

Skin to skin contact

in the first hour after birth and

Early Breastfeeding



دکتر محمود راوری متخصص کودکان
Senior Lactation Consultant
Technical Expert Breastfeeding Counselor

عضو کمیته کشوری ترویج تغذیه با شیر مادر
عضو هیئت مدیره انجمن علمی ترویج تغذیه با شیر مادر



Skin-to-Skin Contact at birth and Early Breastfeeding



- Help mothers to initiate breastfeeding within

a half-hour of birth.

(Step 4 , 1992 - Baby Friendly Hospital Initiative's (BFHI),

- Interpreted (UNICEF/WHO, 2006) as :

Place babies in **Skin-To-Skin Contact** with their mothers **immediately**

following birth for **at least an hour** and encourage mothers to recognize when their babies are ready to breastfeed, offering help if needed

- Interpreted (UNICEF/WHO, 2018) as :

Facilitate immediate and uninterrupted skin-to-skin contact and support mothers to initiate breastfeeding as soon as possible after birth.

Immediately following birth



- **‘Birth SSC’(Immediately following birth)**, the infant is placed prone skin-to-skin on the mother’s abdomen or chest during the first minute post birth.
- **‘Very early SSC’** , beginning approximately 30 to 40 minutes post birth
- **‘Early SSC’** can begin anytime between one and 24 hours post birth

Immediately following birth

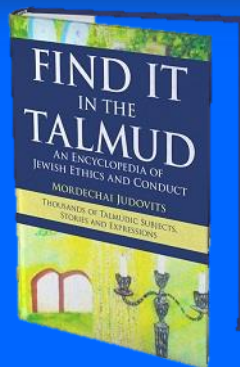


- The baby is not first moved to or placed in a warmer or incubator, wrapped, washed, weighed, measured, treated in any way, or otherwise touched before being placed in direct contact with the mothers ventral surface, preferably by the mother herself.

حضرت موسی در ۵۳۶ سال قبل از میلاد مسیح



- نوزاد را بلافاصله بعد از تولد وقتی قبل از قطع بند ناف، به پستان مادر بگذارید.
- تغذیه با شیر مادر باید ۱۸-۲۴ ماه ادامه داشته باشد.
- وقتی مادر قادر به شیردادن به فرزندش نیست، از شیر دایه به او بدهید.



Risk of neonatal mortality according to time of initiation of breastfeeding



Breastfeeding: The 1st Hour

Early initiation and
exclusive breastfeeding
for six months can

Save

more than



ONE

million babies!

World Breastfeeding Week (WBBW) 2007

What it means?

Translating these benefits to the whole population of neonates (breastfed and not breastfed) means that **16%** of neonatal lives can be saved if all babies were breastfed from day 1, and **22%** if breastfeeding were started within the first hour.

Normal Progression Of Breastfeeding



- In the first hours and days postpartum, the mother and baby learn to breastfeed together.
- Normal breastfeeding progresses through two initial phases.
 - first phase, called **self-attached breastfeeding**, the baby latches to the breast without assistance and self-attaches to the breast using the stepping– crawling reflex
 - second phase, called **collaborative breastfeeding**, the mother and baby work together to achieve the latch and feeding.

The Magical Hour



Every baby goes through **nine instinctive stages** when **skin to skin** with mom during the first hour after birth

When healthy infants are placed skin-to-skin on their mother's abdomen and chest



- **They are alert.**
- They can crawl, stimulated by mother's gentle touch, across her abdomen, reaching her breast.
- Alertness gradually decreased until **90-150 minutes** after birth, when they were all asleep.

Breast Crawl



- Every newborn, 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 ,(Widström et al, 1987).



Skin-to-skin contact the first hour after birth



- This process is suggested to contribute to an early coordination of infant's five senses:
 - sight,
 - hearing,
 - touch,
 - taste and
 - smell, as well as movement.



Skin-to-Skin contact the first hour after birth

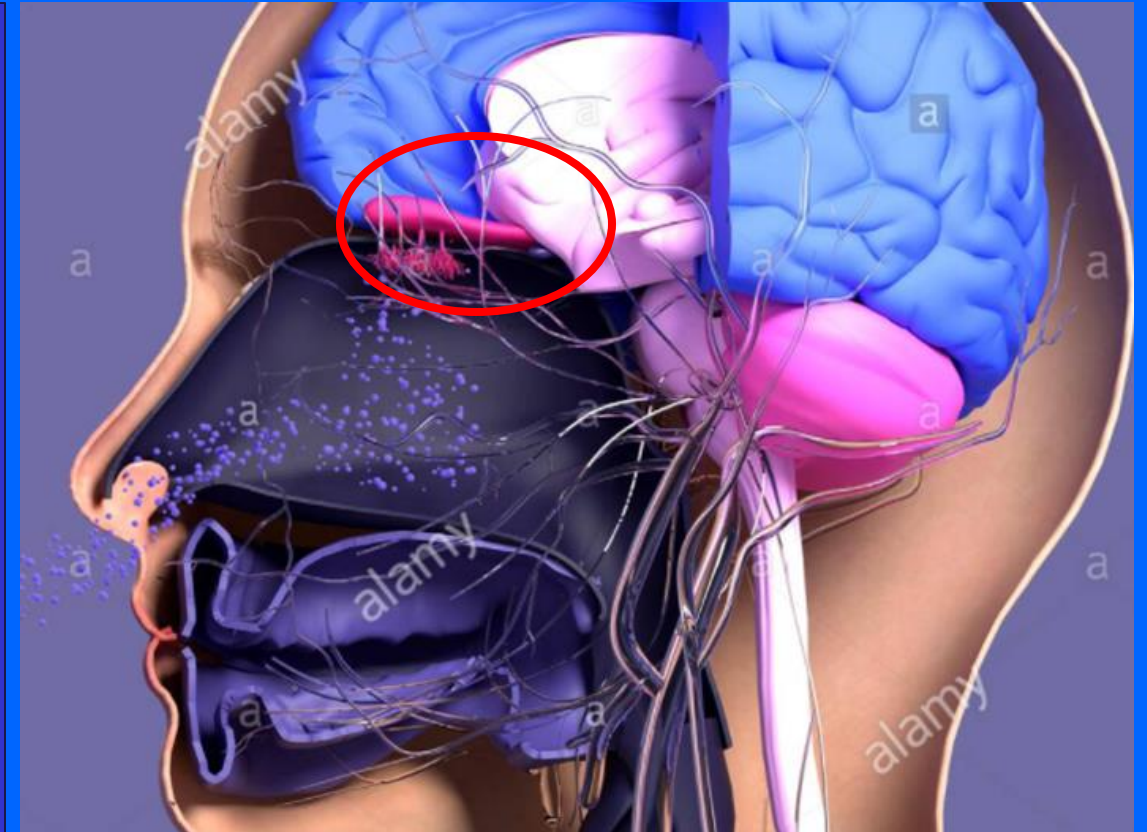


- During this first hour after childbirth, both mother and newborn infant experience a special and unique time, a **sensitive period**, which has been biologically predetermined, especially after vaginal birth. This is aided by the physiological state of each:
 - the **mother's high oxytocin** levels and
 - newborn **infant's extremely high catecholamine** levels (highest especially for the **first thirty minutes**).
 - These are, Catecholamines strengthen memory and **learning**.
 - These high levels of circulating catecholamines cause the olfactory bulbs in the infant's nares to be extremely sensitive to the odor cues that guide the infant towards the mother's nipple(Elizabeth R. Moore,2007)

Skin-to-skin contact the first hour after birth



- In newborn infants less than 24 hours old, the **odour of the mother's colostrum** increases the amount of oxygenated hemoglobin over the **olfactory cortex**, as measured by near-infrared spectroscopy.



Before labour



- Skin to-Skin with the mother should also have occurred as part of her antenatal care
- Parents should also have an understanding about the importance of monitoring the **newborn infant's position, breathing and safety**
 - Providing the parents with a **pamphlet or tear sheet** or having a **poster of the 9 instinctive stages**



Poster of the 9 instinctive stages



Before labour



- Staff should also assure practical arrangements have been made for the experience of skin-to-skin
 - ensuring that the mother's clothing has been arranged so it will be easy to remove and will allow access to the mother's chest immediately after the birth
 - being aware of any intravenous lines in relation to the sleeves of the mother's gown, etc.



Immediate and uninterrupted skin-to-skin contact







A Baby's 9 Instinctive Stages the breast in the first hour of life



Birth cry Intense cry just after birth, transition to breathing air.

Relaxation Infant rests. No activity of mouth, head, arms, legs or body

Awakening when small twitches and movements are seen in the head and shoulders

Activity where mouth and sucking movements and rooting reflexes begin and increase

Crawling the baby approaches the breast with short periods of crawling types of movements

Resting Infant rests, with some activity, such as mouth activity, sucks on hand.

Familiarization where the baby becomes acquainted with the breast by licking and touching

Suckling Infant has taken nipple in mouth and commences suckling.

Sleeping after the baby has satisfied its natural desire to suckle, infant closes eyes and falls asleep

The First Hour After Birth: A Baby's 9 Instinctive Stages the breast in the first hour of life



1. *Birth cry*: occurs immediately after birth as the baby's lungs expand but usually ends abruptly when the baby is placed onto the mother's chest.



Stage 1: Birth cry



- The AAP and ACOG (2017) have strong statements about the ability of healthy full-term babies to clear their own airways and successfully transition without the need of any form of suctioning.
- Research has shown that suctioning may disrupt the inborn sequential behaviours of the newborn infant.



Why?



Stage 1: Birth cry



- Clinical practice should include gentle hands to hold the newborn infant in the ***drainage position*** (tilted with the head lower than the torso and the head slightly to the side) immediately after the birth, *allowing the fluid to flow freely from the mouth and nose.*



Stage 1: Birth cry



- Standard practice includes drying the baby's head and body with a clean, dry cloth to help maintain body temperature. The baby's face should initially be turned to the side, which facilitates free airways and monitoring of the baby's breathing.
- After settling in the skin-to-skin position with the mother, the baby's body should be covered with a dry cloth, leaving the face uncovered.



Stage 1: Birth cry



- The comfortably positioned, semi-reclined mother receives the baby, to hold prone, skin-to-skin.
- While transitioning the baby to the mother's chest, it is important to avoid compressing the baby's thorax, which could hamper breathing.
- The mother's semi-reclined position is conducive to the baby's breathing adaptation, in contrast to a horizontal position.



