



TEN STEP TUESDAY

The Calming Effect of Maternal Breast Milk Odor on the Term Infant: a RCT

It's Ten Step Tuesday!



Newborns are exposed to several painful procedures starting from their birth. Heel-prick blood sampling for diagnosis is one of the most prevalent and painful medical procedures in newborns. Although it is considered to be a simple procedure, its recurrence may become painful and stressful for newborns due to practices such as needling the heel, squeezing the heel to get the right amount of blood, etc.

An acute pain associated with interventions leads to behavioral stress and physiological changes such as a decrease in oxygen saturation, hemodynamic instability, and an increase in intracranial pressure. These pain-related problems adversely affect the adaptation of newborns to the world outside, their growth and development, and family–infant interaction. To reduce these effects, interventions are recommended to decrease the pain of newborns. (1) Since pharmacological interventions may have undesirable reactions, the use of nonpharmacological measurements has been increasing rapidly. There are studies attempting to alleviate the interventional pain of the newborns using one or more of the sensory stimuli based on newborns' sense of sight, sense of hearing, sense of touch, sense of taste, and sense of smell. (2,3). In particular, the olfactory system is more susceptible than the other senses at birth. In a few short minutes after delivery, the head of a human newborn spontaneously turns to the maternal chest and makes a movement toward the mother's nipple to start sucking. There is proof that the odor of newborns' mother, especially maternal milk odor, obviously and positively affects the behavior of newborns. Similar distinction between maternal and nonmaternal odors from the neck, axilla, and whole body of the mother is observed in neonates aged 1–10 days. (4,5).

For more information contact

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In light of this past research [this recent study published in Breastfeeding Medicine](#) was carried out to assess the effect of breast milk and formula milk odors on the acute pain of newborn newborns during heel-prick blood sampling and to evaluate the effect of those odors on the heart rate, oxygen saturation, duration of crying, and cortisol level.

Methods:

Eighty-four newborn were randomly assigned into two groups (formula milk group and breast milk group) with 42 infant searches. The pain that the newborn felt before, during, and after heel-prick blood sampling was assessed using Neonatal Infant Pain Scale; their heart rate and blood oxygen saturation were measured with a pulse oximeter. Saliva samples were taken from newborns before and after sampling, and their salivary cortisol level was measured. During sampling, the crying duration of newborn was recorded with a chronometer.

Results:

The pain threshold and heart rates of the newborn in the breast milk group were significantly lower than those in the formula milk group ($p < 0.001$). Salivary cortisol in the formula milk group increased and oxygen saturation levels in these infants decreased significantly more as compared to the breast milk group ($p < 0.05$).

Conclusions:

The odor of breast milk may be helpful in reducing the pain of newborn during heel-prick blood sampling.

How neat! One more reason to do those heel-pricks with babies skin-to-skin with mom.

For the full study, go to: <https://www.liebertpub.com/doi/10.1089/bfm.2020.0116>

Select References:

1. Mangat AK, Oei JL, Chen K, et al. A review of nonpharmacological treatments for pain management in newborn infants. *Children* 2018;5:130–142.
2. Pillai Riddell RR, Racine NM, Gennis HG, et al. Nonpharmacological management of infant and young child procedural pain (Review). *Cochrane Database Syst Rev* 2015;7:1905–2121.
3. da Motta G, Cunha MLCD. Prevention and nonpharmacological management of pain in newborns [in Portuguese]. *Rev Bras Enferm* 2015;68:131–135.
4. Varendi H, Porter RH, Winberg J. The effect of labor on olfactory exposure learning within the first postnatal hour. *Behav Neurosci* 2002;116:206–211.
5. Cernoch JM, Porter RH. Recognition of maternal axillary odors by infants. *Child Dev* 1998;56:593–598.

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