



## Original Article

# A frequently asked question: Is it normal not to feel my baby's movements yet?

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## Abstract

**Background:** This study aims to investigate average gestational week in which mothers feel their baby's movements for the first time, and the maternal–fetal factors affecting this time.

**Methods:** A total of 423 pregnant women between 11 and 25 weeks of gestation were included in this prospective study. The patient cohort was divided into three subgroups according to the gestational week in which fetal movements were felt for the first time by the pregnant women. The women who felt the first movement before 25th percentile value constituted Group 1; between 25th and 75th percentile value constituted Group 2; and beyond 75th percentile value constituted Group 3. These three groups were then compared in terms of maternal age, parity, body mass index (BMI), tea and coffee consumption during pregnancy, smoking, educational status, accordance of mother to regular pregnancy follow-ups, placental site, and gender of the baby.

**Results:** These three groups were statistically and significantly different regarding the above mentioned determinants except for mothers' tea and coffee consumption, smoking, and gender of the baby ( $p < 0.05$ ).

**Conclusion:** This study revealed factors that affect maternal perception of first fetal movements in both a positive and negative manner. Although it is hard to define an exact time for each individual, an approximate time according to our data can be given to a mother, which considers an affecting factor on the basis of average gestational week.

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**Keywords:** Body mass index; Coffee consumption; Fetal behavior; Fetal movement; Maternal education; Placental location; Smoking

## 1. Introduction

Since early historical periods, fetal movement has been suggested as a positive evidence of a healthy pregnancy; while fetal physical inactivity has been associated with adverse conditions and fetal death.

Fetal movements are considered to start at about the 7th to 8th week of gestation.<sup>1</sup> But maternal perception of the first

fetal movement occurs long after, which is in the broad range of the 16th to 20th gestational week. However, there are no available reports on the subject.<sup>2</sup> First perception of fetal movement is usually described as a gentle flutter by women, which are then replaced by prominent kicks. For normal fetal movements, neuromuscular functions must be intact. Therefore, fetal movements have been accepted as evidence for mature motor component of the central nervous system.<sup>1,3</sup> Fetal movements are considered to increase until 32 gestational weeks, and thereafter decrease gradually.<sup>4</sup> For a healthy fetus, the number of fetal movements range from 4 to 100 movements per hour. As well as the maternal perception time of the first fetal movement, however, there is not an arrangement on fetal movement count, as it may differ inter-fetal and possibly intra-fetal manner. Furthermore, it is uncertain

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whether formal fetal movement counting is beneficial for better perinatal outcomes, even in high risk pregnancies.<sup>5,6</sup>

Most of the obstetricians face the question; “Is it normal not to feel my baby's movements yet?,” in daily practice. It becomes a challenge for the obstetrician to answer this question because, there is not enough sufficient data on this issue in the current literature. A broad range of weeks have been reported as 16th to 20th weeks in round figures. Therefore when a woman in the 21st gestational week of her pregnancy asks this question to her obstetrician, she will often follow up with another question immediately after: “What is the problem with my baby?”. The obstetrician will not be able to give an assuring answer because of the lack of knowledge in the current literature.

Thus, we decided to investigate the average week in which pregnant women in a low risk population felt the baby's movements for the first time and to find out the affects of probable factors which may act on this time.

## 2. Methods

This prospective comparative study was conducted between June 2016 and September 2016, at Kayseri Research and Training Hospital Department of Obstetrics and Gynecology in Kayseri province of Turkey where ~8000 deliveries per year were recorded. The study protocol was approved by the institutional review board of the local ethics committee. All participants who met the eligibility criteria were informed of the procedure, and provided informed written consent for participation in the study ([ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT02979834) Identifier: NCT02979834).

The study population included spontaneous, singleton pregnancies in the first and second-trimester of their pregnancy. Multiple pregnancies, evidence of fetal or maternal infection, hypertensive disorders of gestation, gestational and pregestational diabetes mellitus, maternal drug use, evidence of fetal congenital abnormalities and amniotic fluid abnormalities were considered exclusion criteria for the study group.

All of the participants were given a questionnaire at the time of a routine follow-up visit including patient's dietary habits, smoking status, obstetric and socio-demographic features. For the validity and reliability of the questionnaire form, pre-application was made. Cronbach's Alpha internal consistency coefficient was calculated for the survey, which took its final version by making the factor analysis. The KMO value, Bartlett's test, and Cronbach's alpha value of the survey were calculated as 0.61,  $p < 0.0001$ , and 0.98, respectively as the result of a pilot study consisting of 95 cases. In addition, fetal and placental assessment were determined via ultrasonography (Toshiba Xario, Toshiba Medical Systems Corporation, Japan) with a curvilinear, 3.5 MHz probe by a single experienced sonographer (H.A) and recorded on patient charts for each participant.

After the evaluation of previous study results, power analysis was performed. Alpha and beta errors were stated as 0.05 and 0.20, respectively. The minimum number of patients needed to obtain 80% power was calculated as 126 for each groups. PASS 11 software (NCSS, Kaysville, UT, USA) was used for performing these analyses.<sup>15,16</sup> Three groups were

formed according to the gestational week in which fetal movements felt by mother for the first time. Participants who felt the baby's movements at or before 25th (16th week) percentile value constituted Group 1 (early perception group); participants who felt the baby's movements between 25th and 75th (17–18th week) percentile value constituted Group 2 (average perception group); and the participants who felt the baby's movements at or beyond 75th (19th week) value constituted Group 3 (late perception group). Subsequently, these three groups were compared regarding maternal age, gestational week of inclusion in the study, obstetric features, maternal body mass index (BMI) values, caffeine consumption, smoking status, maternal education status, placental localization, and fetal gender.

Statistical analyses were performed using the SPSS for Windows 21.0 (SPSS Inc. IL, USA) software package. A  $p$ -value less than 0.05 was considered statistically significant. The normality of distribution for variables was assessed using the Shapiro–Wilk test. Data were presented as means  $\pm$  SD for continuous variables. Kruskal–Wallis test was used for determining the differences in variables among groups, followed by evaluation with the Mann–Whitney U test for multiple comparisons. The resulting  $p$ -values were corrected according to the Bonferroni method. The Spearman Rho correlation coefficient was used to determine the correlation between perception of the first fetal movement and clinic features of the pregnant woman.

## 3. Results

A total of 423 pregnant women who met the inclusion criteria were evaluated in this prospective study. Mean maternal age of the whole study population was  $27.71 \pm 6.1$  (16–42). One hundred twenty-five of the 423 pregnant women (29.6%) women were on their first pregnancy, while 298 (70.4%) women were on their second or more pregnancy. The average gestational age of inclusion in the study was  $20.83 \pm 2,27$  (15–24) weeks according to the last menstrual period (LMP).

Since, the first maternal perception time of fetal movements varied in a broad range, percentile values were established to better classify the study groups. The 25th, 50th, and 75th percentile values for the gestational week, in which women felt the baby's movements for the first time, was 16, 17, and 19 weeks, respectively. The early perception group consisted of 152 pregnant women who felt the baby's movements before 25th percentile value, while the average perception group and the late perception group consisted of 141 women and 130 women, respectively.

There were no statistically significant differences in the three groups regarding the gestational week in which the participants were included in the study ( $p > 0.05$ ). The parity the late perception group was lower than the other two groups; and the difference was statistically significant ( $p = 0.029$ ). However, there was no statistically significant difference between three groups regarding gravidae ( $p > 0.05$ ). In regards to maternal age, there were statistically significant differences in all three groups ( $p = 0.03$ ). When the groups were compared between

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