Stage 1: Birth cry



- Placement of the newborn infant **skin-to-skin:**
 - increases uterine contraction immediately after birth, increases the completeness of the delivered placenta and decreases uterine atony and excessive blood loss.
 - Skin-to-skin also significantly decreases the duration of the third stage of labour



Stage 1: Birth cry



- If the mother has received analgesics during labour, special care must be taken to watch for free airways. For example, **pethidine** can cross the placenta and affect the newborn infant's breastfeeding behaviour negatively and may specifically hamper the newborn infant's ability to lift the head as well as infant's crying.

Stage 1: Birth cry



- Fentanyl given in the epidural space passes rapidly into maternal blood. A placental transfer of 90% has been measured .Fentanyl has been measured in the newborn infant's urine for at least 24 hours postpartum .Fentanyl exposure can **depress the newborn infant's behaviour** during the first hours after birth, especially **the suckling behaviour** in a dose-dependent manner

The First Hour After Birth: A Baby's 9 Instinctive Stages the breast in the first hour of life



2. Relaxation: begins when the birth cry stops and usually lasts 2–3 minutes during which the baby is very quiet and still ,making no movements . when there are no mouth movements and hands are relaxed



Stage 2: Relaxation



- When lying quietly on the mother's chest, the baby can hear the mother's heartbeat. This familiar sound from in utero seems to **comfort** the newborn infant after the rapid transition to extra-uterine life.
- If, during the relaxation stage, the newborn infant is disturbed by the actions of the staff, the baby will react with crying, grimacing and protective reflexes.



Stage 2: Relaxation



- Assessment of the **APGAR score**, on a healthy full-term newborn infant without disturbing the infant, allowing skin-to-skin to continue uninterrupted, since babies are less likely to cry; they are more likely to remain warm and not waste energy.
- If administration of **vitamin K** shot is a routine, this should occur soon after birth while the catecholamine levels are highest, preferably with the newborn infant skin-to-skin with the mother, as skin-to-skin contact has been shown to lower the baby's reaction to pain.
- The AAP further delineates that the administration of vitamin K and ophthalmic prophylaxis can be delayed for at **least 1 hour and up to 4 hours** after delivery

Optimal timing of umbilical cord clamping



**Relaxation:
usually lasts 2–3 minutes**

**Approximately 3
minutes or more after
birth**

WHO and Pan American Health Organization, 2014



Beyond survival:

integrated delivery care practices for long-term maternal and infant
nutrition, health and development



- *Delayed umbilical cord clamping*,
- *Early mother to newborn skin-to-skin contact*, and
- *Early initiation of exclusive breastfeeding*,
are **three simple practices** that, in addition to providing immediate benefit, can have long-term impact on the nutrition and health of both mother and child.

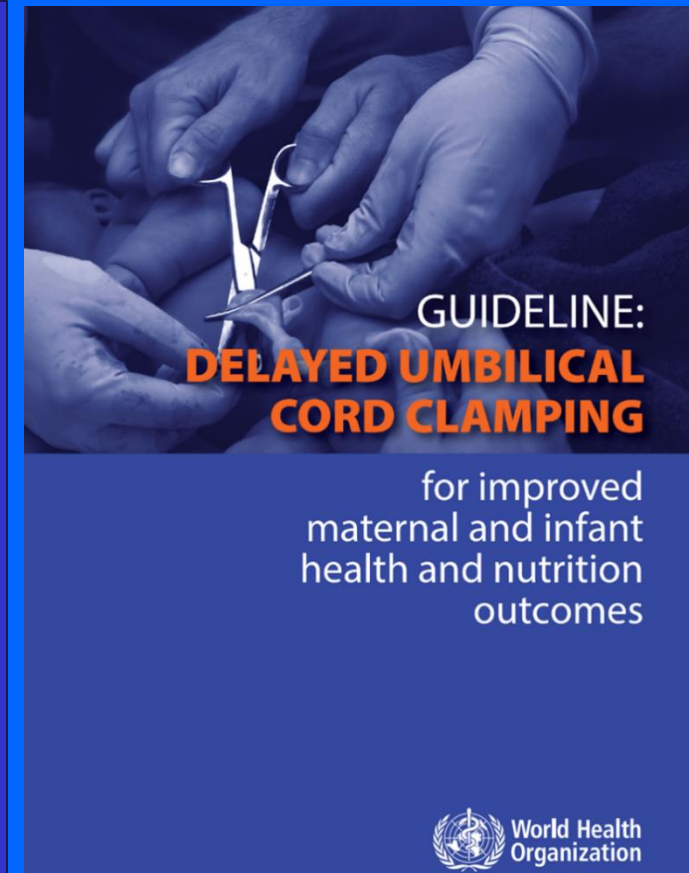


Table 1. Summary of immediate and long-term effects of delayed umbilical cord clamping for infants (term, pre-term/low birth weight) and mothers

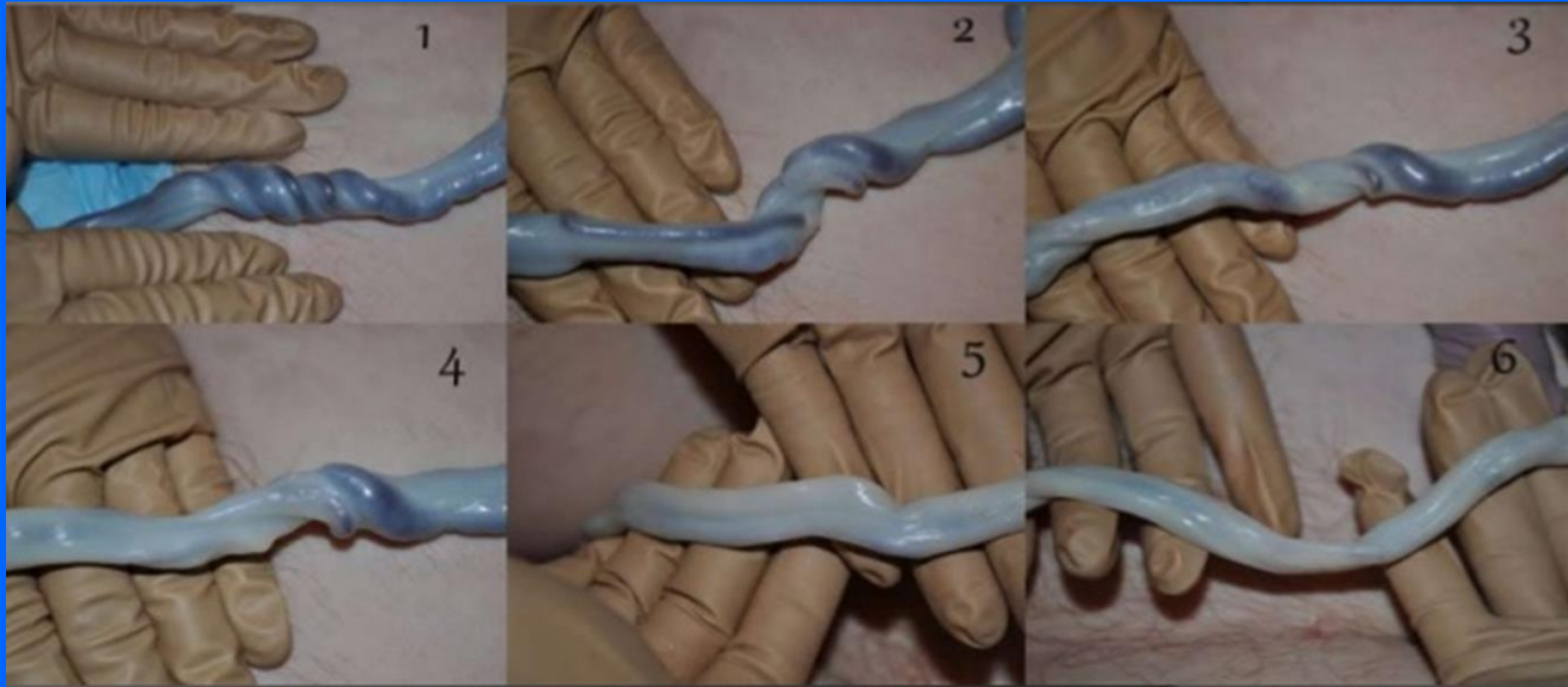
Immediate benefits			Long-term benefits	
Pre-term/low-birth weight infants	Full-term infants	Mothers	Pre-term/Low-birth weight	Full-term
<p>Decreases risk of:</p> <ul style="list-style-type: none"> – Intra-ventricular hemorrhage – Necrotizing enterocolitis – Late-onset sepsis <p>Decreases need for:</p> <ul style="list-style-type: none"> – Blood transfusions for anemia or low blood pressure – Surfactant – Mechanical ventilation <p>Increases:</p> <ul style="list-style-type: none"> – Hematocrit – Hemoglobin – Blood pressure – Cerebral oxygenation – Red blood cell flow 	<p>Provides adequate blood volume and birth iron stores</p> <p>Increases:</p> <ul style="list-style-type: none"> – Hematocrit – Hemoglobin 	<p>No effect on maternal bleeding or length of the third stage of labor</p> <p>Indication from “cord drainage” trials that a less blood filled placenta shortens the third stage of labor and decreases incidence of retained placenta.</p>	<p>Increases hemoglobin at 10 weeks of age</p> <p>May be a benefit to neurodevelopmental outcomes in male infants</p>	<p>Improves hematological status (hemoglobin and hematocrit) at (2 to 4 months of age)</p> <p>Improves iron status through 6 months of age</p>

World Health Organization 2014



Multivariate analyses, however, demonstrated a clinically and statistically significant interaction of maternal anaemia, time of umbilical cord clamping and infant anaemia. The adjusted odds of developing anaemia among infants born to anaemic mothers was 40% lower at 4 months of age and 60% lower at 8 months of age for **each minute** that clamping was delayed

Optimal timing of umbilical cord clamping



The cord should not be clamped earlier than one minute after birth, and the optimal Time to clamp the umbilical cord for all infants regardless of gestational age or fetal weight is when the circulation in the cord has ceased, and the cord is flat and pulseless (approximately 3 minutes or more after birth)



