Research Summaries for Normal Birth

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ABSTRACT

In this column, the authors summarize four research studies relevant to normal birth. Topics of the studies summarized include the harms of screening for macrosomia late in pregnancy, the risk factors for and impact of postpartum pain in childbearing women, the effects of a breastfeeding approach called “biological nurturing” on reflexive behavior in newborns, and the effects of prenatal yoga on labor and birth outcomes.

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PRENATAL DIAGNOSIS OF SUSPECTED FETAL MACROSOMIA INCREASES RISKS OF CESAREAN SECTION AND MATERNAL MORBIDITY WITHOUT IMPROVING NEWBORN OUTCOMES

- Sadeh-Mestechkin, D., Walfisch, A., Shachar, R., Shoham-Vardi, I., Vardi, H., & Hallak, M. (2008). Suspected macrosomia? Better not tell. *Archives of Gynecology and Obstetrics*. doi: 10.1007/s00404-008-0566-y

Summary

In this prospective observational trial, researchers followed 145 women thought to be carrying babies weighing more than 4000 g (about 8 lb, 13 oz) to evaluate the reliability of sonographic and clinical estimates of fetal weight and to determine whether a diagnosis of “suspected macrosomia” affects pregnancy management or outcomes. To answer these

questions, they first divided the “suspected macrosomia” into two subgroups depending on whether the babies in fact weighed more or less than 4000 g. This resulted in a “false-positive” subgroup of 82 babies thought to be macrosomic but actually weighing less than 4000 g and a “true-positive” group of 63 babies thought to be macrosomic and indeed weighing more than 4000 g. The researchers compared outcomes between these two groups, then compared the “true-positive” group to all other births of macrosomic infants to women admitted to the same hospital in the study period (i.e., women giving birth to infants weighing over 4000 g but who did not have a prenatal diagnosis of suspected macrosomia).

The study confirms an existing body of literature that tells us that prenatal methods for detecting macrosomia are not reliable—only 44% of babies suspected to weigh over 4000 g actually did. Clinical estimates (those performed by a care provider using palpation) were more reliable than ultrasound

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estimates but were still off by more than 10% in 1 of every 6 cases. The 145 women with suspected macrosomia were assigned by the admitting doctor to elective cesarean surgery (16%), induction of labor (39%), or observation awaiting labor (46%). Thirty-five of the 56 women who underwent induction and 47 of the 66 women who were admitted in spontaneous labor gave birth vaginally, for an overall vaginal birth rate of 57% (including 2% who had instrumental vaginal births). The remaining women gave birth by cesarean surgery either before (21%) or during (22%) labor. When researchers compared outcomes of the “true-positives” with the “false-positives” within the “suspected macrosomia” group, there were no differences in maternal or infant complications.

When the researchers compared the true-positive macrosomic infants in the study group (those suspected to weigh and actually weighing >4000 g) to the macrosomic infants in the comparison group (those not suspected to be macrosomic prior to birth), they found much higher rates of intervention and related morbidity in the study group. The cesarean surgery rate for macrosomic infants in the suspected macrosomia group was 57%, compared with only 17% for macrosomic infants in the comparison group (absolute difference 40%). Likewise, 25% of macrosomic infants in the study group were induced, compared with 14% in the comparison group (absolute difference 11%). There was no difference in shoulder dystocia between the two groups. However, maternal morbidity (including hemorrhage, wound infection, wound dehiscence, fever, and use of antibiotics) was significantly higher in the study group, most likely because of the much higher rate of cesarean surgery in this group.

Significance for Normal Birth

The concern that a baby is growing “too big” is one of the most common reasons cited for induction of labor and also prompts decisions to perform cesarean surgery both before and during labor (Declercq, Sakala, Corry, & Applebaum, 2006). However, there

is strong and consistent evidence that elective induction or cesarean surgery for “suspected macrosomia” does not improve outcomes, and expert bodies, including the American College of Obstetricians and Gynecologists (2004), oppose routinely interfering when a baby is suspected to be large.

