

These are summaries of reviews from the Cochrane Library.

The series coordinator for *AFP* is Corey D. Fogleman, MD, Lancaster General Hospital Family Medicine Residency, Lancaster, Pa.

A collection of Cochrane for Clinicians published in *AFP* is available at <http://www.aafp.org/afp/cochrane>.

**CME** This clinical content conforms to AAFP criteria for continuing medical education (CME). See CME Quiz Questions on page 327.

Author disclosure: No relevant financial affiliations.

## Antenatal Perineal Massage to Prevent Birth Trauma

DEAN A. SEEHUSEN, MD, MPH, and MEGHAN RALEIGH, MD, *Fort Belvoir Community Hospital, Fort Belvoir, Virginia*

### Clinical Question

Does digital perineal massage in the antenatal period reduce birth trauma or long-term morbidity?

### Evidence-Based Answer

Antenatal digital perineal massage in the final month of pregnancy is safe and well tolerated. Women who have not had a previous vaginal delivery and perform digital perineal massage in the final month of pregnancy experience less perineal birth trauma, mostly through fewer episiotomies, than those who have not performed massage. Women who have had a previous vaginal delivery do not experience a reduction in birth trauma, but they report less pain at three months postpartum. No difference is noted in assisted vaginal deliveries, sexual satisfaction, or urinary incontinence. (Strength of Recommendation: B, based on inconsistent or limited-quality patient-oriented evidence.)

### Practice Pointers

Vaginal deliveries commonly result in some degree of genital tract trauma. This is most likely for women who have not had a previous vaginal delivery. Women with perineal trauma are more likely to report short-term pain and discomfort postpartum, as well as dyspareunia, than women who deliver with an intact perineum. Therefore, various interventions have been evaluated to reduce perineal trauma.<sup>1,2</sup> This review looked specifically at perineal massage during the final four weeks of pregnancy.

The review was comprised of four studies with a total of 2,497 participants. Only one study included women with previous vaginal deliveries (493 patients). Primary outcomes included perineal trauma that required suturing, episiotomy, and perineal

tears grouped into first-degree, second-degree, and third- or fourth-degree trauma. Secondary outcomes included patient satisfaction with perineal massage, postpartum perineal pain, postpartum dyspareunia, and postpartum incontinence.

Women who performed perineal massage showed a reduction in perineal trauma requiring suturing (relative risk [RR] = 0.91; 95% confidence interval [CI], 0.86 to 0.96; number needed to treat = 15). However, this was statistically significant only in women who had not previously delivered vaginally (RR = 0.90; 95% CI, 0.84 to 0.96). Subgroup analysis showed an inverse relationship between the number of times per week that women performed massage and the degree of reduction of tears requiring suturing. Participants who performed massage up to 1.5 times per week on average had a 16% reduction; 1.5 to 3.4 times per week, an 8% reduction; and more than 3.5 times per week, no statistically significant reduction.

Perineal massage decreased the likelihood of having an episiotomy (RR = 0.84; 95% CI, 0.74 to 0.95; number needed to treat = 21). This was significant only for women without a previous vaginal delivery. Subgroup analysis showed that only those who performed massage up to 1.5 times per week on average had a statistically significant reduction in the incidence of episiotomy, whereas the women who used massage more frequently did not have a statistically significant reduction. Of note, no difference was found in the incidence of first- or second-degree tears, or third- or fourth-degree perineal trauma. Thus, the decreased incidence of episiotomy drove the overall reduction in perineal trauma.

