

MAKING THE MOST OF THE IMMEDIATE POSTPARTUM

The time immediately after the baby is born – the first couple of hours – is a critical, amazing, magical time. What follows here in the first 2.5 pages is a more medical, scientific description of the process, from a biochemical perspective. If this stuff bores you, just skip ahead to the middle of the 3rd page, where the line of red type is.

Imagine this scenario: You have been laboring for many hours. You have transitioned naturally from early labor when you were chatty and easily distractible, to active labor when you began to work harder, gradually focusing less on your surroundings as your focus was drawn more and more inward. You spoke less often, needed quiet during your contractions, and became less aware of time passing. And then transition, the last part of dilation, pulled you deep inside into the trance state where there was no time, you kept your eyes closed even between contractions, and cerebral activities (speaking, decision-making) were minimal. Finally, you surfaced from the trance, like a swimmer coming to the surface of the water, as your baby began to descend and you felt the urges to push. More aware and more energized, you actively pushed your baby out, working hard with each contraction to bring your baby into your arms! Now, after much effort on both your parts, your baby is out and in your arms!!! This time just after your baby is born is a time of exquisite sweetness and of incomparable importance, and should be protected as a sacred time. Here's why, how our practices try to maximize it, and how you and your partner can too.

The Cascade of Hormones in labor:

Four major hormonal systems are active during labor and birth. These involve oxytocin, the hormone of love; endorphins, hormones of pleasure and transcendence; adrenaline and noradrenaline (epinephrine and norepinephrine), hormones of excitement; and prolactin, the mothering hormone. These systems are common to all mammals and originate deep in our mammalian or middle brain. For birth to proceed optimally, this part of the brain must take precedence over the neocortex, or rational brain. This shift can be helped by an atmosphere of quiet and privacy with, for example, dim lighting and little conversation, and no expectation of rationality from the laboring woman. Under such conditions, a woman intuitively will choose the movements, sounds, breathing, and positions that will birth her baby most easily. This is her genetic and hormonal blueprint.

Oxytocin

Perhaps the best-known birth hormone is oxytocin, the hormone of love, which is secreted during sexual activity, male and female orgasm, birth, and breastfeeding. Oxytocin engenders feelings of love and altruism; as Michel Odent says, "Whatever the facet of love we consider, oxytocin is involved."

Oxytocin is made deep in our brains. It is a crucial hormone in reproduction and mediates what have been called the ejection reflexes: the sperm ejection reflex with male orgasm (and the corresponding sperm introjection reflex with female orgasm); the fetal ejection reflex at birth (a phrase coined by Odent for the powerful contractions at the end of an undisturbed labor, which birth the baby quickly and easily); and, postpartum, the placental ejection reflex and the milk ejection, or let-down reflex, in breastfeeding.

As well as reaching peak levels in each of these situations, oxytocin is secreted in large amounts in pregnancy, when it acts to enhance nutrient absorption, reduce stress, and conserve energy by making us sleepier. Oxytocin also causes the rhythmic uterine contractions of labor, and levels peak at birth through stimulation of stretch receptors in a woman's lower vagina as the baby descends. The high levels continue after birth, culminating with the birth of the placenta, and then gradually subside.

The baby also has been producing increasing amounts of oxytocin during labor; thus, in the minutes after birth, both mother and baby are bathed in an ecstatic cocktail of hormones. At this time, ongoing oxytocin production is enhanced by skin-to-skin and eye-to-eye contact and by the baby's first attempts at suckling. Good levels of oxytocin will also protect against postpartum hemorrhage by ensuring good uterine contractions.

In breastfeeding, oxytocin mediates the let-down reflex and is released in pulses as the baby suckles. During the months and years of lactation, oxytocin continues to act to keep the mother relaxed and well nourished.

Beta-endorphin

As a naturally occurring opiate, beta-endorphin has properties similar to morphine and heroin, and has been shown to work on the same receptors of the brain. Like oxytocin, beta-endorphin is secreted from the pituitary gland, and high levels are present during sex, pregnancy, birth, and breastfeeding.

Beta-endorphin is also a stress hormone, released under conditions of duress and pain, when it acts as an analgesic and, like other stress hormones, suppresses the immune system. This effect may be important in preventing a pregnant mother's immune system from acting against her baby, whose genetic material is foreign to hers.