Wait for White

**UMBILICAL FLOW IS UNRELATED TO CESSATION OF
PULSATIONS.**

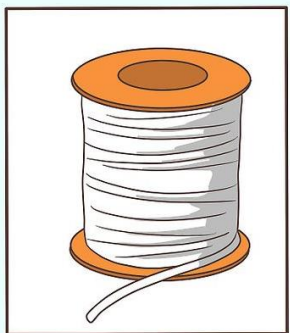
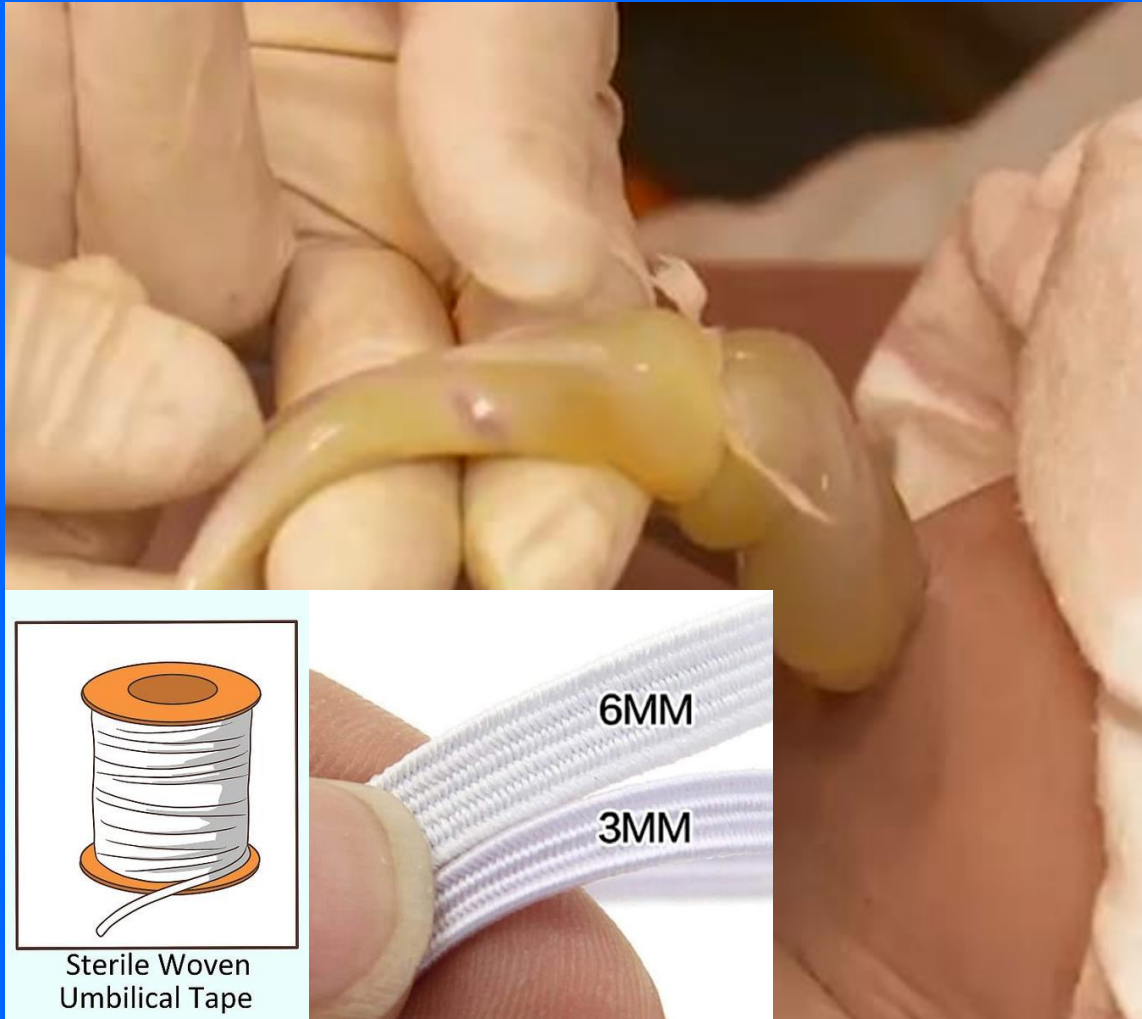
Umbilical Cord Clamping



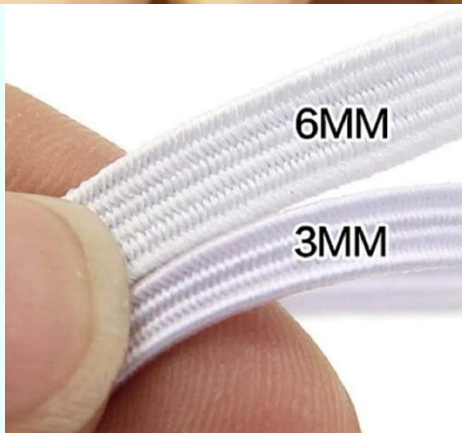
- Delayed cord clamping (>180 seconds after delivery) is recommended when compared to early cord clamping (>10 seconds after delivery).
- Delayed cord clamping reduced the risk of anemia at 8 and 12 months in a group of high-risk children. In addition, there was a possible positive effect in infant's health and development



Umbilical Cord Clamping



Sterile Woven
Umbilical Tape



Cord Management of the Term Newborn

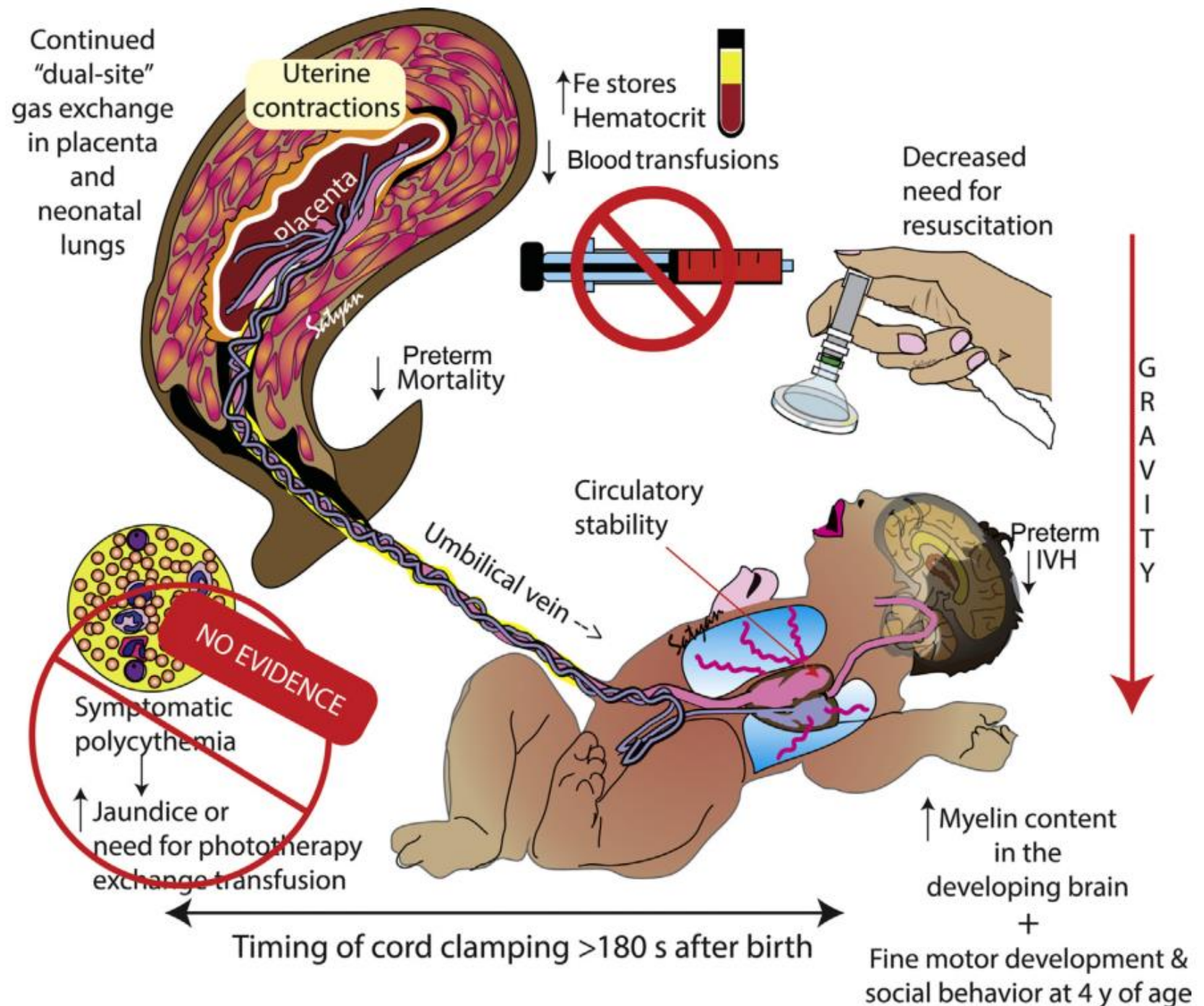


- Keeping the umbilical cord intact by delaying cord clamping for *at least 3 minutes* improves iron stores during infancy and supports health and development for the growing child.
- In preterm infants, delayed cord clamping reduces mortality by approximately 30%.

