



Review Article

Breastfeeding in the first hour of birth: Science and skills

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ABSTRACT

Immediate and uninterrupted skin-to-skin contact between mother and newborn should be facilitated soon after birth to initiate breastfeeding. It initiates the newborn infant's internal process to go through nine instinctive steps (namely, crying, relaxation, awakening, activity, resting, crawling, familiarization, suckling, and sleeping). Skin-to-skin contact with the mother soon after birth contributes to an early coordination of five senses in the newborn, namely, sight, hearing, touch, taste, and smell. The oxytocin surge in the 1st h of birth makes mother to keep the infant close to her chest and also establishes chemical connection between the two. The colostrum odor increases the amount of oxygenated hemoglobin over the olfactory cortex in the newborn within 24 h of life. The skin-to-skin provides the initial colonization of the baby's microbiome outside the mother. Finally, skin-to-skin contact not only improves the bonding between mother and the infant but also influences infant's self-regulation in the years to come.

Keywords: Breastfeeding, Skin-to-skin contact, Nine instinctive sages, Catecholamine surge

INTRODUCTION

The 1st few hours and days of a newborn's life are a critical window for establishing lactation and providing mothers with the support they need to breastfeed successfully. Baby friendly hospital initiative, since 1991 has helped to motivate facilities providing maternity and newborn services worldwide to better support breastfeeding.^[1]

WHO and UNICEF in April 2018 issued new ten steps guidance to increase support for breastfeeding in health facilities that provide maternity and newborn services.

The 2017 WHO guidelines, revision of the ten steps: Protecting, promoting, and supporting breastfeeding in facilities providing maternity and newborn services examined the evidence for each of the original ten steps that were originally published in 1989. Based on the new guidelines, implementation guidance rewords the ten steps while maintaining the basic theme of each step.^[2]

Step 4 states, facilitate immediate and uninterrupted skin-to-skin contact and support mothers to initiate breastfeeding as soon as possible after birth with the understanding that the newborn infant will self-attach.

This write up focuses on the Importance of skin to skin in contact the 1st hour of birth in establishing breastfeeding and its associated long-term implications. The expertise of the nine instinctive stages comes from experience as well as analyses of video tapes of feeding behavior developing in newborn's in skin-to-skin contact by the research team of Widstrom *et al.*^[3]

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Being in skin-to-skin contact with the mother immediately after birth elicits the newborn infant's internal process to go through nine instinctive stages:

Birth cry, relaxation, awakening, activity, rest, crawling, familiarization, suckling, and sleeping.

This is applicable to normal vaginal delivery, to healthy, alert, full-term infant placed skin-to-skin with the mother during the 1st hour after birth.

Skin-to-skin contact with the mother after birth contributes to an early coordination of infants five senses: Sight, hearing, touch, taste, and smell as well as movement. Oxytocin is released in the mother's blood vessels during the 1st h after birth and contracts the uterus, facilitates placental expulsion, and decreases blood loss. This oxytocin surge increases maternal sensitivity, as shown by the mother's desire to keep her infant close after the newborn suckled or even just touched her nipple during the 1st h while skin to skin.

The mother is attracted to the infant's smell, facilitating the chemical communication between the two. She should have access to the bare head of the baby, to smell. In normal vaginal delivery, there are high catecholamine's levels in newborn close to birth stimulated by the pressure of the baby's head on the birth canal.

High catecholamines are also responsible for higher pain threshold and this is nature's way to relieve pain while passing through the birth canal.

The odor of the mother's colostrums increases the amount of oxygenated hemoglobin over the olfactory cortex in the newborn infant less than 24 h old. Increased sensitivity to the odor of breast milk indicates a physiologically based early sensitive period.

This also matches the enhancements of the mother's breast odor, through the increase of the surface of the areola and Montgomery gland secretions during the corresponding time.