Like the addictive opiates, beta-endorphin induces feelings of pleasure, euphoria, and dependence or, with a partner, mutual dependency. Beta-endorphin levels are high in pregnancy and increase throughout labor, when levels of beta-endorphin and corticotrophin (another stress hormone) reach those found in male endurance athletes during maximal exercise on a treadmill. Such high levels help the laboring woman to transmute pain and enter the altered state of consciousness that characterizes an undisturbed birth – the “trance” state. In labor, high levels will inhibit oxytocin release. It makes sense that when pain or stress levels are very high, contractions will slow, thus ‘...rationing labor according to both physiological and psychological stress.’

Beta-endorphin also facilitates the release of prolactin during labor; prolactin prepares the mother's breasts for lactation and is thought to be important in preparing the baby's lungs and heat-regulating systems for life outside the womb.

Beta-endorphin is also important in breastfeeding. Levels peak in the mother at 20 minutes post-birth, and beta-endorphin is also present in breast milk, inducing a pleasurable mutual dependency for both mother and baby in their ongoing relationship.

Fight-or-Flight Hormones

Even hormones of the adrenaline family (often seen as hormones of aggression) have an obvious role to play in the interaction between mother and baby immediately after birth. These hormones adrenaline and noradrenaline are also known as the fight-or-flight hormones, or, collectively, as catecholamines (CAs). They are secreted from the adrenal gland above the kidney in response to stresses such as fright, anxiety, hunger or cold, as well as excitement, when they activate the sympathetic nervous system for fight or flight.

In the first stage of labor, high CA levels inhibit oxytocin production, therefore slowing or inhibiting labor. CAs also act to reduce blood flow to the uterus and placenta, and therefore to the baby. This makes sense for mammals birthing in the wild, where the presence of danger would activate this fight or flight response, inhibiting labor and diverting blood to the major muscle groups so that the mother can flee to safety. In humans, high levels of CAs have been associated with longer labor and adverse fetal heart rate patterns (an indication of stress to the baby).

After an undisturbed labor, however, when the moment of birth is imminent, these hormones act in a different way. There is a sudden increase in CA levels, especially noradrenaline, which activates the fetal ejection reflex. One of the effects of such adrenaline release is that the mother is alert when the baby is born. Think of mammals in the wild, and we can more clearly understand how advantageous it is for the mother to have enough energy—and aggressiveness—to protect her newborn baby if need be. Aggressiveness is an aspect of maternal love.

After the birth, the mother's CA levels should drop steeply and quickly. This permits her high levels of oxytocin to predominate and facilitate uterine contractions that help birth the placenta and prevent postpartum hemorrhage. A new mother is very sensitive to temperature and if she cools down significantly, the cold stress will keep her CA levels high, so a warm, calm atmosphere is important.

The baby also has its own survival mechanisms during the last strong expulsive contractions and releases its own hormones of the adrenaline family. A rush of noradrenaline enables the fetus to adapt to the normal oxygen deprivation that occurs at the end of the pushing stage. The visible effect of this hormonal release is that the baby is alert at birth, with eyes wide open and dilated pupils. Human mothers are fascinated and delighted by the gaze of their newborn babies. It is as if the baby was giving a signal, and it certainly seems that this human eye-to-eye contact is an important feature of the beginning of the mother and baby relationship among humans.

Prolactin

Known as the mothering hormone, prolactin is the major hormone of breast milk synthesis and breastfeeding. Levels of prolactin increase in pregnancy, although milk production is inhibited hormonally until the placenta is delivered. Levels decrease during labor but then rise steeply at the end of labor and peak with birth.

Prolactin is a hormone of submission or surrender and produces some degree of anxiety. In the breastfeeding relationship, these effects activate the mother's vigilance and help her to put her baby's needs first.

Prolactin has been associated with nurturance from fathers as well as mothers, earning the additional label "The hormone of paternity". New fathers with higher prolactin levels are more responsive to their babies' cries. Animal studies show that prolactin release is also increased by carrying infants.

WHOA! That's a lot of scientific stuff. What does it mean for you?

OK, bottom line – hormonally, at the moment of a normal, unmedicated birth

1. Oxytocin is at the highest levels it will ever be in both mother and baby. And its effect is to cause mother and baby to fall in love with each other. High oxytocin causes a mother to become familiar with the unique odor of her newborn infant, and once attracted to it, to prefer her own baby's odor above all others'. Baby is similarly imprinted on mother, deriving feelings of calmness and pain reduction along with mom. When the infant is born, he is already imprinted on the odor of his amniotic fluid. This odor imprint helps him find mother's nipple, which has a similar but slightly different odor. In the days following birth, the infant can be comforted by the odor of this fluid. It also causes the uterus to contract well, expel the placenta and prevent hemorrhage.
2. Beta-endorphins are also at their highest peak, as a natural response to the intensity of labor. The effect is like being on morphine or heroin; you feel high, ECSTATIC!
3. Adrenaline and Nor-adrenaline are at extremely high levels, caused by the normal end-of-labor response, causing both mother and baby to be awake and alert, primed to look at each other and BOND.
4. Prolactin levels are high, activating maternal protectiveness and releasing colostrum to baby at the breast.

