

For preterm infants, skin-to-skin contact affects

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For premature infants in the neonatal intensive care unit (NICU), skin-to-skin contact with parents influences levels of hormones related to mother-infant attachment (oxytocin) and stress (cortisol) - and may increase parents' level of engagement with their infants, reports a study in *Advances in Neonatal Care*, official journal of the National Association of Neonatal Nurses.

Promoting early contact and parental engagement might help to lessen the risk of neurodevelopmental delay associated with preterm birth and NICU care, according to the exploratory study by Dorothy J. Vittner, Ph.D., RN, CHPE, of University of Connecticut School of Nursing and colleagues. They write, "Parental touch, especially during skin-to-skin contact (SSC) has potential to reduce adverse consequences."

Study Attempts to Measure Benefits of Skin-to-Skin Contact for Preterm Infants

The pilot study included 28 preterm infants, average gestational age 33 weeks. All infants were in stable condition while receiving NICU care. Infants underwent periods of SSC on two consecutive days: once with the mother and once with the father. Saliva samples were collected from infants and parents to measure levels of oxytocin, a hormone that has been linked to maternal-infant attachment; and the stress-related hormone cortisol.

"Oxytocin facilitates social sensitivity and attunement necessary for developing relationships and nurturance for emotional and physical health," the researchers write. Cortisol plays an important role in the "fight or flight" reaction to fear or stress.

Levels of both hormones changed in response to SSC. "Oxytocin significantly increased and [cortisol levels](#) decreased for mothers, fathers, and infants during SSC as compared to baseline," Dr. Vittner and coauthors write. The changes indicate the "calming and beneficial impact of SSC for both parents and infants."

Parents also completed a questionnaire called the "PREEMI" (Parent Risk Evaluation and Engagement Model and Instrument) scale, designed to measure attachment between parents and their [preterm infants](#). Overall PREEMI scores indicated a "moderate to high" level of parental engagement for all participants.

Increased oxytocin and decreased cortisol levels during SSC were associated with higher PREEMI scores by the time the infant was discharged from the hospital. "We believe these findings suggest that parents with a lower salivary cortisol as seen with SSC (decreased stress) may facilitate increased parental engagement," Dr. Vittner and colleagues write.

Mothers and fathers had similar increases in oxytocin during SSC. In mothers, the rise in oxytocin was related to increased parental engagement. Unexpectedly, however, increased oxytocin during SSC in fathers was negatively related to parental engagement. Dr. Vittner and colleagues note that for many fathers, the study SSC intervention was the first time they had held their infants.

The study provides new evidence of how SSC might work to promote attachment between parents and premature infants. "The changes in

[oxytocin](#) and cortisol levels provide robust support to advocate for increased SSC during infancy, especially for the vulnerable infant in the NICU," the researchers write. They note that further studies will be needed to understand these relationships, and how they affect parent-infant relationships—especially in overcoming the obstacles posed by having a premature infant who need NICU care.

The results also suggest that the PREEMI questionnaire can provide a "window into parent engagement," potentially useful in identifying parents who may need interventions to increase engagement with their premature infant. Dr. Vittner and coauthors conclude: "Uncovering the bio-behavioral basis of early parent-infant interactions is an important step in developing therapeutic modalities to improve infant health outcomes."

Provided by Wolters Kluwer Health

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