THE NINE INSTINCTIVE STAGES AND THEIR RELEVANCE ARE AS FOLLOWS

Stage 1 the birth cry

This cry has the effect of cleaning the airway off amniotic fluid. The extremely high catecholamine levels at birth help in absorbing liquid from the airway. When the lungs expand the transition in utero happens with oxygenation of lungs, facilitated by the birth cry. Further all survival instincts are depended on oxygenated lungs. Gently place the newborn on the mother's chest in the drainage position (tilted with the head lower than the torso and head slightly to the side) allowing the fluid to flow freely from the mouth and nose. Mother should be in a semi reclined position. Baby is length wise with the head on the mother's chest and above her

breasts, ensures that pregnant women wear suitable cloths before entering delivery room to facilitate skin-to-skin contact.

Once in skin-to-skin position, cover the baby with a suitable cloth but leave the face uncovered. Skin-to-skin contact reduces the duration of third stage of labor. Cord clamping should be delayed (>180 s) after delivery and ensure that the cord length is left long and the cord clamp does not interfere with skin-to-skin contact.

Stage 2 relaxation stage

During this stage, the new born infant is still and quiet, lying quietly on the mother's chest, the baby hears the mother's heart beat to which s/he is accustomed and familiar while *in utero*.

The baby's temporarily impaired sensation at birth, due to high catecholamine's has decreased sensitivity to the surrounding. APGAR score assessment can be done on a healthy full-term newborn infant without disturbing the infant and allowing skin-to-skin to continue uninterrupted! Furthermore, injection Vitamin K should be administered during this period, as the baby's reaction to pain in this period is reduced.

Stage 3 awakening

It is a stage of transition from the relaxation stage to the activity stage. They with gradually open their eyes, blinking repeatedly until the eyes are stable and focused.

Stage 4 activity

During this stage of activity, the baby exhibits a greater range of motion throughout – the head, body, arms, and hands. The limbs move with great determination with hand-to-nipple-to-mouth movements, catch the nipple, and explore mother's chest. Rooting becomes more obvious during this stage.

During pregnancy, the nipple has become hyper pigmented and makes it easy for the newborn infant to discover the breast. Soon after birth the areola expands and takes a bulb like shape, Montgomery glands also become more pronounced. The scent of areolar secretions has been linked to head turning and directional crawling. This odor helps the infant find the nipple. The NB recognizes the scent of the mother's breast from the amniotic fluid, touches the breast, and transmits the taste of the breast to the mouth (hand-to-breast-mouth movement). This stimulates rooting and crawling movements. After the NB has located the nipple by sight, the mother's voice will attract the baby's attention to her face. The connection between the taste of the amniotic fluid and scent of the breast from the Montgomery glands highlights – a biological survival mechanism, a pathway of flavor with lifelong consequence.

During skin-to-skin contact with the mother around half an hour after birth, the NB searches for eye-to-eye contact. Infant mother bonding during pupillary contagion (respond to pupil size with changes to own's own) – first movement of eye-to-eye contact is an unforgettable experience by mother which she remembers always. These complex experiences of the newborn infant encompass more than simply a journey to the breast and the opportunity to eye contact emphasize the importance of instinctive behavior during this time and avoidance of interruption.

Stage 5 resting

The resting stage is intervened with all of the other stages. A baby may stop or start during any of the stage to rest, and then continue with the same stage or move on to the next. The baby could be lying still sucking on fingers or just gazing at the nipple. The eye may be open or closed. It is crucial to allow the NB infant to take these pauses throughout the 1st h or so without being interrupted or separated. If the NB is separated and then returned, the stages will start all over again.

These resting stages are similar to “adult awake rest,” which is required for consolidation of memories and contribution to learning.

Stage 6 crawling stage

It is the stage where the baby moves from the position between the breasts to a position very close to the nipple.

To prevent sliding of the baby, place towel or pillow below mother's arm, this also helps the baby to find the nipple and grasp it and prevents exhaustion, due to repeated sliding off!

