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Fetal Movement as a monitoring technique

D. Farine

Quickening, or first perception of fetal movement, varies considerably amongst pregnant women, but is generally experienced between 16–20 weeks, long before fetal viability. Consciously or not, women come to rely on these movements as an indicator of fetal well-being.

Fetal movement awareness, or a more formal fetal movement count (FMC), is attractive, as it requires no additional technology or specialized personnel, is free and available to all women regardless of locale or proximity to specialized obstetrical care, and can alert the obstetrical care provider to impending fetal demise as a result of impaired placental perfusion.

The formal adoption FMC as an antenatal test is dependent upon several assumptions:

1. A distressed fetus will move significantly less than a healthy one.
2. A pregnant mother can consistently perceive these movements.
3. Further testing can distinguish between a compromised and a healthy fetus.
4. In a compromised fetus, timely obstetrical intervention improve outcome and reduce stillbirth.

Recommendations about fetal movement awareness and more formal fetal movement counting vary significantly across the globe, from official policies of encouragement and support in Canada [1] to specific recommendations against counting in Great Britain [2] with the US ACOG guidelines outlining the options but not having specific recommendations [3].

In 2007, the SOGC released a comprehensive document on Fetal Health Surveillance, including a section on fetal movement counting [1]. Specifically, the recommendations stated:

*“1. Daily monitoring of fetal movements starting at 26 to 32 weeks should be done in all pregnancies **with** risk factors for adverse perinatal outcome. (I-A)*

*2. Healthy pregnant women **without** risk factors for adverse perinatal outcomes should be made aware of the significance of fetal movements in the third trimester and asked to perform a fetal movement count if they perceive decreased movements. (I-B)*

3. Women who do not perceive six movements in an interval of two hours require further antenatal testing and should contact their caregivers or hospital as soon as possible. (III-B)”

The Canadian guidelines requiring awareness of FM are based on Froen’s extensive review [4] that documented a significant reduction in mortality in both high- (OR = 44 [22.3–86.8]) and low-risk (OR = 0.64 [0.41–0.99]) pregnancies. This data was confirmed by a prospective study by Tveit [5] that once again showed a reduction of about ⅓ of stillbirths (from 3.0/1,000 to 2.0/1,000) once a Norwegian policy of FMC was compared to the period before this policy was introduced. In contrast, the British guidelines are based solely on a large RCT by Grant et al. [6] that showed that 1250 women will have to perform FMC to eliminate one stillbirth. The conclusion of that study states that *“routine formal fetal-movement counting should not be offered”*. The Grant study had several methodological flaws reviewed elsewhere [4], the major one was that reporting decreased FM was intentionally delayed by 48 hours resulting in stillbirths in 85 % of fetuses whose mothers presented with decreased FM.

There are a plethora of schemes for FMC ranging from 2–12 hours [7–9] or counting the time required to record 10 movements [9]. There exists no single study compar-

ing these different schemes. The Canadian guidelines require counting to 6 FM. Once this is achieved, FM counting is stopped. If 6 movements are not noticed in 2 hours, further fetal testing is required. This allows most women to spend < 20 minutes performing the FMC. The rationale for these recommendations is based on data generated from research on fetal activity and behaviour and from previous studies on kick count, specifically those of Sadovsky [10], Moore [7], and Nedlam [11]. In most pregnancies, an average of 10 fetal kicks occurs in a window of 20 minutes [12–14]. Patrick et al. showed that the fetal sleep cycle is normally about 20–40 minutes, and practically never exceeds 90 minutes in the normal fetus [15]. Sadovsky suggested that less than 3 kicks per hour (or 6/2 hrs) to be abnormal [10].

The Canadian guidelines call for a NST/CTG and a biophysical profile in women with decreased FM. The rationale behind the scan is to rule out oligohydramnions and in women with no previous scan to detect anomalies that are often associated with decreased fetal movements [16, 17].

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