's position, avoid slipping of the baby and give the added advantage of maternal touch. Continue in this position till the baby takes the first breast feed; which most will achieve by 30-60 minutes. In case the baby's several attempts to latch on the breast fail, then the baby can be gently moved nearer to the breast and assisted by a helper to attach to the breast. The mother should not be moved out of the labour room till the first breast feed is completed. A female relative or even the father can be called in at the earliest and acceptable time to be a part of this important magical emotional interaction.

Breast odour is strong stimulus which drives the baby towards nipple. The baby's sense of smell is well developed. The odour of a substance secreted by nipple is similar to the smell of a substance in amniotic fluid which surrounds the baby womb. Nipple massage by the baby makes it protract. This helps in attachment. Nipple massage also releases hormone called oxytocin in mother, this helps to contract the uterus, prevent the bleeding and reduce the maternal anaemia. Baby starts to make mouthing movement.

Baby's hand should have amniotic fluid on them, as it guides baby to nipple. Baby's shoulder, hip and neck muscles are sufficiently developed to help the baby to move. Even with its limited vision baby can see areola. If baby raises its head it can also see her mother's face also. The baby then reaches nipple, raises her head and gets nicely attached on to the nipple with her mouth widely open to take a mouthful of breast. This first skin to skin contact must continue until the baby finishes the first breast feed. This is the first feed to the babies that gives moment of joy for mother and baby over a ten

minutes and create higher human potential of successful growth and development, cuddle, love, security and mother baby bonding.

**Instruments used-** babies were resuscitated using standard protocol, babies weighed using standard electronic weighing machine, blood sugar measured

with the help of glucose strips by heel prick method using beta check glucometer.

**Statistical analysis-** Odds ratio and log odds ratio with chi square test of significance were used for statistical analysis of data statistical test of significance was defined as  $p < 0.05$ .

## Results

It was observed that out of 200 babies, 166 were able to reach the breast of mother by crawling with in 30 – 50 minutes of time.

**Table No.-1: Effect of temperature on breast crawl.**

	Maintain temperature (36.37.c)		Not maintain temperature(35-36.c)	
	No.	%	No.	%
Breast crawl	163	98	3	2
Non breast crawl	22	64	12	36

The temperature maintenance were found in 98% of BC babies and 64% of non BC babies, where as temperature were not maintained in 2% of breast crawl babies and 36% of non breast crawl babies.

**Table No.-2: Effect of blood sugar on breast crawl.**

	Normoglycemia (>40 mg/dl)		Hypoglycaemia (<40 mg/dl)	
	No.	%	No.	%
Breast crawl	166	100	0	0
Non breast crawl	12	35	22	75

Blood sugar normal in 100% BC babies and 35% non BC babies whereas hypoglycaemia was found in 75% non BC babies.

**Table No.-3: Effect of crying episode on breast crawl**

	Less crying episode (<2min)		More crying episode(>2 min)	
	No.	%	No.	%
Breast crawl	158	95	8	5
Non breast crawl	6	17	28	83

It has been found that there is decreased duration of crying episode i.e.<2 min in 95% of BC babies and 17% of non BC babies and more crying was found in 5 % of BC and 83% of non BC.

**Table No-4: Effect of sickness of baby on breast crawl.**

	Healthy baby		Sick baby	
	No.	%	No.	%
Breast crawl	166	100	0	0
Non breast crawl	30	88	4	12.7

It has been found that 100% BC babies are healthy while 88% of non BC are healthy, none of BC are healthy, none of BC babies were sick.

**Table No.-5: Study of weight gain in BC babies after 15 days follow up.**

	Weight gain		Non weight gain	
	No.	%	No.	%
Breast crawl	158	95	8	5
Non breast crawl	10	29	24	71

It has been found that 95% of BC babies achieved good weight gain after 15 days follow up.

## Discussion

Initiation of breast feeding within hour of birth is very crucial. As soon as baby born in mammalian family nature is provided for their immediate feeding of newborn. Except human other mammalian species start immediate breast feeding of their newborn. Breast milk is the right of every newborn. Initiation of breast feeding in early hours, very minute after birth is crucial.