The evolutionary purpose behind the NB infant's innate stepping reflex becomes clear as the NB infant crawls to the mother's breast (breast crawl). The movement of these steps of the feet over the uterus may contribute to the contraction of the uterus and decrease the time to expel the placenta and decrease blood loss. Mother can assist crawling by placing her hand under the newborn infant foot to give the baby something to push against to move toward the breast.

Stage 7 familiarization

The baby is prone on a semi reclined mother. The baby should maneuver to an appropriate position to reach the breast. The NB performs specific soliciting calls to mother – a short clinging call that results in a gentle response from the mother. The frequency increasing as s/he gets closer to the mother's nipple, odors from the breast induce this response. This phase lasts for 20 min or more. Baby familiarizes with

the breast by licking the nipple and areola. This action by baby massages the breast and increases oxytocin levels and also shapes the nipple by licking. As baby smells and tastes the breast, the actions become more rigorous and more coordinated. The NB is preparing the tongue, breast, and nipple for the moment of attachment and suckling. NB infant thus practices the coordination of rooting-tongue reflex. Thus, perfecting many important oral-motor-functions, which is vital to initiate the suckling process. There is a resting stage between familiarization and suckling stage. It is common for the baby to attach, once, or twice and then disengage. The NB must be allowed to do these moves to adjust into instinctive position, which is conducive to the NB infant's chin making an initial contact with the mother's breast as the baby endeavors to catch the nipple. “Chin-first contact” is associated with sustained deep rhythmical suckling.

Stage 8 suckling

It is the stage of success! The NB infant does not need help to adjust the latch. Babies who self-attach during the 1st h after birth have few problems with breastfeeding latch and milk transfer.

Skin-to-skin in the 1st h strengthens the mother's self-confidence, including decreasing the concerns about having enough milk. When babies are placed skin-to-skin with the mother, they have more optimal blood glucose levels.

Stage 9 sleeping

Toward the end of suckling, about an hour or half after birth the NB becomes drowsy and falls asleep. Oxytocin released by mother and infant suckling triggers the release of gastrointestinal hormones cholecystokinin and gastrin. These help mother and infant for a relaxing and satisfying post-prandial sleep. It also improves maternal and infant nutritional absorption.

LONG-TERM BENEFITS OF SKIN-TO-SKIN CONTACT

The microbial colonization of the infant begins before birth and continues through the birth canal. The skin-to-skin contact provides the initial colonization of the NB's microbiome outside of the mother. Yet another reason not to bathe the baby immediately after birth (prevention of hypothermia, hospital acquired infection, etc., are other reasons).

As the hour's progresses, the first tastes of colostrum will provide vital sustenance to the infants developing gut microbiota, implicated in the expression of genes. This optimal microbiome has been implicated in long-term health including decreasing obesity and metabolic disease.

The temperature of the mother's breast increases when in skin-to-skin contact as evidenced by an increase of NB's foot temperature is an indication of the negative effect of the stress of being born.

Skin-to-skin is also linked to infant's self-regulation, a part of the concept of self-control and improved mother/infant mutuality year later.

Thus, self-control at the age of 4 years has consequences to adulthood in terms of decreased drug addiction, criminal behaviors, education, and income.

These are positive long-term consequences of skin-to-skin which also helps in parenting by protecting against parental roughness, decreased child maltreatment, and laying a foundation for the child's self-regulation and self-control.

CONCLUSION

Early initiation of breastfeeding within the first hour of life and uninterrupted skin to skin contact between mother and baby immediately after birth initiates the 9 instinctive stages of breastfeeding. this not only contributes to coordination of 5 senses and establishes a chemical connection between mother and baby but also has a long term impact on child's self regulation in Future years. such a beneficial and natural process should be promoted and practiced.

Declaration of patient consent

Patient's consent not required as patients identity is not disclosed or compromised.

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Conflicts of interest

There are no conflicts of interest.

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