The present study, summed up by its title, “Suspected Macrosomia? Better Not Tell,” provides damning evidence that shows clearly that the provider’s belief that the baby is “too big” is itself a strong risk factor for injudicious intervention and poor health outcomes. An initial suspicion that the baby is large may instill fear in the pregnant woman, which may impede both her confidence in her body and her labor progress. Slow labor progress reinforces the suspicion that the baby is big, and more aggressive management ensues. This management often hinders the woman’s ability to move freely and assume the positions that may help her baby negotiate through her pelvis, further slowing progress and reinforcing the perceived need for surgical intervention. Based on this study and previous evidence, women should strongly consider refusing tests late in pregnancy intended to estimate fetal weight. The estimate itself may be bad for her health because the care provider’s expectation that the baby will be macrosomic appears to increase both unnecessary medical intervention and the morbidity that may accompany it.

WOMEN HAVING SPONTANEOUS VAGINAL BIRTH WITHOUT EPISIOTOMY LEAST LIKELY TO EXPERIENCE POSTPARTUM PAIN

- Declercq, E., Cunningham, D. K., Johnson, C., & Sakala, C. (2008). Mothers’ reports of postpartum pain associated with vaginal and cesarean deliveries: Results of a national survey. *Birth*, 35(1), 16–24.

Summary

This analysis of data from the *Listening to Mothers II* survey focuses primarily on postpartum pain according to mode of birth and whether the survey respondent was primiparous or multiparous. *Listening to Mothers II* reports on the experiences of 1,573 U.S. women who gave birth in 2005 and were interviewed in early 2006 (Declercq et al., 2006). Inclusion criteria were age older than 18 years and hospital birth to a singleton infant. Participants were similar to U.S. women with respect to

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birth attendant, race/ethnicity, age, number of births, and educational attainment. In addition, to minimize bias in this self-selected group, survey results were weighted to reflect the U.S. national birthing population.

In the first two months, 86% of primiparous women who had undergone cesarean surgery reported incision pain as a problem (45% “major” problem), whereas 97% of multiparous women having their first cesarean reported a painful cesarean incision (44% “major” problem) as did 68% of women having a repeat cesarean (22% “major” problem). The experience of incision pain did not differ by whether surgery occurred before or during labor. Painful perineum was more common among women having an instrumental vaginal birth compared with spontaneous birth. Among primiparous women who had given birth vaginally, the percentage who reported pain with instrumental vaginal birth was similar to that among women with spontaneous birth (77% vs. 73%), but significantly more women with instrumental birth reported perineal pain to be a major problem (47% vs. 28%). Significantly more multiparous women having instrumental birth, compared to those with spontaneous birth, reported perineal pain (52% vs. 37%) and also that the pain was a major problem (17% vs. 8%). Women having spontaneous birth with no episiotomy fared best of all. Among primiparous women, 67% reported perineal pain compared with 82% of women who had episiotomies, although similar percentages reported severe pain. Among multiparous women, 33% with no episiotomy reported perineal pain compared with 49% of women who had episiotomies, and 5% versus 18% reported pain as a major problem. Differences achieved significance in the multiparous group but not the primiparous group.

Women were also asked how much pain interfered with their routine activities in the first two months. In the primiparous group, 12% of women having spontaneous vaginal birth said that pain interfered “quite a bit” or “extremely” compared with 33% of women having instrumental vaginal birth and 25% of women having cesarean surgery. In the multiparous group, 8% of women having spontaneous birth, 8% having instrumental birth, 34% having primary cesarean, and 16% having repeat cesarean reported that pain interfered to this degree. Differences within parity groups achieved significance. Finally, women having spontaneous vaginal birth rarely experienced long-term pain,

but substantial percentages of women having instrumental or surgical birth did. Only 2% of primiparous women and 1% of multiparous women with spontaneous birth reported perineal pain lasting 6 months or more, compared with 15% of primiparous women having instrumental vaginal birth, although there were only 40 women in this category, which weakens confidence in this result. (None of the 48 multiparous women who had instrumental birth experienced long-term pain.) Among women who had cesarean surgery, 17% of primiparous women, 22% of multiparous women having a first cesarean, and 17% of women having repeat cesarean surgery experienced pain lasting 6 months or more.

Significance for Normal Birth

One argument made for elective cesarean surgery is that it avoids the pain of labor. Proponents also allege that antepartum surgery offers advantages over intrapartum surgery. This study, however, finds that women having cesarean surgery are more likely than women birthing vaginally to experience pain that interferes with routine activities and to experience long-term pain; the study also shows that timing of surgery makes no difference. Women considering elective surgery to avoid labor pain should be advised that, although labor pain can be controlled, cesarean surgery substantially increases their risk of experiencing many months of pain postpartum or pain that affects their quality of life. Instrumental vaginal birth likewise increases the probability of experiencing perineal pain in both the short and long term compared with spontaneous vaginal birth. Women may wish to consider this when deciding whether to have an epidural, a procedure that increases the likelihood of instrumental birth (Anim-Somuah, Smyth, & Howell, 2005). Episiotomy, too, increases the risk of short-term pain.