Aghdas K et al [6] conducted randomised control study to evaluate the effect of mother-infant immediate skin-to-skin contact on primiparous mother's breastfeeding self-efficacy. They did Skin-to-skin contact immediately after birth and then controlling breastfeeding self-efficacy at 28 days postpartum, concluded that Mother-infant immediate skin-to-skin contact is an easy and available method of enhancing maternal breastfeeding self-efficacy. High breastfeeding self-efficacy increases exclusive breastfeeding duration, this supports our study.

Ruth cantriletal et al [7] found that sustained naked body contact with attention to newborn instinctive feeding behaviours may improve breastfeeding outcomes for women & boost their breastfeeding confidence at 2 wks postpartum.

Kristin E Svensson[8] found that Skin-to-skin contact during breastfeeding seems to immediately enhance maternal positive feelings and shorten the time it takes to resolve severe latch-on problems in the infants who started to latch.

An underlying mechanism may be that skin-to-skin contact with the mother during breastfeeding may calm infants with earlier strong reaction to "hands on latch intervention" and relieve the stress which may have blocked the infant's inborn biological program to find the breast and latch on. Conde-Agudelo A et al [9] found that Evidence from this

updated review supports the use of KMC in LBW infants as an alternative to conventional neonatal care, mainly in resource-limited settings. Further information is required concerning the effectiveness and safety of early-onset continuous KMC in unstabilized or relatively stabilized LBW infants, as well as long-term neurodevelopmental outcomes and costs of care.

Matthiesen AS et al [10] studied on Ten vaginally delivered infants whose mothers had not been exposed to maternal analgesia were video-recorded from birth until the first breastfeeding. Video protocols were developed based on observations of the videotapes. Each infant's hand, finger, mouth, and tongue movements, positions of the hand and body, and sucking behaviour were assessed every 30 seconds. Maternal blood samples were collected every 15 minutes, and oxytocin levels were analysed by radioimmunoassay.

A statistical test for establishing the relationship between maternal oxytocin levels and infants' hand movements or sucking behaviour was developed. Infants used their hands to explore and stimulate their mother's breast in preparation for the first breastfeeding. A coordinated pattern of infant hand and sucking movements was also identified. When the infants were sucking, the massagelike hand movements stopped and started again when the infants made a sucking pause. Periods of increased massagelike hand movements or sucking of the mother's breast were followed by an increase in maternal oxytocin levels ( $p < 0.005$ ).

The findings indicate that the newborns use their hands as well as their mouths to stimulate maternal oxytocin release after birth, which may have significance for uterine contraction, milk ejection, and mother-infant interaction[10]. This supports crawling of baby over mother's abdomen in our study.

Nemsadze K et al [11] found that Attachment between mother and child is the unique and complex type of relationship that ensures safety and nurturing of a child in the beginning and effective functioning and ability to establish relationships later on. Maternal behaviour is generally known to be influenced by multiple psychosocial factors. Series of the studies performed in animal models demonstrated that decline in progesterone level on the background of increasing estradiol concentration prepares brain for the action of progesterone and prolactin that are responsible for the rapid onset of maternal behaviour postpartum.

However the results of another group of researchers failed to prove the unique importance of oxytocin. Other substances such as epinephrine, norepinephrine, serotonin were also suggested though diversity in the study results interferes with making definitive conclusions. This facilitates neuroendocrine relation with breast crawl in our study.

The revised standard of care for breastfeeding infants at risk of developing hypoglycemia during transitioning to extrauterine life was developed using the American Academy of Pediatrics (AAP) 2011 hypoglycemia guidelines, the Academy of Breastfeeding Medicine protocol, and staff input. A pre/postimplementation chart audit indicated support of infant safety by glucose stabilization, breastfeeding within the first hour of life, and breastfeeding frequency without an increase in blood sampling, formula use, or admissions to the special care nursery [12,13]. The concept of "Golden 60 minutes" or "Golden Hour" has been derived from adult trauma. It has been defined as the first 60 min of postnatal life. It has been seen that care received by any newborn in the initial first hour has implications in the future life, showing the importance of golden hour [14]. In golden hour approach for term newborn, the importance is given to effective and evidence based resuscitation, post-resuscitation care, delayed cord clamping, prevention of hypothermia, immediate breast feeding, prevention of hypoglycemia, and starting of therapeutic hypothermia in case of moderate to severe asphyxia. In this part of review, we will cover all the golden hour interventions in term neonate with current evidence [14]. This golden hour is also valuable for breast crawl as we did in our study.

