

Endorphins, Labor, Pain, and Bonding **by Bonni Elizabeth Hall**

I've always wondered why women in childbirth should experience pain. I do realize that pain can be lessened by various perfectly natural means (change of position, lessening of anxiety, and more), but what I mean is that for the majority of women (as well as other mammals), birth involves pain. Why?

The human body produces various hormones in response to different situations. To pain (and some other stimuli), the hormonal response is to release endorphins, which are natural pain relievers. They not only suppress pain, they give the person a sense of well-being and sometimes a "high". Athletes often rave about the wonders of an endorphin high, as well as the effects of epinephrine (also known as adrenaline). Both of these naturally produced chemicals come into play when a woman is in labor.

To put it mildly, the mother's endorphin level affects the level of endorphins the baby is receiving. This makes the labor more tolerable for the mother, but may well affect the baby even more. It's entirely possible that a tiny baby can't produce the level of endorphin (and epinephrine) necessary to really be able to get any relief from the pain of birth, and considering that the baby's skull bones actually overlap in order to allow the birth, it's very likely that there is some level of pain involved for the child.

In addition, there is an experience known as "birth euphoria" experienced by mothers who labor and deliver medication-free. This euphoria is specifically related to the mother's levels of endorphins and epinephrine. It is believed that this euphoria is an important part of the bonding process.

Recent studies have shown that certain kinds of anesthesia (notably epidurals) severely reduce the levels of endorphins in the mother's body. No pain, no endorphins. What, then, does this do to the baby's level of pain relief? Naturally, if the mother has had narcotics, the baby will have received some, but then there are the issues with negative side effects (notably depressed respiration) of those drugs. And while the drugs used in epidurals can and do cross the placenta, they certainly don't have the same pain-relieving result on the baby, since the mother received the drugs in the epidural space of the spine and the baby is receiving them on a more system-wide level.

According to a study done in Europe on the psychological effects of epidurals (Khrebiel, et al., 1987), ewes given epidural anesthesia during labor and birth all eventually rejected their lambs. The full implications of this are not entirely known, and certainly human intelligence can and does affect the relationship between mother and child beyond the primal mammalian responses, but given other tests with human mothers and babies which point to bonding problems (Sepkoski CM, Lester BM, Ostheimer GW, Brazelton TB; Dev Med Child Neurol 1992 Dec;34(12):1072-80), it seems likely that the physical sensations of labor and birth may affect

the mother's response to her infant by inducing hormonal and neurological changes to make her more able to nurture her offspring, and that interfering with those sensations may well cause bonding problems between mothers and babies.

Wrote Ronnie Falcoa, LM, MS (homebirth midwife, labor coach, prenatal hypnotherapist, and maintainer of The Midwife Archives):

Most of us with extensive natural birth experience have found that a natural birth is an overall more positive birth experience for both the mom and the baby. A woman who is relaxed and receiving adequate support and has a normal pregnancy and labor will generate endorphins to provide her own natural pain relief.

These endorphins are passed through to the baby because they are carried in the mother's bloodstream. The anesthetics administered through an epidural are carried through the tissues by gravity, rather than through the bloodstream, and they don't do much to relieve the baby's experience of discomfort caused by the contractions, the periodic oxygen deprivation during the contractions, and the molding of the head in order to pass through the pelvis.

In addition to providing the baby with pain relief, the natural secondary hormones of labor (endorphins and adrenalines) are crucial in priming the baby for extrauterine life. They are important in the incredible physiological changes that happen at the moment of birth; in particular, they help facilitate the changeover to extrauterine breathing - an exquisitely complicated process involving a rerouting of the baby's circulatory system to include the lungs and exclude the placenta. This process requires a heightened neurological response to the changing blood gas levels in order for three ducts in the baby's body to close completely and complete the changeover. An absence of these hormones does indeed put the baby in greater danger. Some babies require heart surgery to close the duct that should have closed naturally at birth.

In addition, these endorphins are absolutely required for the best possible bonding between mother and baby, and they are important in the baby's physical and emotional development.

So in summary, it seems that not only is the mother's pain (which can, as mentioned, be managed effectively in the majority of cases with proper prenatal education, training, and support during labor) instrumental in lowering the pain for the baby, it may actually set the stage for bonding and nurturing, due to the levels of hormones involved, hormones which are certainly reduced and may be absent when drugs are routinely introduced into labor. At the time of birth, an unmedicated woman's level of endorphins, the body's natural pain killers, are thirty times higher than those in non-pregnant women. Endorphins create feelings of pleasure and joy, and of euphoria. Since endorphins are secreted in response to pain, it seems likely that by eliminating pain, epidurals would also lower the endorphin response, and in fact, recent studies (cited above) have shown this to be true.

However, the reduction in endorphins and adrenaline is only true for drugs or any type of pain relief that prevents the pain signals from reaching the brain. So while an epidural would prevent the natural and desirable buildup of endorphins and other narcotics would inhibit this buildup, other methods of pain relief that work by over-riding or re-programming those signals (hypnosis, massage, water, movement in labor, meditation, etc.) relieve the perception of suffering while still allowing the endorphins to build, producing not only pain relief for the mother but also for the baby and also producing the birth euphoria which is so vital to strong maternal-infant bonding.

Prepared, unmedicated birth is not only low-risk and high-benefit, it is an intricate part of Nature's plan for bonding mother and child, and for laying the foundation for a secure nurturing relationship. Yet more reason, in my opinion, to learn how to cope with the pain of birth rather than relying on drugs as a "first choice" option for pain management.