In short, women wishing to avoid childbirth-related pain should be advised that a spontaneous vaginal birth with no episiotomy will best achieve that goal. Care practices that safely optimize the likelihood of spontaneous vaginal birth, including

Lamaze International members can access the full *Listening to Mothers II* report by logging on at the Lamaze Web site (www.lamaze.org). Others can purchase the full report from the Childbirth Connection Web site (www.childbirthconnection.org), where the executive summary of the report is also available to the public.

To view Lamaze International's *Six Care Practices That Support Normal Birth* and to read about the evidence that supports these practices, click on the Lamaze Institute for Normal Birth link at Lamaze's Web site (www.lamaze.org).

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Lamaze International's (2007) Six Care Practices That Support Normal Birth, should be the standard of care for all childbearing women.

STUDY CHALLENGES CONVENTIONAL BREASTFEEDING ADVICE, SUGGESTS MOTHERS SHOULD BE SEMIRECLINED TO NURSE MORE EFFECTIVELY

- Colson, S. D., Meek, J. H., & Hawdon, J. M. (2008). Optimal positions for the release of primitive neonatal reflexes stimulating breastfeeding. *Early Human Development*. doi: 10.1016/j.earlhumdev.2007.12.003

Summary

In this descriptive observational study, researchers videotaped 40 healthy, breastfeeding mother-infant pairs in the first month after birth to explore whether maternal posture and infant positioning affect the expression of neonatal reflexes that support effective, pain-free breastfeeding. To be eligible, women must have had low-risk pregnancies and given birth to healthy, term infants with 5-minute Apgar scores of at least 9. Effort was made to recruit an ethnically diverse sample, and data were analyzed according to the gestational maturity of the infant at the time of videotaping. The researchers divided videotaped feeding episodes into prefeed, latch, and ingestion and examined each period for instances of any primitive neonatal reflexes, defined as “inborn unconditioned reflex responses, spontaneous behaviours and reactions to endogenous or environmental stimuli developing during foetal life and observed in all normal healthy term neonates at birth” (p. 3). Examples of these reflexes include hand-to-mouth movements, gaping of the mouth, cycling movements of the arm or leg, and bobbing or nodding of the head. After recording instances of reflexive behavior, the researchers interpreted the type and function of the reflexes and their relationship to effective, pain-free breastfeeding. Maternal and infant postures were characterized by whether they were consistent with “biological nurturing” (BN), a breastfeeding approach in which the mother is encouraged to lean back and the baby is held prone, facing the mother and in contact with her body contours.

Twenty primitive neonatal reflexes were described, which the researchers categorized into

four types: endogenous, motor, antigravity, and rhythmic. Some of these reflexes seemed to function to find or latch onto the nipple while others supported milk transfer. More primitive neonatal reflexes were observed when women were in full-BN postures (mean = 16 reflexes) compared with when women were in partial- or non-BN postures such as sitting upright (mean = 12 reflexes). Some reflexes, such as head bobbing, rooting, and hand-to-mouth movements, seemed to act as barriers to effective breastfeeding in partial- or non-BN positions, while they appeared to stimulate and support breastfeeding in full-BN positions. When mothers who were experiencing breastfeeding problems assumed BN positions, the researchers observed that “gulping and gagging diminished, [and] the baby often became the active agent controlling the feed, aided by the different types of [reflexes]” (p. 5). This study also suggests that women, too, may have innate behaviors that facilitate those of the infant. In full-BN positioning, women instinctively elicited their infant's primitive neonatal reflexes in a sequence that promoted effective feeding, behaviors not seen with partial or non-BN positioning. Says an untutored woman in full BN position after spontaneously assisting her baby's efforts, “Breastfeeding is so easy. I wish more of my friends were doing it” (p. 7).