No differences were noted in length of the second stage of labor, the overall proportion of instrumental deliveries, dyspareunia at three months postpartum, postpartum sexual satisfaction, or urinary and fecal incontinence. Ongoing postpartum perineal pain was reported in one study, and no difference between groups was seen overall at three months. Subgroup analysis showed that

women who performed massage the most frequently were less likely to report pain (RR = 0.51; 95% CI, 0.33 to 0.79). Additionally, women with a previous vaginal delivery (n = 376) reported a lower incidence of pain at three months postpartum (RR = 0.45; 95% CI, 0.24 to 0.87). Patient satisfaction with perineal massage was not reported in any of the four studies included in this review. However, a 1994 article reported that women found perineal massage acceptable. Most reported they would practice it again and would recommend it to another pregnant woman.<sup>3</sup>

Although this review found evidence of decreased perineal trauma among women who performed perineal massage in the final month of pregnancy, the lack of a dose response suggests either a narrow therapeutic window or that another factor is involved in the decrease in trauma. There is evidence that perineal massage can decrease the incidence of postpartum pain at three months, at least among women who have a history of vaginal delivery. Perineal massage is not recommended in any pregnancy guidelines. However, it is safe and appears to be acceptable to women. The evidence for perineal massage is not strong enough to recommend it universally, but family physicians can suggest it for women who are interested in methods that might reduce perineal birth trauma or postpartum pain. Information about how a woman can perform massage is available at <http://www.webmd.com/baby/tc/childbirth-perineal-massage-before-labor-topic-overview>.

SOURCE: Beckmann MM, Stock OM. Antenatal perineal massage for reducing perineal trauma. *Cochrane Database Syst Rev*. 2013;(4):CD005123.

The practice recommendations in this activity are available at <http://summaries.cochrane.org/CD005123>.

The views expressed in this article are those of the authors and do not reflect the official policy or position of the U.S. government, the Department of the Army, or the Department of Defense.

## REFERENCES

1. Aasheim V, et al. Perineal techniques during the second stage of labour for reducing perineal trauma. *Cochrane Database Syst Rev*. 2011;(12):CD006672.
2. Stamp G, et al. Perineal massage in labour and prevention of perineal trauma: randomised controlled trial. *BMJ*. 2001;322(7297):1277-1280.
3. Labrecque M, et al. Prevention of perineal trauma by perineal massage during pregnancy: a pilot study. *Birth*. 1994;21(1):20-25.

## Early Developmental Intervention for Preterm Infants

QUYNH BUI, MD, MPH

*University of California—San Francisco,  
San Francisco, California*

### Clinical Question

Do early developmental intervention programs improve neurodevelopmental outcomes in preterm infants?

### Evidence-Based Answer

Early intervention programs improve cognitive performance in preterm infants up to 36 months of age, but no effect can be detected by five years of age. A small effect of early intervention on motor performance was found in infancy, but it did not persist until preschool or school age. (Strength of Recommendation: B, based on inconsistent or limited-quality patient-oriented evidence.)

### Practice Pointers

Cognitive and motor aptitude is associated with gestational age. Infants born before 34 weeks of gestation have three times the risk of impairments in multiple developmental domains compared with term infants.<sup>1</sup> At four years of age, about one-third of extremely preterm infants (i.e., delivered before 28 weeks of gestation) have evidence of cognitive impairment,<sup>1</sup> and 21% of extremely preterm infants show cognitive impairment at six years of age compared with 1% of full-term infants.<sup>2</sup> Overall, nearly one-half of extremely preterm infants and more than one-third of very preterm infants (i.e., delivered at 28 to 34 weeks of gestation) have some form of disability.<sup>3</sup> Even late preterm infants (i.e., delivered between 34 and 37 weeks of gestation) have a relative risk of 1.13 for disability by three years of age, with persistent increased risk of neurodevelopmental disabilities up to at least seven years of age<sup>4</sup> and poorer motor performance than term infants.<sup>5</sup>

This Cochrane review examined whether early intervention programs improve cognitive or motor outcomes for preterm infants. The study interventions were diverse, including programs of physiotherapy to improve motor skills, parental support and training to improve parent-infant relationships,

and neurodevelopmental therapy and infant multisensory stimulation. Levels of infant prematurity and birth weight varied greatly, as did study duration.

