

BREAK THIS PRACTICE HABIT

Should we rethink maternal monitoring of fetal movement through “kick counts”?

An age-old recommendation may be contributing to more harm than good

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IN THIS ARTICLE

Kick counting and stillbirth prevention

[this page](#)

Mindfetalness

[page 4](#)

It is time to reconsider the recommendation for practicing fetal kick counts. A meta-analysis demonstrated no decrease in the outcome of stillbirth, but instead an increased risk of iatrogenic delivery.¹

CASE 1 8 vs 10 fetal movements in 2 hours

Ms. M is 38 weeks pregnant with an uncomplicated pregnancy. She calls your practice with concerns about fetal kick counts. During her prenatal care, she was counseled to ensure that the baby moved 10 times over a period of 2 hours. This morning, however, she only perceived 8 movements in 2 hours. She is scheduled for evaluation with a non-stress test (NST) on the labor and delivery unit. The NST reveals a reassuring, reactive tracing. Ultrasonography evaluation demonstrates a normal amniotic fluid index and normal fetal growth. The patient is reassured, returns home, and goes on to deliver a healthy baby at 39 weeks and 5 days.

Perception of decreased movement triggers evaluation and monitoring

Maternal perception of normal fetal movement has conceivably been used throughout



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history as a means of reassurance of fetal well-being; it is highly predictive of fetal viability.^{2,3} When fetal movement is lacking or decreased, it can be an alarm sign and may result in concerns by the mother that her baby is unwell. Maternal perception of decreased fetal movements affects 5% to 15% of all pregnancies.^{2,4} While decreased fetal movement can be associated with poor perinatal outcomes such as fetal growth restriction, oligohydramnios, and neuro-developmental disability, it also can be reflective of more benign issues such as anterior placenta, maternal activity, maternal caffeine or sugar consumption, or maternal position.^{4,5}

However, the definition of decreased fetal movement is subject to significant variation, from a total absence of movement over an entire day or what has commonly become accepted as the definition of fetal kick counts with Pearson’s Cardiff chart (which was defined in the 1970s as 10 movements within 12 hours).^{6,7} Today, women in the United States are commonly recommended to monitor their baby over a 2-hour period and to look for 10 movements during that time.⁸ Anything less is considered reduced fetal movement and results in recommendations to undergo assessment of previously known high-risk conditions or any possible underlying conditions, such as hypertension, gestational diabetes, or fetal growth restriction. Further evaluation with more objective measures such as electronic fetal monitoring or ultrasonography with biophysical profile are often recommended concurrently.⁹



It is estimated that up to 15% of women present reporting decreased fetal movement in the third trimester and, as such, require additional monitoring and evaluation. This is not without cost of time and money to the health care system and pregnant patients.

It is uncertain that fetal kick counting prevents stillbirth

Intrauterine fetal demise is neither an uncommon nor completely preventable outcome, despite advances in antenatal care. Many cases occur without evidence of fetal abnormality or other risk factors, and 30% to 55% of women who experience intrauterine fetal

demise experience decreased fetal movement in the preceding week.¹⁰ It makes physiologic sense that a fetus' adaptive response to decreased oxygenation is reduced fetal movement, resulting from the prioritization of blood to the fetal brain and other organs over skeletal muscle.^{4,9,11} Results of a 1976 small study of 61 low-risk pregnancies seemed to confirm that a decrease in fetal movement preceded intrauterine death by 3 to 4 days. Conversely, they found that a normal fetal movement count was generally associated with a good neonatal outcome.⁶ Thus, experts have long extrapolated that decreased fetal movement can be an indicator for utero-placental insufficiency and, in turn, chronic or acute hypoxia.

CONTINUED ON PAGE 48

However, in larger studies, the ability of fetal movement counting to predict fetal death and fetal compromise appears limited.^{8,10,11} A meta-analysis of studies, including 5 randomized controlled trials and 468,000 fetuses, compared the incidence of stillbirth in women receiving instructions for fetal movement counting versus women who did not. Rates of stillbirth were the same for each group, demonstrating no advantage to fetal kick counts to prevent a poor perinatal outcome, including stillbirth.¹

CASE 2 Reported reduced fetal movement over 4 weeks

Ms. E is a 20-year-old nullipara at 36 weeks' and 6 days gestation who has come in to triage weekly for the last 4 weeks with concerns about decreased fetal movement. She states that she goes for several hours each day without feeling 10 movements in 2 hours. Recent fetal growth recorded 3 weeks ago was in the 45th percentile, and the amniotic fluid index has been above 10 cm on each weekly ultrasound. Her weekly NSTs have been reactive, and she has been normotensive. However, because she has had several weeks of persistent decreased fetal movement, the labor and delivery team opts to keep her for induction as she is “close to term.”

Decreased kick count frequency may increase unnecessary interventions

Women with fewer kick counts are more likely to present with concerns about the well-being of their baby. In a survey of obstetricians and midwives, a large proportion of providers were more apt to recommend delivery or admission to the hospital for women presenting with decreased fetal movements.² It stands to reason that recommendations for delivery or admission can lead to outcomes like preterm delivery or recommendations for cesarean delivery (CD). However, using fetal kick counts to portend stillbirth or other poor fetal and neonatal outcomes has been shown to be limited in its value with the AFFIRM trial.¹⁰ The results of this large study, which included more than 400,000 pregnancies from 37 hospitals, show

the challenges of any study to address the use of management strategies for recent change in the frequency of fetal movements in the reduction of and cause of stillbirth. Additionally, the relatively low risk of stillbirth overall (4.06 stillbirths per 1,000 livebirths during the intervention period and 4.40 per 1,000 livebirths during the control period) but higher incidence of other outcomes, such as prolonged (>48 hours) antepartum admission (6.7% in the intervention period and 6.2% in the control period), induction of labor (40.7% in the intervention period and 35.9% in the control period), and CD (28.4% and 25.5%, respectively) may result in increased harm for many women rather than the intended benefit of preventing stillbirth.^{10,12}

Mindfetalness may be a viable and valuable alternative to kick counts

Alternatives have been proposed as a measure of fetal movement without using kick counts specifically. Mindfetalness has been a method studied in Sweden; its purpose is to strengthen the mother's awareness of her baby through developing an understanding of the fetal-movement pattern. It is practiced starting at 28 weeks' gestation for 15 minutes a day, with the woman instructed to lie on her left side and discern the intensity and character of the movements, as well as frequency, without overtly counting the movements.¹² In one small study, women felt more connected to their babies and felt less worried.¹² In a much larger study of 13,000 women, the authors found no evidence of harm from generalized awareness of fetal movements in a population of pregnant women at or beyond 32 weeks; in fact, they did see significant reductions in iatrogenic outcomes such as CDs and labor inductions.¹³

The case for movement awareness over kick counts

Stillbirth risk does not appear to be modified by the use of methods to detect fetal movement.^{10,12} However, a perceived decrease in

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Mindfetalness, which strengthens a mother's awareness of her baby through movement patterns, has been proposed as an alternative to kick counts

fetal kick counts has been shown to result in increased interventions and preterm deliveries. A more prudent approach appears to be educating mothers about general fetal move-

ment, which appears to reduce potentially unnecessary visits and interventions without sacrificing the ability to reassure mothers about the well-being of their babies in utero. ●

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