Significance for Normal Birth

“Babies are born to breastfeed.” Research demonstrates that, left undisturbed after birth, healthy term newborns perform a sequence of reflexive pre-feeding behaviors culminating in self-attachment to the mother's breast. Despite this normal behavior, many breastfeeding mother-infant pairs encounter feeding problems in the early days and weeks. These problems can cause women to discontinue exclusive breastfeeding earlier than planned.

Although the phenomenon of newborn self-attachment is well documented, a much smaller body of literature maps newborn reflexive behaviors to breastfeeding effectiveness after the initial feeding. This study provides evidence that an approach to breastfeeding that proponents have termed “biological nurturing” stimulates reflexive behaviors in newborn and mother alike. These synchronized reflexes seem to support both effective, pain-free latch and ingestion of milk. In contrast to prevailing advice that breastfeeding mothers should sit upright and support the baby's back and head, biological nurturing involves breastfeeding in a semireclined

position with the baby prone and in close contact with the mother's body. Babies in full-biological nurturing positions employ antigravity reflexes to locate the breast and latch without dorsal support, and their mothers assist them in that task. Additional research is warranted, but the researchers offer a compelling case that breastfeeding continues to be mediated by newborn reflexive behavior well after birth, that postures and positions may either support or hinder these reflexes, and that by inhibiting or overriding instinctive maternal behaviors, typical breastfeeding instruction may be counterproductive.

PRENATAL YOGA MAY RESULT IN LESS LABOR PAIN, SHORTER LABOR

- Chuntharapat, S., Petpichetchian, W., & Hatthakit, U. (2008). Yoga during pregnancy: Effects on maternal comfort, labor pain and birth outcomes. *Complementary Therapies in Clinical Practice*, 14(2), 105–115.

Summary

In this trial conducted in Thailand, nulliparous pregnant women without previous yoga experience were randomly assigned to practice prenatal yoga ($n = 37$) or to usual care ($n = 37$). The yoga group attended a series of six 1-hour yoga classes, one every 2 weeks, in the final trimester and received a booklet and audiotape for self-study, which they were encouraged to practice at least three times per week. Daily diaries kept by participants and weekly phone contact from researchers helped ensure compliance. Participants in both groups completed a prenatal questionnaire to assess anxiety and collect demographic data. Once in labor, pain and comfort were assessed every 2 hours in the first stage of labor (for a maximum of three measurements) and again 2 hours postpartum using multiple pain-measurement instruments that have previously been validated for use in laboring women. The researchers controlled for maternal age, marital status, education level, religion, income, and maternal trait anxiety by employing a computerized randomization scheme that assigned women according to these attributes.

Data were available for 33 of 37 women assigned to each group, but the researchers provide no explanation for this attrition. Although this omission limits the reliability of the study, the strength and

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consistency of the researchers' findings suggest that attrition probably did not significantly alter results. The experimental group (yoga group) had significantly less pain and more comfort than the control group at each of the three measurement intervals during labor and at the postpartum measurement. This finding was consistent and significant across all three pain-measurement instruments used. The researchers do not present data about mode of birth. However, the length of the first stage of labor and total duration of labor were significantly shorter in the yoga group (mean length of first stage = 520 minutes in yoga group vs. 660 minutes in control group; mean total time in labor 559 minutes in yoga group vs. 684 minutes in control group). There were no differences in length of second stage of labor, pethidine usage or dose given, augmentation of labor, newborn weight, or Apgar scores. Epidural analgesia was not mentioned, so presumably it was not available.

Significance for Normal Birth

This study provides evidence that regular yoga practice in the last 10–12 weeks of pregnancy improves maternal comfort in labor and may facilitate labor progress. The researchers offer several theories for these effects. First, yoga involves synchronization of breathing awareness and muscle relaxation, which decrease tension and the perception of pain. Second, yoga movements, breathing, and chanting may increase circulating endorphins and serotonin, "raising the threshold of mind-body relationship to pain" (p. 112). Third, practicing yoga postures over time alters pain pathways through the parasympathetic nervous system, decreasing one's need to actively respond to unpleasant physical sensations.

Prenatal strategies that help women prepare emotionally and physically for labor may help reduce pain and suffering and optimize wellbeing in childbirth by providing coping skills and increasing self-confidence and a sense of mastery. More research is needed to confirm the findings of this study. However, yoga's many health benefits and

the lack of evidence that yoga is harmful in pregnancy or birth provide justification for encouraging interested women to incorporate yoga into their preparations for childbirth.

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