In the immediate postpartum, there are other things going on that are important too.

Bacteriological effects:

At birth, a baby is germ-free. An hour later there are millions of germs covering her mucous membranes. To be born is to enter the world of microbes. The question is, which germs will be the first to colonize the baby's body? Bacteriologists know that the winners of the race will be the rulers of the territory. The germ environment of the mother is already familiar and friendly from the perspective of the newborn because mother and baby share the same antibodies (IgG). In other words, from a bacteriological point of view, the newborn human baby urgently needs to be in contact with only one person—her mother. If we add that early consumption of colostrum will help establish an ideal gut flora, there is no doubt that, from a bacteriological point of view, the hour following birth is a critical period with lifelong consequences. Our gut flora can be presented as an aspect of our personality that cannot be easily modified later on in life.

Breast self-attachment:

The human baby is naturally programmed to find the breast during the hour following birth. Moreover, in physiological conditions, when the newborn baby is ready to find the breast, the mother is still in a particular hormonal balance. She is still "on another planet." She is still very instinctive. She knows how to hold her baby. Among humans, breastfeeding is potentially instinctive—during the hour following birth. After that there is room for education, imitation and even technique.

Mother/baby bonding:

When it comes to bonding, there is something magical about the first hour of life. Parents have waited many months to see their baby and surprisingly when the baby is born, he or she is in a special state of alertness- called State Four, the quiet state of consciousness, ready to meet its parents, and is especially interested in the mother's and father's face.

In this special state, the baby's eyes are wide open, the baby is quiet. The baby has heard and remembers the mother's voice from uterine life and will distinguish her voice from other women's voices, and 80% of babies remember the father's voice. The baby is warmed by the mother's chest and soothed by the mother's touch. This quiet time together helps the transition from uterine life to the outside world.

This special state in the infant lasts for 30 to 45 minutes or longer. All sorts of exchanges between the mother and infant are going on. The baby is taking in the mother through many senses, just as is the mother learning about her baby. The baby is becoming familiar with the mother's smell and within a few days will pick out his or her mother's breast pad from other women's breast pads. This is related to the particular smell of one's own mother not her milk.

As the baby gazes in the mother's face, he is recording a memory of her face so that if he is tested with a picture of his mother's face and other women's faces four hours later, he will choose his mother's face over and over again.

The mother is taking in her baby also, by touch, smell, as well as sight. Curiously, if she is tested a few hours later to pick out her baby from two others, she will know her baby by touch and smell within one day.

So as you can see, this one integrative first hour is extremely important, perhaps even more than the birth itself. Baby and mother are hormonally hard-wired to bond in this first hour or two, and this is a one-time opportunity that shouldn't be wasted or interfered with IF AT ALL POSSIBLE.

Naturally, some mother/baby pairs must be separated during this time, and when that is necessary, then you can use the first hour that you are reunited with your baby for the bonding that should have happened. You CAN and will bond, after any complications are over. But when possible – and that should be most of the time – this critical first hour should be treated as sacred.

In our practice, what this means is:

