Volume 3, Issue 5, May 2025 ISSN (E): 2938-3765

THE EFFECT OF MAGNESIUM ON PREGNANT WOMEN

Nodira Fayziyeva
Assistant at the Department of Biomedical Engineering,
Informatics and Biophysics, Tashkent State Medical University

Abstract
This article comprehensively examines the effect of magnesium on the health of pregnant women. The biological importance of magnesium, the increased demand for it during pregnancy, the clinical signs of magnesium deficiency, and its consequences are analyzed scientifically. The article also discusses magnesium-rich foods, diets, and preventive recommendations. It focuses on maintaining magnesium balance during pregnancy to ensure the health of both the mother and the fetus. The research results show that adequate and timely intake of magnesium plays a crucial role in the healthy progression of pregnancy.

Keywords: Magnesium, pregnancy, micronutrient, muscle spasms, preeclampsia, fetal development, magnesium deficiency, magnesium-rich products, labor risk.

Introduction

Pregnancy is a complex process that brings about a number of physiological changes in the body. During this period, the need for many micro and macroelements increases. Among these, magnesium (Mg) plays an important role. Magnesium is one of the essential elements for the internal activity of cells, the nervous and muscular systems, heart rhythm, and immune system stability. Especially during pregnancy, magnesium deficiency can lead to a number of negative outcomes, such as preterm labor, uterine muscle spasms, high blood pressure, and the risk of preeclampsia. This article analyzes the impact of magnesium on the health of pregnant women, the consequences of magnesium deficiency, the importance of magnesium-rich foods, and supplements.

1. General Biological Functions of Magnesium

Magnesium is the fourth most abundant mineral in the human body, and it participates as a cofactor in over 300 enzymatic reactions. Magnesium plays a crucial role in muscle contraction, nerve impulse transmission, blood pressure regulation, glucose metabolism, and bone tissue formation. It also helps maintain the balance of potassium and calcium within cells. Magnesium deficiency can lead to muscle cramps, irritability, arrhythmias, and weakened bones in the body. Particularly during pregnancy, these conditions may manifest more intensely.

2. The Need for Magnesium During Pregnancy

During pregnancy, the body undergoes metabolic and hormonal changes, leading to an increased demand for magnesium. A typical pregnant woman requires approximately 350–400 mg of

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

magnesium daily. This requirement is essential for fetal development, placental function, and the normal functioning of uterine muscles. Magnesium helps prevent excessive uterine contractions and reduces the risk of preterm labor. Additionally, it stabilizes blood pressure and prevents preeclampsia.

3. Clinical Manifestations of Magnesium Deficiency in Pregnancy

Magnesium deficiency poses significant health risks for pregnant women. Clinically, the following symptoms may be observed:

- Muscle cramps, especially in the legs at night;
- Irritability, insomnia, and fatigue;
- Increased blood pressure;
- Rapid heart rate or arrhythmias;
- Premature uterine contractions and the risk of preterm labor;
- Placental abruption risk;
- Delayed fetal development.

Research has shown that magnesium deficiency may be directly related to preeclampsia and gestational hypertension. Therefore, it is crucial to monitor magnesium levels during pregnancy and supplement them with diet or supplements when necessary.

4. Magnesium-Rich Sources and Preventive Measures

Magnesium primarily enters the body through food. The following foods are rich in magnesium:

- Nuts (almonds, peanuts);
- Dark leafy vegetables (spinach, chard);
- Whole grains (corn, buckwheat, wheat bran);
- Legumes (chickpeas, beans);
- Avocados, bananas, dark chocolate.

Pregnant women are advised to include magnesium-rich foods in their diet and, if necessary, take magnesium supplements (such as "Magnerot," "Magnelis B6") under medical supervision. Self-administering supplements is not recommended, as excessive magnesium intake can lead to complications, such as diarrhea, vomiting, and heart irregularities.

5. Medical Recommendations and Conclusion

In medical practice, regularly monitoring magnesium levels helps prevent harmful complications in pregnant women. If magnesium deficiency is detected, medications and dietary measures should be applied under medical supervision. Every pregnant woman should be mindful of her general health, especially paying attention to essential micronutrients such as magnesium.

Conclusion

Magnesium is crucial for the proper functioning of the female body during pregnancy, fetal development, and the normal progression of labor. Its deficiency can lead to numerous negative consequences. Consuming magnesium-rich foods and, under medical supervision, taking

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

additional supplements play a vital role in ensuring a safe and healthy pregnancy. Therefore, maintaining magnesium levels is essential for the health of both the mother and the baby.