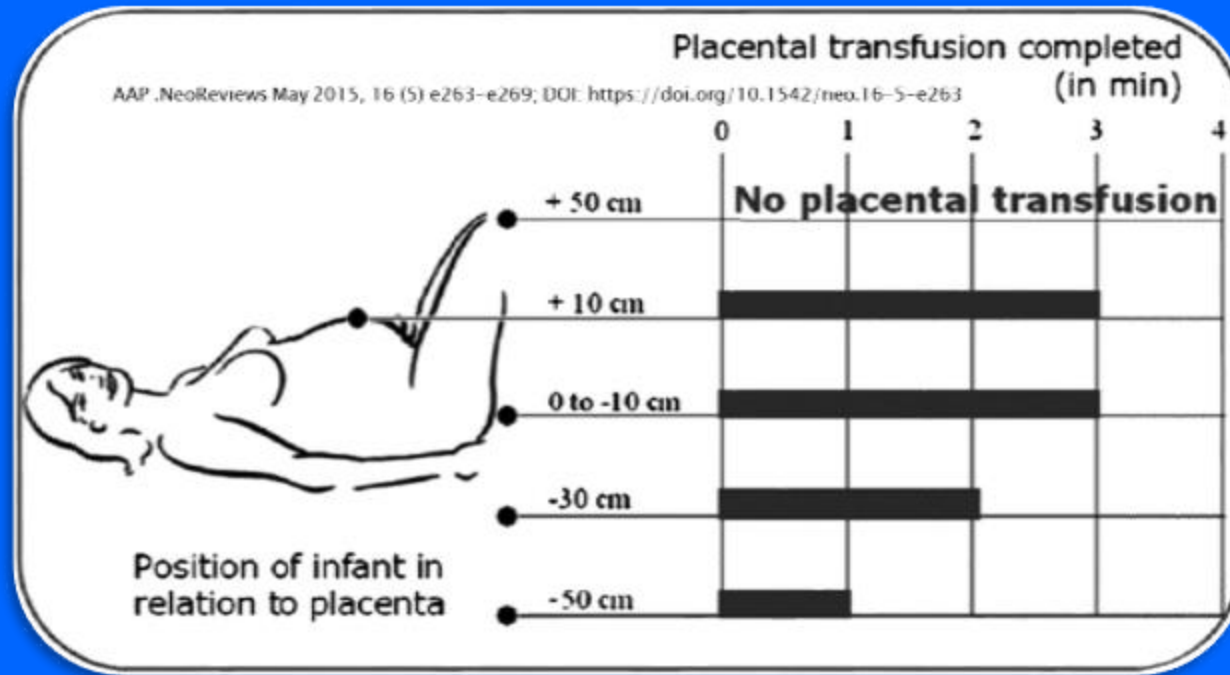
Factors influencing placental transfusion with delayed CC.

- Timing of CC,
- uterine contractions,
- spontaneous respirations and
- gravity influence the magnitude of transfusion.

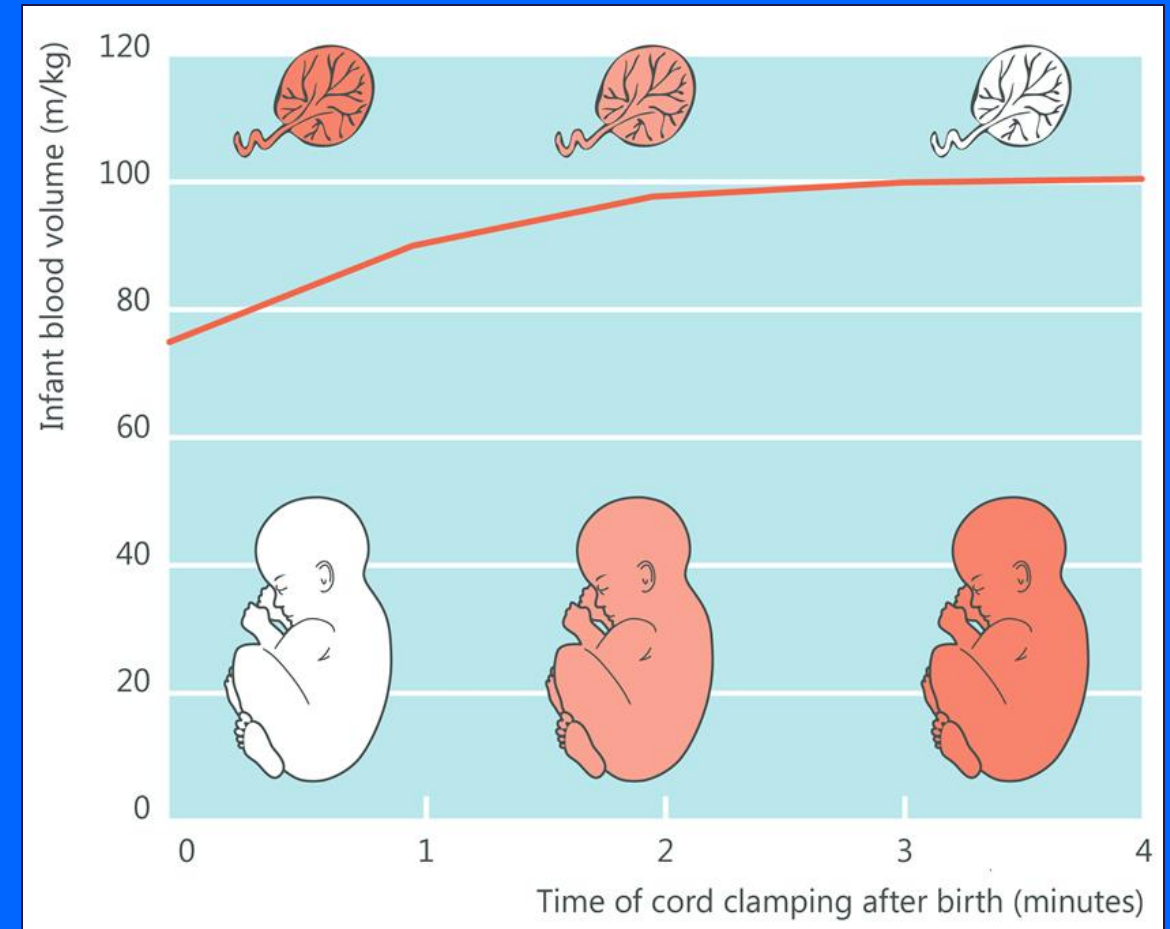
Andersson & Mercer Clin Perinatol
48 (2021) 447–470



Delayed Cord Clamping (DCC)



Effect of gravity on volume of placental transfusion



Baby position on the mother's body



- The baby should be in a lengthwise prone position on the mother's body, with the head on the mother's chest, and above her breasts (after umbilical cord cutting).
- During a caesarean surgery, the newborn infant might be positioned horizontally above the drape instead of vertically. In this case, the newborn is placed across the mother's breasts.



The First Hour After Birth: A Baby's 9 Instinctive Stages the breast in the first hour of life



3. *Awakening:* This stage usually begins about 3 minutes after birth. begins with small head and shoulders movements, and shows some mouth activity. They will gradually open their eyes during this stage, blinking repeatedly until the eyes are stable and focused



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4. Activity: This stage usually begins about 8 minutes after birth the baby has more stable eye opening, increased mouthing, and suckling movements and often some rooting.



Stage 4: Activity



- The **limbs move** with greater determination; the baby may root and lift the head from the mother's chest.
- The fingers often begin the stage as fisted but may expand to massage, transfer tastes with a hand-to-nipple-to-mouth movement, catch the nipple and explore the mother's chest.
- Rooting also becomes more obvious during this stage

Stage 4: Activity



- During pregnancy, the nipple has become more pigmented and is easy for the newborn infant to discover, and the areola expands and takes a bulb-like shape. The Montgomery glands also become more pronounced. The scent of areolar secretions has been linked to behavioural responses, such as stimulates rooting and crawling movements in the newborn to reach the nipple.



Stage 4: Activity



- The infant has learned to **recognize the mother's voice** during intrauterine life
- After the newborn infant has located the nipple by sight, the **mother's voice** will attract the **baby's attention to her face**
- When skin-to-skin with the mother after birth and free to safely move, the newborn infant search for eye contact with the mother around half an hour after birth
- Immediately after birth the newborn's eyes become **wide open**, usually with **large pupils**



The First Hour After Birth: A Baby's 9 Instinctive Stages the breast in the first hour of life



5. Resting: A baby may stop or start during any of the stages to rest, and then continue with that same stage, or move on to the next . The baby could be lying still sucking on fingers or just **gazing** at the nipple. The eyes may be open or closed.



Stage 5: Resting



- This stage being misinterpreted by parents or staff, resulting in the newborn infant being removed from skin-to-skin with the mother in favor of other routine care.
- It is vital to allow the newborn infant to take these pauses throughout the first hour or so without being interrupted or separated, remembering that **this stage is naturally** interspersed throughout other stages.
- **If the newborn infant is separated** from the mother, even if the infant is returned, the **newborn infant might need to begin again at the first stage** – crying and relaxing before beginning to progress through the stages again, which ***might take some time***.

The First Hour After Birth: A Baby's 9 Instinctive Stages the breast in the first hour of life



6. *Crawling*: the baby makes short pushing exertions with his feet or slides his body towards one of the mother's breasts.



Stage 6: Crawling



- The movements of these steps of the feet over the mother's uterus may contribute to the contractions of the uterus, and the decreased time to expel the placenta and decreased blood loss during skin to-skin.
- A baby needs to use the feet to achieve crawling, and sometimes the feet are in a less than ideal position.
- It may be helpful if the mother puts her hand under the newborn infant's foot to give the baby something to push against in order to move towards the breast.



The First Hour After Birth: A Baby's 9 Instinctive Stages the breast in the first hour of life



7. *Familiarization* : the baby becomes familiar with the breast by licking the nipple and areola. This period could last 20 minutes or more. The newborn infant massages the breast, which increases the mother's oxytocin levels and shapes the nipple by licking.



Stage 7: Familiarization



- The baby continues with **tongue activity** during this stage, by licking above and below the nipple.
- The baby may make noises with the mouth and lips, like **smacking sounds**, during this stage.
- The newborn infant needs to practice this coordination of the rooting-tongue reflex.
- Staff and parents should allow the baby the time needed to practice this coordination during this stage.
- There is often a resting stage between the familiarization stage and the suckling stage, which unfortunately can make parents and staff prone to (so-called) help the newborn infant to the breast.

The Position of the Tongue During Rooting Reflexes Elicited in Newborn Infants Before the First Suckle



- A common breastfeeding problem is when the infant "**places its tongue in its palate**" and has difficulties in attaching to its mother's nipple
- "Licking movements" preceded and followed the rooting reflex in the alert infants. In 10 of the 11 infants the tongue was placed in the bottom of the mouth cavity during a distinct rooting reflex.
- It is suggested that forcing the infant to the breast might abolish the rooting reflex and disturb placement of the tongue.
- A healthy infant should have the opportunity of showing hunger and optimal reflexes, and attach to its mother's nipple by itself.

