Skin-to-skin between mother and baby at caesarean section :
Scientific bases and procedure

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Best practices recommendations are to place the nude baby on his mother's nude abdomen at birth to facilitate physiological harmonization in the transition *ex utero*, to maintain the baby's energy, and to reduce his stress of being born. Researches showed that a minimum of 1 to 2 hours of skin-to-skin contact between mother and baby, uninterrupted from birth, have a positive impact on the physiological and psychosocial parameters of both mother and baby, also facilitating breastfeeding.

Since 2002, Dumas (2014) systematically reviewed quantitative researches on skin-to-skin at birth, and updated this extensive literature review to present the following evidence :

Physiological effects :

- Baby's temperature – always optimal and better than if baby is bundled or swaddled, if baby is under the radiant warmer or in pajamas in a crib.
- Mother's temperature – always in reciprocity with the baby's temperature
- Hypothermic baby- skin-to-skin with the mother rewarms the baby better than the radiant warmer or the isolette
- No vasoconstriction at baby's feet- statistically significant; contributes to the reduction of the stress of being born
- Better oxygenation- arterial gases are better for the first 90 minutes of life
- Baby's glycemia- always optimal
- Placental expulsion- faster
- Neuro-motor organization- babies are more stable
- Reduced pain during painful procedures, for example vitamin K injection- analgesia has been demonstrated

Psychosocial effects :

- Baby cries less- during the first 90 minutes of life and during the first 3 days and the first 3 months
- Early interaction- more *en face* positions, more visual contacts, more maternal verbal communications; newborns are calmer and more alert after first cry and vocalize more

- Maternal affectionate behaviors- more frequently observed; mothers hold their baby closer, are softer in their attempts to latch and hold their babies, speak softly and respond more to their baby's signals
- Maternal well-being- facilitated; gastrin level is lower, oxytocin level is increased
- Attachment- easily observed, probably following repeated activation of oxytocin and opioids
- Significant reduction of parental negligence- in vulnerable populations; less infant abandonment
- Mother's mood- better at days 3 and 4 than for mothers who did not experience immediate and uninterrupted skin-to-skin at birth
- At one year old, more reciprocal mother-child interaction- greater maternal sensitivity to her child; child auto-regulates more easily
- Greater maternal satisfaction- demonstrated

Effects on breastfeeding :

- Pre-feeding behaviors- human innate sequence of the newborn (Widström et al., 1993, 1995, 2011) facilitated
- Breastfeeding initiation- tongue spontaneously places itself when mouth opens
- Breast massage by baby's chin or fists- increases level of oxytocin and number of suckings
- Breast odors- early recognition of maternal scent by babies
- Better suckings- after one hour of immediate and uninterrupted skin-to-skin compared to 20 minutes; less engorgement
- Better milk production at day 3- when first feed happens during the first 2 hours from birth
- Baby's weight loss- less when compared with swaddled babies; birth weight is regained within 3 to 5 days
- Exclusivity of breastfeeding- significative link between duration of skin-to-skin and exclusivity of breastfeeding at discharge
- Breastfeeding duration- statistically demonstrated until 6 months, possibly linked to a better start.

It is very important to note that all those effects happen when skin-to-skin between mother and baby is immediate at birth and for at least 1 to 2 hours duration. Babies who have been separated from their mothers at birth and then reunited 2 hours later behave as if they were still in the nursery. Evidences show a sensitive period within the first 2 hours after birth; initial separation followed by reunion after 2 hours doesn't compensate for the lack of immediate skin-to-skin at birth.

The appropriate behavior to adopt to respect the human innate sequence of the baby is to place all newborns on their mothers, in skin-to-skin contact from birth and for at least 1 to 2 hours without interruption. For a better transition of the baby *ex utero*, lights will be softened when the baby is exiting the womb and noises will be kept to the minimum.

Summarized from Dumas L (2014). *Skin-to-skin for all mothers and term babies at birth.* Scientific presentation "The Baby-Friendly Initiative: Access to excellence" conference of the Manitoba's Baby-Friendly Initiative, Winnipeg, September 19th. This Power Point presentation has been created in 2002 and updated regularly since.

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Videos:

- Widström AM, Ransjö-Arvidson AB, et Christensson K (1993). *Breastfeeding is baby's choice*. Produced at the Karolinska Institutet, Stockholm. Available in English, French and other languages from The Healthy Children Project. For all audiences.

- Skin-to-skin in the first hour after birth: Practical advice for staff after vaginal and cesarean birth (2010). Available in English, French and other languages from The Healthy Children Project. For health professionals.

- The magical hour. Holding your baby skin-to-skin in the first hour after birth (2011). Available in English, French and other languages from The Healthy Children Project. For parents and future parents.

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Procedure to follow:

Skin-to-skin in the operating room at caesarean section *without* general anesthesia

In the operating room

1. Inform parents about the benefits of immediate skin-to-skin of mother and newborn at birth, uninterrupted for at least one hour or until the end of the first feed.
2. Explain to them how to proceed when the baby will be placed on the mother.
3. Attach mother's gown by the front in order to quickly remove it when the baby is about to be born. This avoids having gown wrinkled at mother's neck, restraining her visual field.
4. After the umbilical cord is cut (as long as possible), the obstetrician/surgeon places the newborn in the circulating nurse's (or however is the designated professional to care for the infant) arms on a sterile blanket.
5. The circulating nurse immediately goes to the mother's head.
6. While she is bringing the baby to the mother, she quickly dries the baby's back and head (where greater evaporation could happen).
7. The newborn is placed directly on the mother's breasts, his nude abdomen on the mother's nude skin.
8. The baby is positioned in expansion as to have the greatest skin-to-skin contact possible. This activates oxytocin production and facilitates baby's breathing.
9. For the mother's and the baby's comfort, make sure the baby doesn't lie on the umbilical clamp.
10. Make sure the baby can spontaneously move his head at all times for an optimal respiration; make sure he is not curled up at neck.
11. When the baby is well placed, dry his back and head thoroughly.
12. Remove all wet or humid blankets.
13. Cover baby with one dry blanket; avoid overheating.
14. Ask partner to hold baby's bottom or thigh directly on skin under the blanket in case the newborn would slip from the mother.
15. A health professional must visually checks the baby's breathing and color (according to the hospital, it could be the circulating nurse, the anesthetist, a respiratory therapist, a nurse dedicated to the baby,…).
16. Baby's nose and mouth are visible at all times.
17. Place identification bracelets on parents and on baby just before the transfer to the recovering room.

For the transfer to the recovery room or directly to the mother's room

1. Ideally, the newborn is placed vertically between mother's breasts; the mother crosses her arms around the baby to hold him securely.
2. The mother holding her baby is then transferred to the stretcher by the usual sheet sliding motion, helped by the staff.
3. An alternate acceptable method is to place the baby skin-to-skin on his father, covered with a dry blanket, while the mother is transferred to the stretcher. As soon as the mother is placed on the stretcher, the father re-places the baby skin-to-skin on his mother with the nurses's help.

In the recovery room

1. The head of the stretcher is elevated at 30 degrees or more to avoid baby's prone position.
2. The baby is positioned on the mother as to facilitate visual contact and recognition of the baby's awakening and hunger cues by the mother.
3. Make sure the baby can spontaneously lift his head at all times to facilitate optimal breathing and first sucking.
4. The recovery room nurse visually checks baby's breathing and color when checking the mother's vital signs.
5. Baby's nose and mouth are visible at all times.