- We'll be letting you and baby "take a moment" just after birth, to orient, regroup, catch your breath. It is NORMAL for a woman, after a natural birth, to be a bit stunned for 30 seconds or so, by the intensity of the moment. Having your baby thrust into your arms isn't always just what you want. If you had delivered without assistance, you would probably have delivered in a kneeling position; your baby would likely have simply slithered gently onto the bed beneath you; and you would have maintained that position, catching your breath and gazing at the new creature you had produced. Gently you would reach out with one fingertip, then the whole hand, to caress the baby before finally picking her up. So we try to simulate this natural progression, allowing you to reach for your baby when you are ready. Baby sometimes needs that moment too. It's OK to grab your baby right away if you want to. But just know – you can take a moment if you need to.
- We won't be putting a hat on the baby automatically. The reason is that the baby's head is particularly rich in the smells of the baby – you know, that smell that mothers always refer to as they tip their noses down to sniff their baby's head? The reason for a hat is to minimize heat loss. And when babies were/are separated from their mother's bodies, they can get cold and a hat can be useful. But if your baby is on your body and staying warm, we don't need to put a hat between your nose and baby's lovely-fragranced head.
- We will try to speak softly and calmly, and minimize noise, and we'd like to encourage you to do the same. This goes for anyone present at the birth. Babies move and think and integrate information in slow-motion. And they've just come from a place where the sounds were muffled. So slower pacing really helps them.
- We'd like to encourage no cell phone calls or texting for the first 2 hours. You don't want to waste any of that precious first couple of hours on calls that can happen after a bit.
- We'll encourage photos, and will take them for you if you'd like. This is a once-in-a-lifetime moment. However, if pictures can be taken without a flash, all the better, for babies are startled by the flashes.
- We will speak to baby, explaining, validating, comforting – as needed. Baby is a sentient being and must be treated as such. Baby needs to learn that all that work was worth it, and that mom/bonding/the breast is the payoff at the end. Usually they understand this, but the baby that needs help with this will be allowed to "tell his story" and we'll validate that. And yeah, that means we'll be talking to baby as if he understands us. Because the truth is, he does!
- We'll be keeping room warm, which means we might ask you to turn up your furnace much higher than you are used to. It's important for mom and baby to stay warm during this time.
- We won't be cutting the cord until after the placenta is born – AT LEAST. After the placenta is delivered, we usually wrap the placenta up, in its bowl, in a towel or chux pad and keep it close to mom/baby. Why?

- For the mother, delayed clamping keeps the mother-baby unit intact and can prevent complications with delivering the placenta.
- For baby, a significant portion – up to 1/3 - of the baby's total blood volume is in the placenta at any given time and this blood is not 'extra' blood or waste – it belongs to the baby. Immediately after birth, the cord pulsates as the placenta continues to provide essential oxygen and nutrients, and begins to deliver blood back to the baby. This transfer of blood is called **placental transfusion** and it is a vital part of the birth process. Placental transfusion provides the baby with red blood cells, stem cells, immune cells and blood volume. Delayed cord clamping allows time for the placental transfusion, ensuring safe oxygen levels and blood volume in the baby.
- At the time of birth, the extra volume of blood needed for the fetal-to-neonatal transition resides in the placenta. Placental transfusion sends this 'respiratory' volume of blood back to the baby, to prepare and support the fetal organs to transition to 'adult' breathing and circulation. It also provides an adequate number of red blood cells to then **transport oxygen** throughout the baby's body. For the fetal lungs to switch from a 'fluid-filled' organ to perform gas exchange, the baby's heart must now direct 50% of cardiac output to the lungs (blood sent from the baby's heart, which was only 8% during fetal life). This perfusion of blood helps to **expand the air sacs, clear fluid from the lungs and keep the lungs expanded**. As the cord pulsates, the baby receives the extra blood volume and gently transitions to breathing. The massive increase in blood flow to the lungs takes place, without sacrificing blood flow to the other organs. Delayed cord clamping can ensure the baby has a sufficient blood supply for this fetal-to-neonatal transition.
- There are no other mammals that intentionally sever the cord immediately after birth. It just isn't physiologically normal! They probably know what they're doing.
- Keeping baby attached slows things down and means he/she can't be taken very far away from mom – which is just the right thing to do!
- Scientists are now discovering that umbilical cord blood is full of valuable T-cells which have cancer fighting properties. A whole industry has sprung up to have this precious blood extracted from the placenta, put in a cooler with dry ice, and taken to a special storage facility to be ready in case the child gets cancer at some time in the future. This is human insanity of the first order. That blood is designed by Nature to go into that child's body at birth, not 30 yrs later! Let him have his stem cells NOW! There are things about the newborn circulation and blood composition that we just don't know and it seems likely that Mother Nature had things figured out pretty well for us to survive this long.
- We will encourage mother and baby to be skin- to-skin, which provides heat and a variety of other tactile inputs. It offers benefits at many levels:
 - Helps maintain temperature
 - Facilitates metabolic adaptations especially sugar levels and acid-base balance
 - Results in less crying
 - Facilitates bonding
 - Causes oxytocin release in the mother
 - Improves immediate and long term breastfeeding success
- We'll monitor your blood loss as unobtrusively as possible.
- We won't do any newborn assessments that take baby away from you until baby is 2 hours old.
- We will wait until later to suture you, if suturing is needed.
- We will facilitate your baby's latching on to the breast, hopefully through self-attachment, also known as Breast Crawl.