Stage 7: Familiarization



- This is conducive to the newborn 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 **GAP** and sustained deep, rhythmical suckling



Stage 7: Familiarization



- In a study of babies who had later been diagnosed with significant **latch problems**, the majority of mothers reported that the newborn infant had been forced to latch to his mother's breast. According to the mothers, the babies screamed, acted in a panicky way, exhibited avoidance behaviours and had other strong reactions against the forceful treatment

Stage 7: Familiarization



- It has also been shown that mothers who had this type of so-called help have a more **negative experience** of the first breastfeeding and **breastfeed for a shorter time**
- If infants with an aversive behaviour are allowed to peacefully go through the stages in skin-to-skin contact at a later time, they may successfully reach the nipple, attach to the nipple by themselves and start suckling.

The First Hour After Birth: A Baby's 9 Instinctive Stages the breast in the first hour of life



8. *Suckling* : The newborn infant attaches to the nipple during this stage and successfully breastfeeds , the newborn opens his mouth wide, cupping the tongue which is now low in the bottom of the mouth, grasps the nipple in a correct latch and begins to suckle.



Stage 8: Sucking



- It is interesting to note that the hands, which have been so busy, often **stop moving once suckling begins**, the eyes, which have been looking at the breast, the mother and the room, often become focused after attaching.
- During this first hour, when the unmedicated baby **self-attaches, it is a perfect first breastfeeding**, although the infant will **continue to readjust** until satisfied with the latch.

Stage 8: Sucking



- The newborn infant does *not need help to adjust the latch.*
- Babies who self-attach during the first hour after birth have few problems with breastfeeding, latch and milk transfer
- Skin-to-skin in the first hour strengthens the mother's self-confidence, including decreasing the concerns about having enough milk

Stage 8: Sucking



- When babies are placed skin-to skin with the mother, they have more optimal blood glucose levels. Both skin-to-skin and the suckling contribute to this effect .Thus, *this reduces the risk of supplementation.*
- Medicated babies can successfully go through the nine stages and self-attach. However, there is increasing evidence concerning the negative consequences of certain medications such as *fentanyl and oxytocin*, on success with breastfeeding

The First Hour After Birth: A Baby's 9 Instinctive Stages the breast in the first hour of life



9. *Sleeping* : Towards the end of suckling, about **an hour and a half** after birth, the newborn infant becomes **drowsy** and **falls asleep**.



Stage 9: Sleeping



- The oxytocin, released in both mother and infant by suckling, triggers the release of gastrointestinal (GI) hormones, including cholecystokinin (CCK) and gastrin
- The high level of CCK in both mother and newborn infant will cause a relaxing and satisfying postprandial sleep. the GI activity will also improve maternal and infant nutritional absorption



Stage 9: Sleeping



- If the mother and newborn infant were unable to experience these first hours together, or if the newborn infant did not self-attach before falling asleep, the dyad *should have the opportunity to stay skin-to-skin as much as possible*
- If separation occurs, hand expression of milk within the first hour after birth enhances milk production



Stage 9: Sleeping



- The partner can also spend time skin-to-skin with a new baby if separation from the mother is necessary





An important point to note is that Step 4, while referring to the ‘initiation of breastfeeding’, carries no stipulation that the baby must feed.

Skin-to-Skin Contact at birth and Early Breastfeeding



- There is no need to hurry either the baby or the mother or to try to force the baby on to the breast – indeed, this may prove counter-productive and hinder the baby's ability to attach effectively later on.
- If there are concerns about the baby's need for feed, the mother can be encouraged to express some colostrum to give to him.

SAFE SKIN-TO-SKIN CARE



Safe Interactive Skin-to-Skin Contact in the First Hour After Birth



1. Make sure that the mother is in a ***comfortable semi-reclined position*** with ***support under her arms***.
2. After drying the newborn infant, lift the newborn infant gently to ***avoid compression of the thorax*** when placing the baby skin-to-skin. Put the baby prone, in a lengthwise position with the **head on the mother's chest** above the breast.
3. **Cover the baby** with a dry blanket/towel. **Leave the face visible.**



Safe Interactive Skin-to-Skin Contact in the First Hour After Birth



4. Make sure that the ***nose and mouth are not enveloped by the mother's breast*** or body or obscured by the blanket. Initially, the baby's head ***should be turned to the side.***
5. The newborn infant must have the opportunity to use its reflexes to lift the head ***so the nose and mouth can be free.*** This is of special concern if the mother has ***large and/or very soft breasts.***



Safe Interactive Skin-to-Skin Contact in the First Hour After Birth



6. The *nipple must be accessible* to the newborn infant. For some mothers, this may require positioning a towel or pillow under or on the side of the mother's breast.
7. Show the parents how to *support the breast to secure free airways* especially during the time the baby starts searching for the breast. Verify understanding.



Safe Interactive Skin-to-Skin Contact in the First Hour After Birth



8. Remind the parents to focus on the newborn and follow the newborn infant's early behavior, making sure that the parents follow the 9 stages. The other parent should be observant, **not distracted by mobile phones, speech etc., during skin-to-skin.**
9. **Extra attention** may be required if the mother is affected by sedation after childbirth as well as during possibly ***postpartum suturing***. The other parent should be aware of the situation and ***watch for the safety of the infant.***



Safe Interactive Skin-to-Skin Contact in the First Hour After Birth



10. Labor medications can affect the newborn infant, and hamper reflexes. The medications may impair the newborn infant's reflexes enough to prevent the ability to lift the head to protect itself from suffocation. **Babies affected by labor medications must be constantly monitored.**



Skin-to-skin contact the first hour after birth



- **Advantages for the mother include:**
 - Earlier expulsion of the placenta
 - Reduced bleeding
 - increased **breastfeeding self-efficacy**
 - And lowered **maternal stress levels**. It has been suggested that the rise in the mother's oxytocin during the first hour after birth is related to the establishment of **mother–infant bonding**

Skin-to-skin advantages for the baby include



1. Improved physiological stability
2. Decrease of the negative consequences of the 'stress of being born'(Metabolic adaptation)
3. More optimal thermo regulation, continuing even in the first days
4. Less crying
5. Increase breastfeeding initiation and exclusive breastfeeding, while reducing formula supplementation in hospital, leading to an earlier successful first breastfeed, as well as more optimal suckling, and increase the **Quality of skin-to-skin contact**

Others evidence for Skin-to-Skin contact immediately after birth



6. Enables colonization of the baby's gut with the mother's normal body bacteria gut (in vaginal delivery)
7. Decrease pain in newborns being held by mothers and fathers.
8. Causes oxytocin release in the mother and facilitates bonding
9. Decreases maternal stress , **Lowers stress levels in mothers and baby**

Evidence for SSC (Improved physiologic stability)



- SSC has been researched extensively as a method to provide **improved physiologic stability** for **newborns** and **potential benefits for mothers**.



Early childhood development begins with a mother's breast

AAP Safe Sleep and Skin-to-Skin Care in the Neonatal Period for Healthy Term Newborns. Pediatrics. 2016; 138(3):e20161889

Post metabolic adaptation



- **More rapid recovery from transient acidosis at birth**, as compared to babies separated and kept in a cot next to the mother (Christensson et al, 1992).
- Effects of KC on *oxygen saturation levels* *vary as well*. Oxygen saturation levels have been found to increase by 2% to 3% during KC as compared with incubator values
- STS at birth reduces frequency of hypoglycemia over first 90 minutes post birth. Babies kept in the Breast Crawl position had **higher 90 minute blood sugar levels** and

Post metabolic adaptation

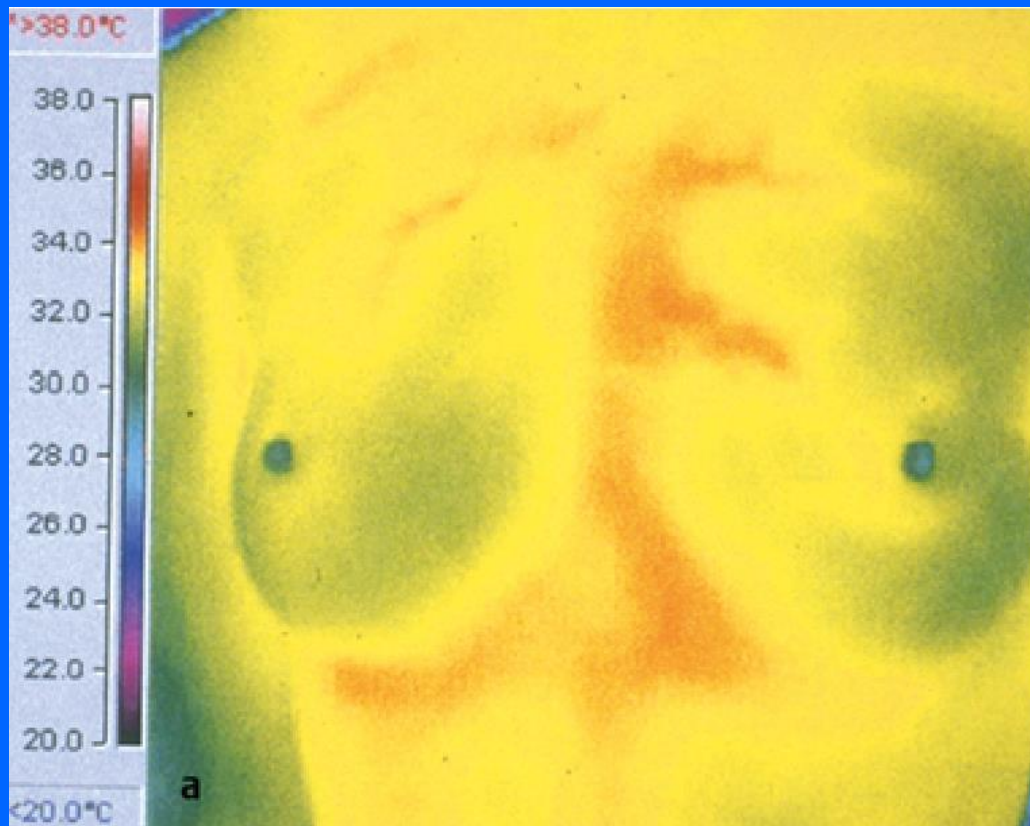


- The immediate postnatal metabolic adaptation and **sympatho-adrenal activation** were studied in infants delivered **vaginally** or by **elective caesarean** section.
- Vaginally delivered infants showed **high catecholamine** levels at birth compared to infants born by caesarean section under epidural or general anaesthesia.
- Umbilical arterial glucose levels were significantly higher in the vaginal group than in both caesarean section groups. At 30 min, all groups showed a marked decrease with several infants showing asymptomatic hypoglycemia in the caesarean section group.

