

# A Narrative Review on Fasting of Pregnant Women in the Holy Month of Ramadan

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## ABSTRACT

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One of the basic rituals of Islam is fasting during Ramadan. In this month, all able-bodied Muslims abstain from food, fluids, smoking, and oral medications from sunrise to sunset. According to the Quran, if fasting poses major health risks to individuals, fasting during this holy month is not allowed. This study aimed to evaluate the effects of fasting on maternal and fetal health. Therefore, we investigated studies in three different areas, including fetal growth and development, intrauterine and early-life conditions, and laboratory findings. According to the results, fasting had no significant effect on pregnant and healthy women. However, further studies should be conducted in this area in order to obtain more comprehensive and accurate results. Furthermore, it is suggested that healthy pregnant women be monitored by physicians during fasting.

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## Introduction

Annual fasting during the holy month of Ramadan is one of the basic rituals of Islam. During Ramadan, all able-bodied Muslims abstain from fluids, food, oral medications, and smoking from sunrise to sunset (1). According to the Quran, if fasting poses major health risks to individuals, fasting during this holy month is not allowed (2). The duration of fasting varies from nine h to 18 h based on seasonal changes. Most of the pregnant women do not fast during Ramadan due to its harmful effects on maternal and fetal well-being. On the other hand, some pregnant women have a strong compassion for fasting in pregnancy during Ramadan (3, 4). This study aimed to evaluate the effects of fasting on maternal and fetal health.

## Literature review in three topics

Topics of this review were as follows:

### 1. Fetal growth and development

One of the most important physiological changes in pregnancy is weight gain. Pregnant

women need sufficient calorie intake for proper weight gain; however, calorie intake might be limited while fasting. Therefore, adequate weight gain might not occur in fasting pregnant women. However, the negative impacts of fasting on fetal weight have not been confirmed yet (5, 6).

According to previous studies, it was marked that fasting during Ramadan had no significant effect on fetal birth weight (7). Evidence suggests that fasting had no impact on mean birth weight regardless of the stage of gestation at the time of fasting. Moreover, it was concluded that fasting during Ramadan had no significant effect on intrauterine growth and birth weight of full-term newborns (8, 9).

In one study, it was indicated that fasting of pregnant women during Ramadan in the second trimester had no significant impact on maternal oxidative stress or fetal birth weight (10). Results obtained by Dikensoy revealed no adverse effect of Ramadan fasting on intrauterine development of fetus. While weight

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gain and calorie intake were reduced in fasting pregnant women of the aforementioned study, no significant adverse effect was observed on maternal and fetal health (11, 12).

Boskabadi et al. demonstrated that fasting during Ramadan caused no significant decrease in maternal weight (13). In another study by Naderi et al., no significant difference was found between fasting and non-fasting mothers regarding height (14). Seckin et al. conducted a study to evaluate the impact of Ramadan fasting on fetal development. The results were indicative of no significant effect of fasting on fetal development in pregnancy (15). Similarly, another study was conducted on 25 fasting and 27 non-fasting healthy women, and the results revealed no significant difference in femur length, abdominal circumference, biparietal diameter, and fetal weight (16).

In a cross-sectional study conducted by Makvendi et al., no significant difference was observed between the fasting and non-fasting pregnant women in terms of neonatal anthropometric measurements (17). Another study was conducted to evaluate birth weight, head circumference, and height of newborns. The findings of this study marked no significant difference between fasting and non-fasting pregnant women (18-20). Furthermore, the results obtained by Ziaee et al. were based on the absence of congenital anomaly in neonates of fasting mothers (21).

## 2. Intrauterine and early-Life conditions

Sufficient uteroplacental blood flow during pregnancy is a crucial factor for fetal growth and well-being (22). Other important factors for the continuation of fetal well-being include well-nourished mothers and sufficient maternal placental flow. Ultrasound measurements, uteroplacental circulation, and fetal vascular Doppler parameters are used to identify the effect of maternal fasting on fetus. Previous studies have reported that maternal fasting had no significant impact on fetal biometric measurements (8-23), as well as uterine artery and umbilical artery blood flow (24, 25).

In a study by Naderi et al., no significant difference was observed between the groups in terms of the impact of Doppler parameters on healthy fasting women (14). Evidence suggests that Ramadan fasting on healthy pregnant

women seems to have no adverse effect on the amniotic fluid index, fetal Doppler, delivery parameters, and prevalence of low birth weight (LBW). However, increased number of fasting days directly affected 1- and 5-minute Apgar scores of neonates (13, 17, 26).

Similarly, Moradi et al. reported that no significant difference was found in fasting and non-fasting healthy women regarding amniotic fluid. In addition, their results were indicative of no significant difference between the two groups in terms of fetal heart rate (16). Awwad et al. conducted a study on 201 fasting and 201 non-fasting individuals in Ramadan, in which no significant difference was observed between the subjects in terms of time of delivery (27).

## 3. Laboratory findings

Health of fasting pregnant women is evaluated in terms of crucial laboratory findings, the rate of which must be within the normal range. In a study by Dikensoy et al., it was marked that fasting significantly reduced the ratio of LDL/HDL in healthy women in the 20 weeks of pregnancy. According to the results of the aforementioned study, fasting in Ramadan did not lead to ketonemia or ketonuria in pregnant women (11, 12).

In another study by Khoshdel et al., it was indicated that leptin (controls food intake) and neuropeptide Y (regulates eating behavior) had a pivotal role in the long-term regulation of energy balance in fasting pregnant women during Ramadan. According to the findings of the mentioned research, fasting in Ramadan had no significant effect on the serum insulin level in pregnant women (28).

According to the literature, no significant difference was observed between fasting and non-fasting pregnant women regarding thyroid hormone parameters (18-20). A previous study was conducted to evaluate glycemic control of pregnant women. However, the results indicated that pregnant women with diabetes were able to fast in Ramadan, and their glycemic control was improved by fasting. In the mentioned study, it was recommended that instead of complete avoidance of fasting, pregnant women could seek the consultation of healthcare providers (29).

Previous studies have demonstrated that no significant change was observed in blood urea nitrogen, creatinine, and calcium during and

after Ramadan. Moreover, no difference was observed between the individuals in terms of serum phosphorus at the end of Ramadan and two weeks after it (30).

## Conclusion

According to the results of the present research, it can be concluded that fasting caused no problems in pregnant and healthy women. However, further studies need to be conducted in this area in order to obtain more comprehensive and accurate results. In addition, it was suggested that healthy pregnant women be monitored by physicians during fasting.

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