Srivastava S et al[15] observed that SSC contributed to better suckling competence as measured by IBFAT score ( $P < 0.0001$ ). More babies in the SSC group were exclusively breastfed at first follow-up visit ( $P = 0.002$ ) and at 6 weeks ( $P < 0.0001$ ). SSC led to higher maternal satisfaction rates, better temperature gain in immediate post-partum period, lesser weight loss was at discharge and at first follow-up (all  $P < 0.0001$ ) and lesser morbidity than the study group ( $P = 0.006$ ). Very early SSC is an effective intervention that improves baby's suckling competence, maternal satisfaction, breastfeeding rates and temperature control and weight patterns, Which is similar to our study.

Mahmood I et al [16] studied on Eligible mothers, were assessed for the successful breastfeeding by using IBFAT tool. The time to initiate the first feed, time to effective breastfeeding, maternal satisfaction with the care provided, preference for the same care in future and level of exclusive breastfeeding at the age of one month were also noted. The data was compared by using X2 and t-test. Significant p-value was taken as  $< 0.05$ . Maternal-infant early skin-to-skin contact significantly enhanced the success of first breastfeed and continuation of exclusive breastfeeding till one month of age. It also reduced the time to initiate first feed and time to effective breastfeeding. cochrane review found that found low-quality evidence that healthcare professional-led breastfeeding education and non-healthcare professional-led counselling and peer support interventions can result in some improvements in the number of women beginning to breastfeed.

These might include well-described interventions, including health education, early and continuing mother-infant contact, and initiatives to help mothers overcome societal barriers to breastfeeding, all with clearly defined outcome measures [17].

FeferbaumR[18] showed that health education and peer support interventions can result in some improvements in the number of women beginning to breastfeed. Findings from these studies suggest that larger increases are likely to result from needs-based, informal repeat education sessions than more generic, formal antenatal sessions. These findings are based only on studies conducted in the USA, among women on low incomes with varied ethnicity and feeding intention, and this raises some questions regarding generalizability to other settings.

Ginovart G et al [19] studied on newborn and found that Outcomes revealed that an initial human milk diet with standard fortification was associated with significantly higher early extrauterine weight gain and head growth in very low-birth-weight infants than a formula-fed diet. This supports our study of weight gain in newborn of breast crawl infants.

Klaus and Kennel et al [20] reviewed many of these studies and gave a beautiful description of breast crawl. Credit of using word breast crawl as 'noun' should be given to Klaus.

Breast crawl is associated with variety of sensory, central, motor and neuroendocrine component all directly or indirectly helping the baby to move and facilitate her survival in new work. Babies use taste and smell of amniotic fluid on its hand to make a connection with a lipid substance on nipple related to amniotic fluid.

Evidence supports the use of SSC to promote breastfeeding. Studies with larger sample sizes are necessary to confirm physiological benefit for infants during transition to extra-uterine life and to establish possible dose-response effects and optimal initiation time. Methodological quality of trials remains problematic, and small trials reporting different outcomes with different scales and limited data limit our confidence in the benefits of SSC for infants.

## Conclusion

Breast crawl helps to reduce neonatal hypothermia, hypoglycemia as well as helps in faster achievement of feeding skill, getting colostrums, thus promotes weight gain and boosting neuro-development of baby.

Birth and immediate postpartum period pose many challenges for the newborn. The neonatal mortality rates are high in India, whereas the breastfeeding rates are still low. Hence, need exists for a simple and easily applicable intervention, which may counter these challenges.

Our review included only healthy infants, which limits the range of physiological parameters observed and makes their interpretation difficult.

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