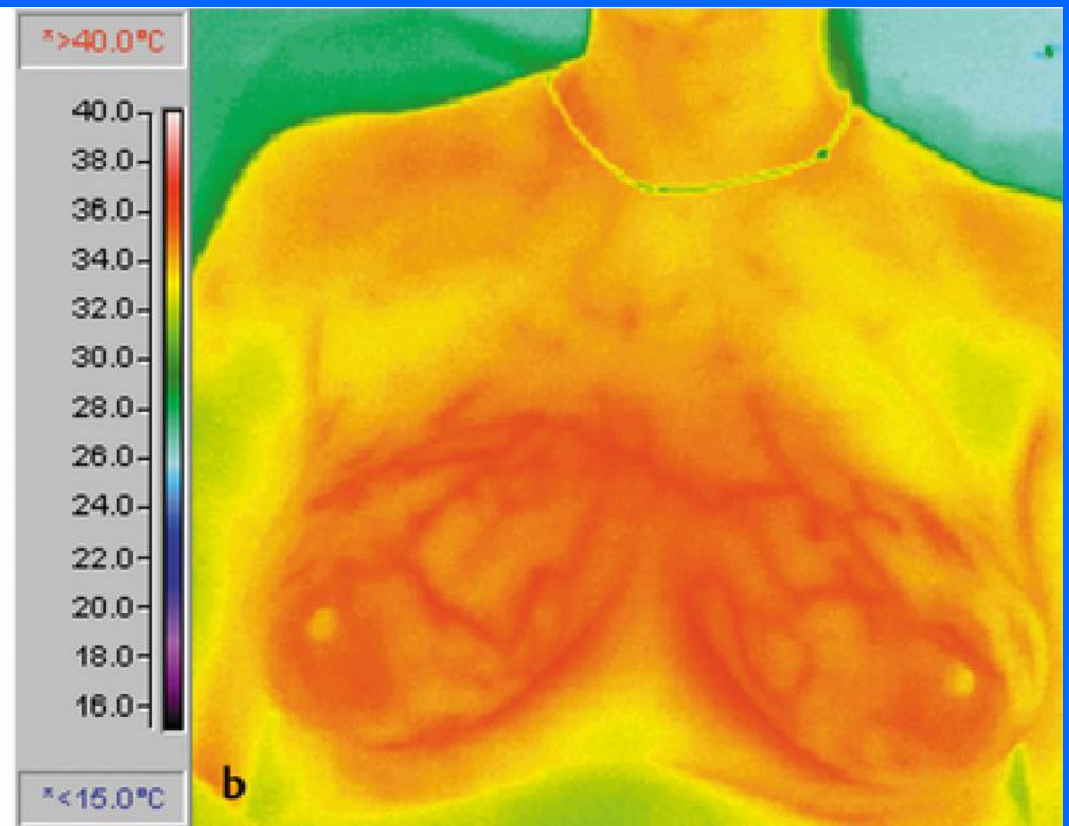
Thermal Images



No-Lactating Breasts

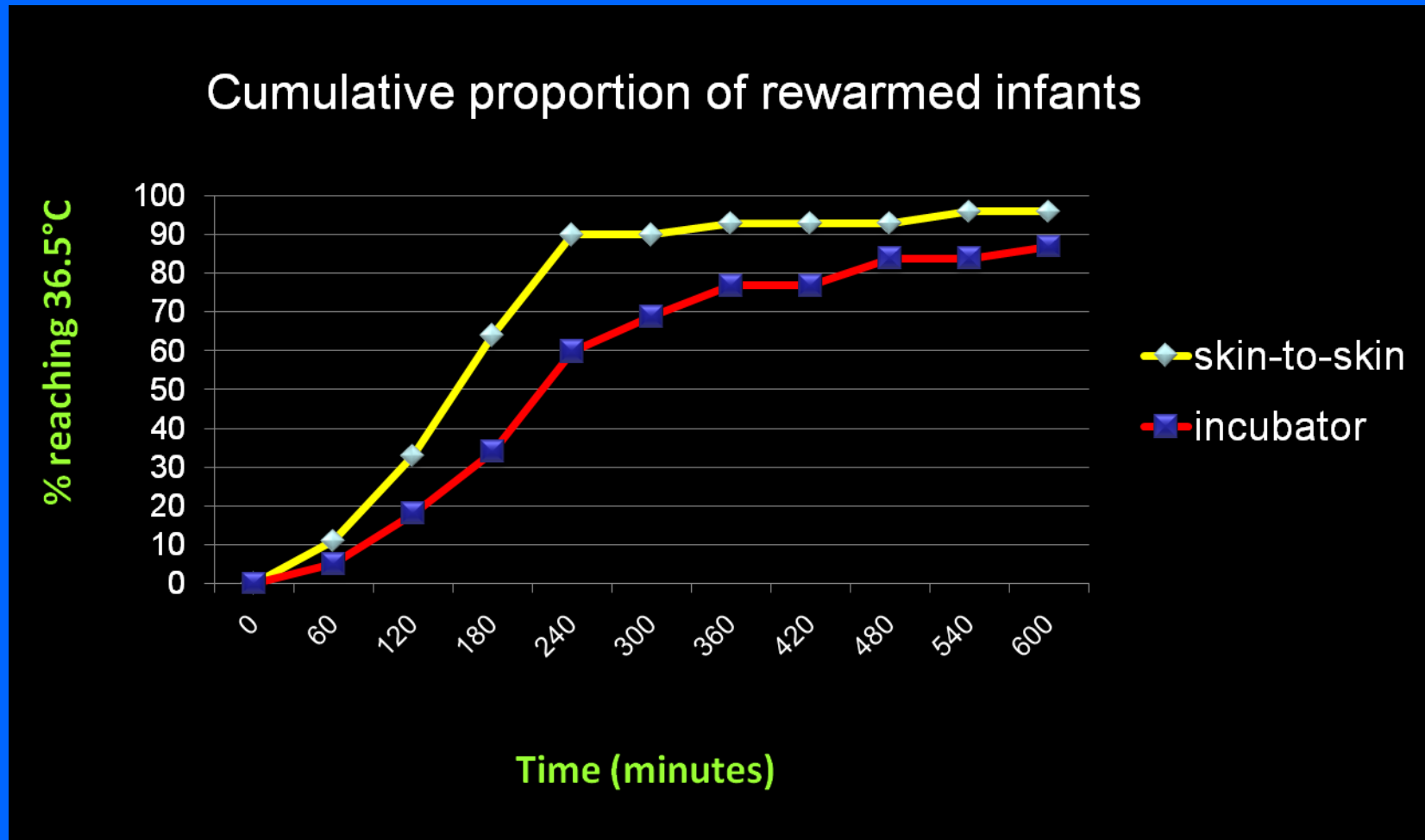


Lactating Breasts



(red 38 °C, green 31 °C). (from Kent J.C., Hartmann, P.E. 1995 Unpublished data.)

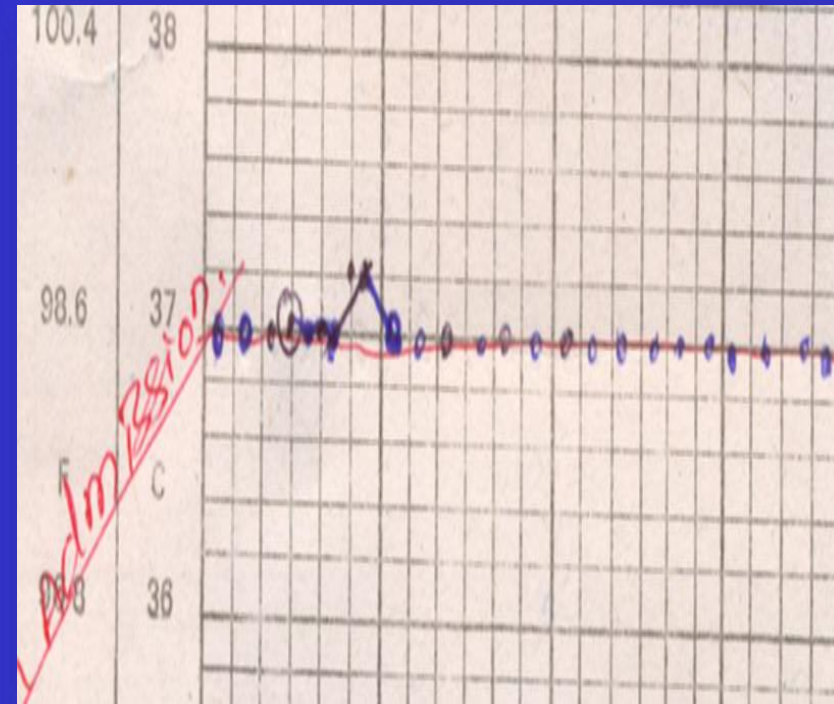
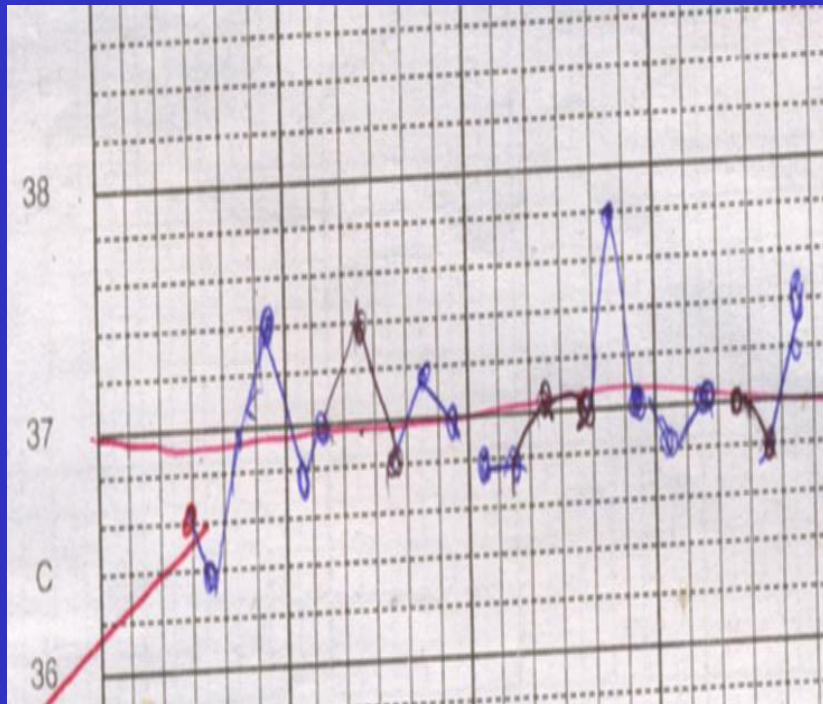
Effect on hypothermic LBW newborns