Cognitive outcomes were most improved during infancy. Thirteen of the 21 studies reported outcomes at infancy and met criteria for inclusion; only three of the studies reported significant cognitive improvements in the intervention groups. The authors concluded that early intervention programs improve cognitive outcomes in infants, measured by IQ, by nearly one-third of a standard deviation from the mean. By the time the infants reached school age, however, the improvement was only one-fourth of a standard deviation above the mean, failing to meet statistical significance. The largest study, the Infant Health and Development Program, was the only one that followed infants until 18 years of age. It had a follow-up rate of 65% for the 985 participants. No overall differences were noted between the intervention and control groups in cognitive standardized test results by 18 years of age.

The effect of early intervention programs on motor performance was smaller. Ten studies with outcomes at infancy were included in the meta-analysis, of which only one reported a significant difference in motor development between the intervention and control groups. The meta-analysis found a small but significant positive effect of early intervention programs on motor development at infancy. Two of the three studies with follow-up at preschool age reported no significant difference in motor performance between the intervention and control groups, with the third study showing significant motor improvement in the intervention group at 44 months. No significant differences were found in motor performance in the three studies with follow-up at school age. Subgroup analyses revealed that gestational age did not affect the results of early intervention programs on cognitive performance. The effects of gestational age and birth weight were not measured in studies of motor performance.

The heterogeneity of the intensity, focus, settings, and participants in the studies limits the ability to make generalizable conclusions. The results of the meta-analysis

were dominated by two large studies, which together contributed nearly one-half of the patients. Finally, there was likely much contamination between the control and intervention groups because infants in the control groups could, and often did, receive services duplicating aspects of the intervention outside of the study. This would have dampened any differences between groups.

The National Perinatal Association recommends that parents of late preterm infants be informed about potential developmental problems related to prematurity.<sup>6</sup> Preterm children should be screened regularly for developmental delay,<sup>6-8</sup> and parents of preterm infants should be counseled about the options of early intervention programs, their potential positive impact on development, and the limitations of their benefits.

SOURCE: Spittle A, Orton J, Anderson P, Boyd R, Doyle LW. Early developmental intervention programmes post-hospital discharge to prevent motor and cognitive impairments in preterm infants. *Cochrane Database Syst Rev.* 2012;(12):CD005495.

The practice recommendations in this activity are available at <http://summaries.cochrane.org/CD005495>.

## REFERENCES

- Woodward LJ, et al. Very preterm children show impairments across multiple neurodevelopmental domains by age 4 years. *Arch Dis Child Fetal Neonatal Ed.* 2009;94(5):F339-F344.
- Marlow N, et al.; EPICure Study Group. Neurologic and developmental disability at six years of age after extremely preterm birth. *N Engl J Med.* 2005;352(1):9-19.
- Larroque B, et al. Neurodevelopmental disabilities and special care of 5-year-old children born before 33 weeks of gestation (the EPIPAGE study): a longitudinal cohort study. *Lancet.* 2008;371(9615):813-820.
- McGowan JE, et al. Early childhood development of late-preterm infants: a systematic review. *Pediatrics.* 2011;127(6):1111-1124.
- Woythaler MA, et al. Late preterm infants have worse 24-month neurodevelopmental outcomes than term infants. *Pediatrics.* 2011;127(3):e622-629.
- National Perinatal Association. *Multidisciplinary Guidelines for the Care of Late Preterm Infants.* Binghamton, NY: National Perinatal Association; 2012. <http://www.nationalperinatal.org/lptguidelines/pdf/NPALatePretermGuidelines-11-12.pdf>. Accessed June 24, 2013.
- Engle WA, et al.; Committee on Fetus and Newborn, American Academy of Pediatrics. "Late-preterm" infants: a population at risk [published correction appears in *Pediatrics.* 2008;121(2):451]. *Pediatrics.* 2007;120(6):1390-1401.
- LaHood A, et al. Outpatient care of the premature infant. *Am Fam Physician.* 2007;76(8):1159-1164. ■