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' and was first described in 1987. The description of the Breast Crawl is as follows:

"Immediately after birth the child was dried and laid on the mother' s chest. In the control group a regular behavioral sequence, previously not described in the literature, was observed. After 15 minutes of comparative inactivity, spontaneous sucking and rooting movements occurred, reaching maximal intensity at 45 minutes. The first hand-to-mouth movement was observed at a mean of 34± 2 minutes after birth and at 55+ minutes the infant spontaneously found the nipple and started to suckle.

These findings suggest that an organized feeding behavior develops in a predictable way during the first hours of life, initially

expressed only as spontaneous sucking and rooting movements, soon followed by hand-to-mouth activity together with more intense sucking and rooting activity, and culminating in sucking of the breast."

A baby is born with many instinctive abilities which enable her to perform the Breast Crawl. With all these innate programs, the infant seems to come into life carrying a small computer chip with the set of instructions. It appears that young humans, like other baby mammals, know how to find their mother's breast (Klaus and Kennel, 2001). The Breast Crawl is associated with a variety of sensory, central, motor and neuro-endocrine components, all directly or indirectly helping the baby to move and facilitate her survival in the new world.

After birth, the healthy newborn often undergoes a quiet alert phase, which has been referred to as the first phase of reactivity. When placed skin to skin on a mother's chest shortly after birth, the infant often becomes quiet and starts exploring its environment. The newborn's brain is optimally ready to integrate various sensory inputs and other components of the Breast Crawl soon after birth. If initiation is not attempted soon after birth, a vital period of alertness will be lost – the newborn will go off to sleep and the first breastfeed may be delayed for several hours. This delay leads to baby losing out the benefits of early initiation.

When self-attaching, newborns bob their heads and do small "push ups" to inch forward and side to side. The stepping movements the infant practiced as a fetus help the baby climb to the breast, and stepping on the abdomen over the uterus helps the uterus clamp down, decreasing the bleeding and expelling the placenta. Little behaviors that have been rehearsed in utero are used here. The baby has an ability to reach at birth, although reaching does not occur developmentally until four months, and curiously this reaching behavior touches the mother's breast, and massages and elongates the nipple for a good placement. Each touch of the nipple creates a surge of oxytocin in both the mother's brain and baby's brain. The efforts to reach the breast are interspersed with short periods of rest. Sometimes babies change direction in midstream. As the baby pushes up on her little elbows, sucks on her hand to get the taste of amniotic fluid, a property of which is similar to one secreted by the breast, she uses smell and taste as an additional guide to the nipple. When the baby massages the breast and subsequently suckles, a large oxytocin surge is induced from the mother's pituitary gland into her bloodstream. This also helps in the manufacture of prolactin. Other benefits of this early breastfeeding experience include helping the infant feel more secure, reducing infant mortality through the numerous immunological properties of human milk, and encouraging a longer period of breastfeeding.

Many subtle events occur in this early period and can be observed, but more would be missed unless understood. In this special quiet time the mother and baby are becoming acquainted, the baby hardly cries at all, and they are laying the foundation of secure attachment on the baby's part and more confidence in the mother for her ability to nourish and nurture her baby in the growing bond between them.



Early initiation of breastfeeding offers several advantages to the baby and the mother.

- Helps to keep the baby warm
- Leads to faster and effective achievement of feeding skills by the baby
- The baby starts getting colostrum as the first feed. Colostrum has high concentration of antibodies (immunity). Baby starts getting colonized by safe germs (bacterial flora) from the mother. Both these offer protection against infections and hence are important for the baby's survival.
- Helps uterine contraction, faster expulsion of the placenta, reduces maternal blood loss and prevents anemia.
- Leads to better sugar levels and other biochemical parameters in the first few hours of birth.
- Earlier passage of meconium (first blackish-green stool) and hence decreased intensity of normal (physiological) newborn jaundice.
- Early and long term breastfeeding success.
- Better mother-infant bonding.
- May have a role in boosting development of baby's nervous system.

There is evidence that many of these are better achieved with the Breast Crawl, which also offers proper acclimatization from the intrauterine to the extrauterine environment. This is also a natural instinctive process with other mammals. Hence, the maximum benefits of early initiation are best achieved with the Breast Crawl. If self-attachment is not possible in the first hours due to circumstances, it is possible to facilitate baby to crawl to the breast on his/her own at a later time in the first weeks of life, and the benefits will still be available.