Effect on temperature



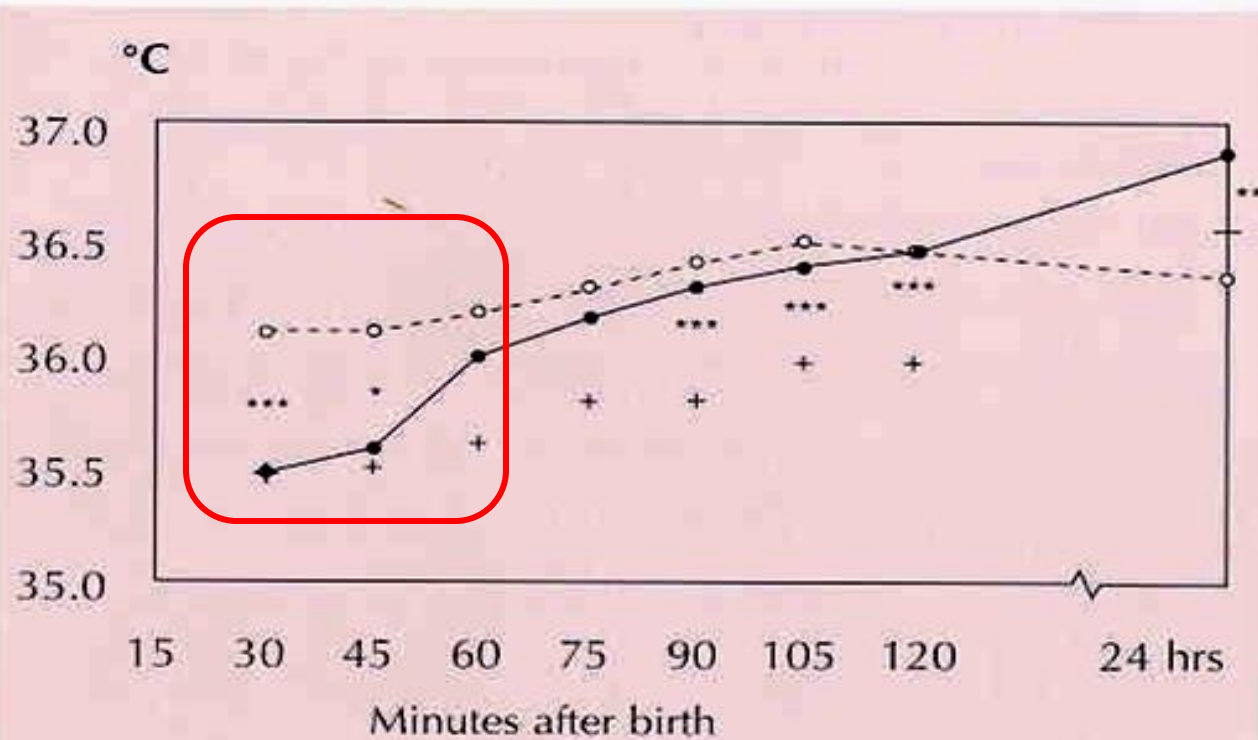
- “Swings in temperature in incubator” “Constant temperature in KMC”
- The mother’s core temperature may rise 2°C or drop 1°C in a short period of time, in order to maintain this narrow range



Fathers do not thermos regulate infant temperatures



Skin-to-skin w/father • Incubator ○ Cot +
* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$



Mom Not Available- No Problem



- **29 father-infant pairs** of newborns born by cesarean delivery randomized
- COT group
 - Fathers could interact with babies
 - Babies had to remain in bassinet
 - Fathers were not to pick up babies
- SSC group showed
 - **Less crying**
 - **Became calmer sooner**
 - **Reached a drowsy state sooner**
 - **Pre feeding behaviors were facilitated**



Thermal Synchrony in Twins



- Mother's breasts have the ability to thermally accommodate multiple infants simultaneously
- Each breast acts independently to keep a twin warm



Reduces infant crying



Group	Crying duration at various Time Interval		
	At 25-30 mins	At 55-60 mins	At 85-90 mins
Babies in skin-to-skin contact (Breast Crawl)	60 seconds	0 seconds	10 seconds
Babies in cot	1094 seconds	985 seconds	760 seconds

Causes babies to cry up to **10 times less** than babies who do not receive skin-to-skin contact in the first hour of life.

Skin-To-Skin Contact



- Immediate skin-to-skin contact has been shown to
 - facilitate the early initiation of exclusive breastfeeding
 - extend breastfeeding duration.



Making skin contact a routine part of intra-partum care



- A recent, large ,prospective study of the duration of skin-to-skin mother-infant contact during the first 3 hours following birth demonstrated a **dose-response relationship between early skin-to-skin contact and exclusive breastfeeding** during the maternity hospital stay
- In a study of 72 infants randomized to skin-to-skin contact versus isolation, the majority feed occurred , 63% in the contact group had an effective sucking technique, whereas only 21% in the control group (left in isolation) demonstrated good breastfeeding skills at the first feed.

یافته های بررسی تاثیر تماس پوستی مادر و نوزاد بر شروع تغذیه با شیر مادر



فاکتورهای مورد بررسی	گروه ۱۰	گروه ۲۰	گروه ۳۰
	تماس پوستی	تماس غیر پوستی	مراقبت معمول
جستجوی پستان، حرکات سر و باز کردن دهان	۱۷	۲۹	۲۷
حرکات دهان و لب، خروج بزاق از دهان	۲۱	۳۴	۳۷
بردن دست به دهان	۲۶	۳۹	۴۱
میانگین زمان شروع اولین تغذیه (دقیقه)	۲۸	۴۵	۴۷
درصد شروع اولین تغذیه ۳۰ دقیقه و کمتر	٪۷۲	٪۵	٪۵
۳۰-۶۰ دقیقه	٪۲۷	٪۸۵	٪۹۰
بعد از یک ساعت	۰	٪۱۰	٪۵
میانگین طول مدت اولین تغذیه با شیر مادر (دقیقه)	۴۳	۲۴	۲۷
میزان موفقیت نوزاد در اولین تغذیه در جستجوی بلافاصله و موثر پستان (درصد)	٪۶۵	٪۱۲	٪۱۲
میزان جستجوی ضعیف پستان (درصد)	۰	٪۲۵	٪۲۲
میزان موفقیت نوزاد در اولین تغذیه با شیر مادر	10/6+-1/32	8/65+-1/87	8/38+-2/24
میانگین نمره IBFAT	82/5%	45%	37/5%

Conclusion in our study



- Mother – infant skin to skin contact immediately after birth can
 - Enhance success of first breastfeeding and
 - Decrease the initiation time of first breastfeeding that should be a routine method in maternity services.



The effect of skin to skin contact immediately after birth between newborn and mother on infant success during first breastfeeding in Taleghany hospital in Arak medical science university on 2008 – 2009
Nahidi, F. (MSM) Dorri F. (MSM) Ravari M. (M.D) Akbarzade A. (PhD)

Quality of skin-to-skin contact



- ➔ • Of **40 babies** kept in immediate and uninterrupted skin-to-skin contact for 2 hour,
 - **40 attached** to the breast correctly < 60 min (Dori .Ravari M and colleagues 2009)
- Of **17 babies** kept in the Breast Crawl position and kept in uninterrupted skin-to-skin contact for 1 hour,
 - **16 attached** to the breast correctly. (Righard and Alade, 1990)
- **15** babies in the other group were separated after about 20 minutes for routine measuring and weighing procedures. After 20 minutes, they were returned to the mother,
 - **Only 7 babies** in this group attached correctly (Righard and Alade, 1990)

Quality of attachment



Total 72 newborns	Suckling Pattern	
	Correct	Incorrect
Contact Group (38)		
No Pethidine (17)	16	1
Pethidine (21)	8	3
Separation Group (34)		
No Pethidine (15)	7	7
Pethidine (19)	0	4

SOURCE: Righard and Alade, 1990

Serves as a pain analgesic



- Opioid peptides (dynorphins, enkephalins, endorphins, endomorphins and nociceptin) and cholecystokinins increased during STS, reducing the infant's sensitivity to painful stimuli and stress.
- American Academy of Pediatrics recommendation to use KC to reduce minor procedural pain—a recommendation commonly found in the literature..

Decreased Painful procedure



- The American Academy of Pediatrics in 2006 recommended using the kangaroo position in order to reduce the intensity and duration of the reaction triggered by mildly to moderately painful procedures.



Early breastfeeding and skin-to-skin contact has a physiological effect



- Oxytocin is known to play a role in bonding and reduction in postpartum bleeding; it has been demonstrated that oxytocin levels increase during first 45 minutes ...



Decreased maternal depression and stress



- In a randomized trial examining the relationship **between SSC and maternal depression and stress**, both depression scores and salivary cortisol concentrations were lower over the first month among postpartum mothers providing SSC compared with mothers who were provided no guidance about SSC



Decreased Stress



Cortisol has been studied as a sign of physiological stress in preterm infants. Most randomized controlled trials examining the influence of 20 minutes or more of KC with stable premature infants have shown reductions in cortisol levels by 60% or more when compared with infants left in an incubator



Dr Ravari

Decreased Stress



- Ferber and Makhoul demonstrated that infants held STS during the first hour of life had more flexed and fewer extended movements (indicating less stress)



Continuity of care in breastfeeding: best practices in the maternity setting, Karin Cadwell, CindyTurner–Maffei, 2009

Skin-to-Skin Contact at birth and Early Breastfeeding



Direct skin-to-skin contact with mothers
immediately after delivery
until the first feeding is accomplished and encouraged
throughout the postpartum period.