References

1. World Health Organization (WHO). Guidelines: Calcium supplementation in pregnant women. Geneva: WHO Press, 2013.
2. Gröber, U., Schmidt, J., & Kisters, K. (2015). Magnesium in Prevention and Therapy. Nutrients, 7(9), 8199–8226. https://doi.org/10.3390/nu7095388
3. Rai, S., & Rai, T. (2016). Role of Magnesium in Pregnancy: A Review. International Journal of Current Research and Review, 8(11), 35–40.
4. Institute of Medicine (US) Panel on Micronutrients. Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride. Washington (DC): National Academies Press (US); 1997.
5. Garrison, R.H., & Somer, E. (2004). The Nutrition Desk Reference (5th ed.). McGraw-Hill.
6. Zlotkin, S. (2003). Micronutrient deficiency conditions: Global health issues. Annales Nestlé, 61(1), 19–25.
7. Uzbek Tibbiyot Ensiklopediyasi. (2006). Toshkent: Fan va texnologiya nashriyoti.
8. Rakhimov, M.M., & Sagdullaev, S.S. (2018). Biokimyo va mikroelementlar fiziologiyasi. Toshkent: Tibbiyot nashriyoti.
9. Шайхова, Г. И., Отажонов, И. О., & Рустамова, М. Т. (2019). Малобелковая диета для больных с хронической болезнью почек. Экспериментальная и клиническая гастроэнтерология, (12 (172)), 135-142.
10. Отажонов, И. О. (2010). Характеристика фактического питания и качественный анализ нутриентов в рационе питания студентов высших учебных заведений. Врач-аспирант, 43(6.2), 278-285.
11. Отажонов, И. О., & Шайхова, Г. И. (2020). Фактическое питание больных с хронической болезнью почек. Медицинские новости, (5 (308)), 52-54.
12. Islamovna, S. G., Komildjanovich, Z. A., Otaboevich, O. I., & Fatihovich, Z. J. (2016). Characteristics of social and living conditions, the incidence of patients with CRF. European science review, (3-4), 142-144.
13. Отажонов, И. О. (2011). Заболеваемость студентов по материалам углубленного медосмотра студентов, обучающихся в высших учебных заведениях. Тошкент тиббиёт академияси Ахборотномаси. Тошкент,(2), 122126.
14. Shalaeva, E., Janabaev, B., Matmurotov, Q., Kasimov, U., Pulatov, U., Bobabekov, A., & Bozorboev, M. (2016, June). 1-year clinical outcomes in patients with Parkinsonism syndrome with/without type 2 diabetes. In MOVEMENT DISORDERS (Vol. 31, pp. S62-S63). 111 RIVER ST, HOBOKEN 07030-5774, NJ USA: WILEY-BLACKWELL.
15. Shalaeva, E., Saner, H., Babadjanov, B., Pulatov, U., Matmurotov, Q., & Shalaeva, A. (2015, August). Prognostic value of coronary artery calcium score for major perioperative cardiovascular complications in type 2 diabetic patients undergoing trans-femoral amputation. In EUROPEAN HEART JOURNAL (Vol. 36, pp. 928-928). GREAT CLARENDON ST, OXFORD OX2 6DP, ENGLAND: OXFORD UNIV PRESS.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

16. Атажанов, Т. Ш., Бабаджнаов, Б. Д., Матмуротов, К. Ж., & Саттаров, И. С. Анализ эффективности малоинвазивных методов в лечении диабетической гангрены нижних конечностей. Раны и раневые инфекции, 20-21.
17. Shalaeva, E., Janabaev, B., Babadjanov, B., Matmurotov, Q., Kasimov, U., Pulatov, U., & Bobabekov, A. (2016). Severity of coronary artery stenosis in patients with critical peripheral artery disease undergoing high amputation. Atherosclerosis, 252, e141-e142.
18. Shalaeva, E., Janabaev, B., Matmurotov, Q., Kasimov, U., Pulatov, U., & Bobabekov, A. (2016). Severity of atherosclerotic lesions and foot synovial tendon complex injury as factors of sepsis development in patients with diabetic foot. Atherosclerosis, 252, e137-e138.
19. Бабаджанов, Б. Д., Матмуротов, К. Ж., Моминов, А. Т., Бабабеков, А. Р., Атаков, С. С., & Атажанов, Т. Ш. (2015). Эффективность внутриартериального введения флуконазола при лечении осложненных форм диабетической стопы. ООО «Maxliyo-shifo» &, 2014, 28-30.
20. Babadjanov, B. D., & Matmurotov, K. J. (2019). Efficacy of minimally invasive procedures in the treatment of lower extremities diabetic gangrene. European science review, 2(1-2), 79-82.
21. Матмуротов, К. Ж., & Жанабаев, Б. Б. (2011). Влияние микобактериальных ассоциаций на кратность повторных оперативных вмешательств при диабетической гангрене нижних конечностей. Врач-аспирант, 46(3.3), 394-399.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5