The precious moments after the birth should be as undisturbed as possible



Skin-To-Skin contact



- There is no need to hurry either the baby or the mother or to try to force the baby on to the breast – indeed, this may prove counter-productive and hinder the baby's ability to attach effectively later on.
- If there are concerns about the baby's need for feed, the mother can be encouraged to express some colostrum to give to him.



Starting Successful Breastfeeding



From the first feed, women should be offered skilled breastfeeding support (from a healthcare professional, mother-to-mother or peer support) to enable **comfortable positioning of the mother and baby** and to ensure that the baby **attaches correctly** to the breast to establish effective feeding and prevent concerns such as sore nipples.



Delayed skin contact



- If immediate skin-to-skin contact is not feasible it **should be started as soon as the circumstances make it possible.**
- If the baby needs to be transferred from the delivery room to the neonatal unit, skin contact should be encouraged as soon as mother and baby are well enough to be together



SAFETY CONCERNS REGARDING IMMEDIATE SSC



- Other safety concern are to attribute to:
 1. The lack of standardization in the approach, discontinuous observation of the mother-infant dyad (with lapses exceeding 10 to 15 minutes during the first few hours of life),
 2. lack of education and skills among staff supporting the dyad during transition while skin-to-skin, and *unfamiliarity with the potential risks of unsafe positioning* and methods of assessment.
 3. The main concerns regarding immediate postnatal SSC include **sudden unexpected postnatal collapse (SUPC)**, which includes any condition resulting in temporary or permanent cessation of breathing or cardiorespiratory failure. Many, but not all, of these events are related to **suffocation or entrapment**.

Sudden Unexpected Postnatal Collapse (SUPC)



- SUPC occurs most commonly in cases of neonatal infection, congenital heart disease, persistent pulmonary hypertension, metabolic defects, and anemia.
- It is associated with prone positioning and lack of adequate surveillance of the infant when in skin-to-skin contact.
- Preventive measures include parent education about maintaining airway patency with proper positioning and surveillance of the newborn infant by staff aware of SUPC.

SAFETY CONCERNS REGARDING IMMEDIATE SSC



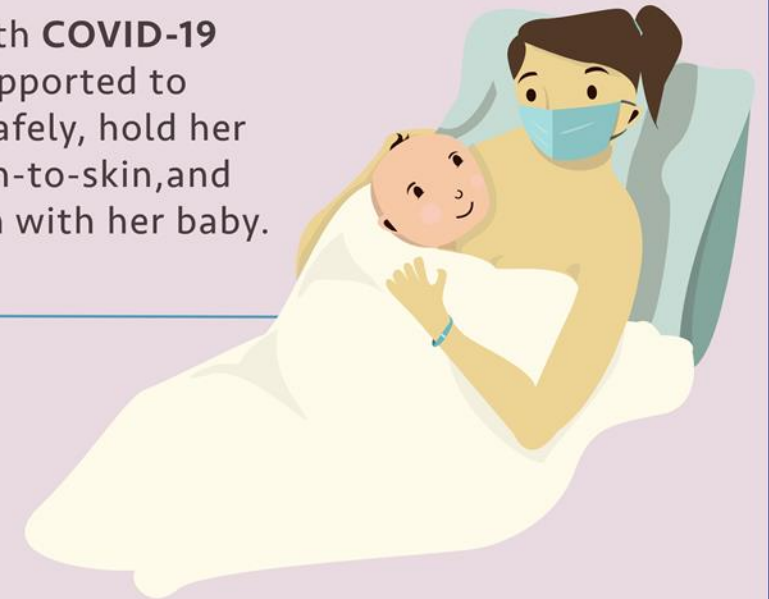
4. Rarely are there contraindications to providing SSC; however, there are potential safety concerns to address.
 - A newborn requiring positive-pressure resuscitation should be continuously monitored, and SSC should be postponed until the infant is stabilized.
 - Furthermore, certain conditions, such as low Apgar scores (less than 7 at 5 minutes) or medical complications from birth, may require careful observation and monitoring of the newborn during SSC and in some cases may prevent SSC.

Skin-to-Skin care and early, exclusive breastfeeding helps a baby to thrive



- A woman with COVID-19 should be supported to:
 - ✓ **breastfeed safely**
 - ✓ **hold her newborn skin-to-skin**
 - ✓ **share a room with her baby**

A woman with **COVID-19** should be supported to breastfeed safely, hold her newborn skin-to-skin, and share a room with her baby.



SKIN TO SKIN CONTACT (SSC) IN THE OPERATING ROOM FOR CESAREAN DELIVERY



Breastfeeding After a Cesarean



- Babies born via c-section may be somewhat **drowsy** and **lethargic**, especially if the mother was exposed to anesthetics for a prolonged period of time during labor.
- This doesn't mean that breastfeeding won't be successful, but it can mean that the milk may take a little **longer to come in** than it would after a vaginal birth. The baby may need some extra encouragement and stimulation in order to stay alert during feedings

Breastfeeding After a Cesarean



- Initiation of breastfeeding is often delayed
- Urgent cesarean births have been associated with delayed milk production, possibly related to the stress involved
- As soon as **they are fully conscious** and alert and able to hold the baby, they can begin breastfeeding
- Often in elective cesareans, **regional anesthesia is an option and mothers are able to breastfeed sooner**

Immediate or early skin-to-skin contact after a Caesarean section



- Increase breastfeeding initiation,
- Decrease time to the first breastfeed,
- Reduce formula supplementation in hospital,
- Increase bonding and maternal satisfaction,
- Maintain the temperature of newborns and
- Reduce newborn stress.

Baby Positioning in regional anesthesia



Regional anesthesia (Epidural, Spinal)



Skin-To-Skin at birth (a father at caesarean)



Regional anesthesia with DDC



- In an observational study, Anderson and colleagues found elective cesarean section combined with CC at 30 seconds resulted in higher iron stores at 4 months of age compared with early CC after vaginal birth.
- After a pilot trial, Chantry and colleagues suggested CC can be delayed to 120 seconds during elective cesarean section without increased risk of excessive maternal blood loss.
- The authors conclude that it is safe and beneficial for neonates to clamp the umbilical cord after at 60 seconds in planned/elective cesarean sections



To improve the maternal experience during CD and facilitate SSC, some hospitals have developed:

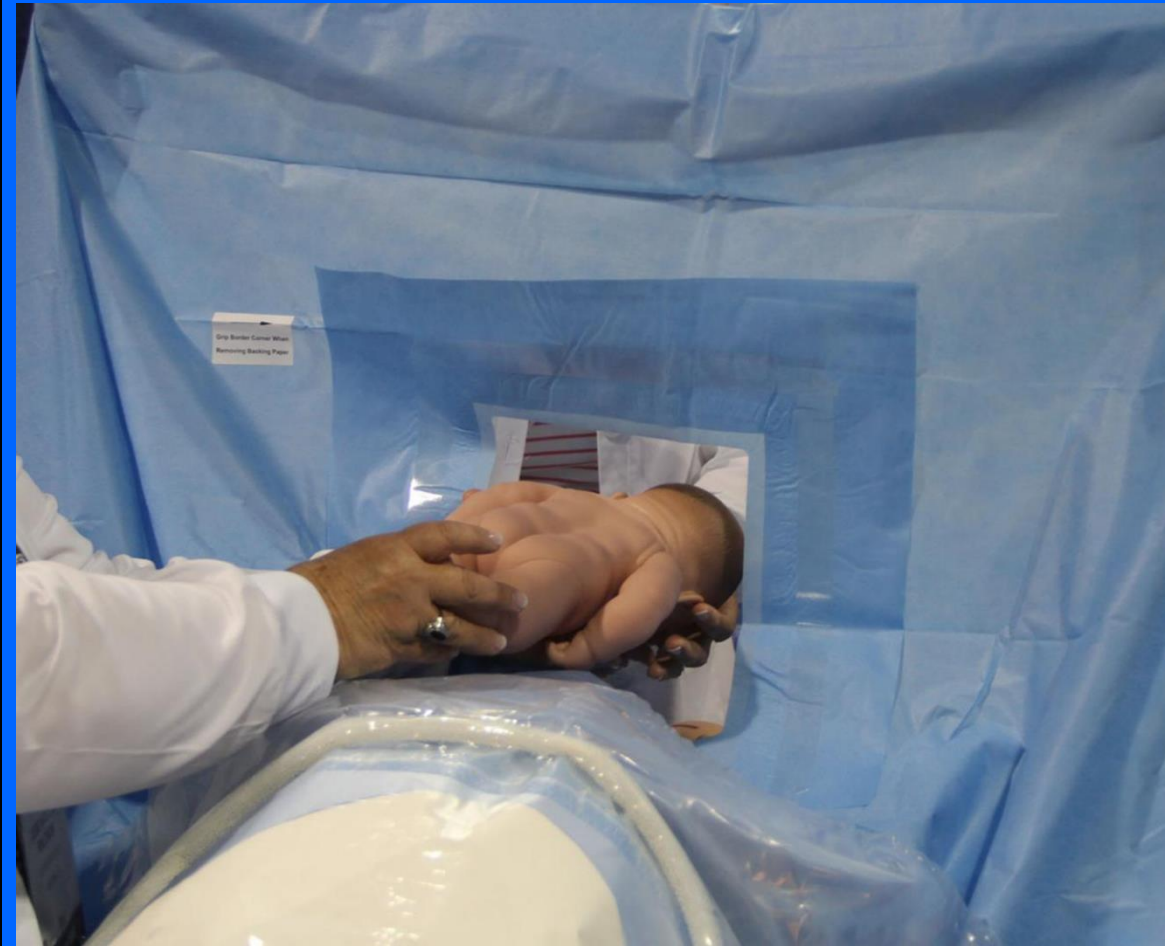


- Transparent drapes
- Drapes with flaps that baby can be passed through after delivery
- Drapes that can easily be lifted up so baby can be passed to the mother and her nurse/midwife care giver

Drapes with flaps that baby can be passed through after delivery



Nurses Invent C-Section Drape Allowing Mums To Have Immediate Skin-To-Skin Contact With Baby



Transparent drapes assisting the Mom to see baby



1. Lower the drape
2. Raise the head of the Mom SLIGHTLY
3. Consider using a clear drape
4. Keep mom's hands free

Worthy goal: Keep baby in mom's line of sight at all times!



Skin-To-Skin contact in recovery room (General anesthesia)



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**We are looking not only for survival but for
quality of life**

