

RESEARCH QUESTION

How does taking prenatal vitamins during pregnancy affect lifelong health and development of the child?

BACKGROUND

- Calcium
 - Bone development
- Vitamin D
 - Absorption & metabolism of calcium
- Iron
 - Maintain oxygen-carrying capacity of blood cells
 - Red blood cell development
- Vitamin C
 - Tissue formation
 - Enhances absorption of iron
- Folic Acid
 - Helps regulate red blood cell development
 - Production of DNA/RNA
 - Development of normal brain function

SIGNIFICANCE

- Important for fetal development
- Affects long term health outcomes for the child
- Taking an OTC prenatal vitamin can help ensure recommended daily value of vitamins/minerals
- Come in many formulations (ingredients, pill, capsule, chewable)
- Not taking can affect growth and development and may cause birth defects

FINDINGS

- Decreased risk of low-birth weight infants
- Decreased risk of placental abruption & preeclampsia
- Decreased risk of birth defects caused by vitamin/mineral deprivation (neural tube defects)
- Cannot replace a healthy diet
- Does **not** contribute to obesity in the child at any point

Barriers to taking:

- Financial
- Poor education
- Size, taste, smell of pills
- Difficulty swallowing pills
- Reluctance to taking meds
- Forgetful/busy lifestyle
- Reluctance to taking medications

Specific Vitamins in Common Prenatal Vitamins & Recommended Daily Amount

Calcium	1000 mg
Vitamin D	0.015 mg
Iron	27 mg
Vitamin C	80 mg
Folic Acid	0.8 mg



FUTURE IMPLICATIONS

At Risk Populations:

- Adolescents
- Multiple gestation (twins, triplets, etc.)
- Substance abuse history (alcohol and tobacco included)
- Eating disorders
- Strict vegetarians and vegans

Ways to Combat Barriers:

- Use different formulation
- Provide resources (social worker) for financial/access issues
- Educate patient on purpose & outcomes
- Healthy, balanced diet

REFERENCES

Dougan, M. M., Willett, W. C., & Michels, K. B. (2014). Prenatal vitamin intake during pregnancy and offspring obesity. *International Journal of Obesity*, 39, 69-74.

Gill, S. K., Maltepe, C., & Koren, G. (2009). The effectiveness of discontinuing iron-containing prenatal multivitamins on reducing the severity of nausea and vomiting of pregnancy. *Journal of Obstetrics and Gynaecology*, 29, 13-16.

Scholl, T., Hediger, M., Bendich, A., Schall, J., Smith, W., & Krueger, P. (1997) Use of multivitamin/mineral prenatal supplements: Influence on the outcome of pregnancy. *American Journal of Epidemiology*, 146 - 2, 134-141.

Sfakianaki, A. (2013). Prenatal vitamins: A review of the literature on benefits and risks of various nutrient supplements. *Formulary Journal*, 48-2, 77-82.

Tessema, J., Jefferds, M., Cogswell, M., & Carlton, E. (2009). Motivators and barriers to prenatal supplement use among minority women in the United States. *Journal of the American Dietetic Association*, 109, 102-108.

Vahdaninia, M., Mackenzie, H., Helps, S., & Dean, T. (2017). Prenatal intake of vitamins and allergic outcomes in the offspring: A systematic review and meta-analysis. *The Journal of Allergy and Clinical Immunology: In Practice*, 5-3, 771-778.

Ward, S., & Hisley, S. (2016). *Maternal-child nursing care: Optimizing outcomes for mothers, children & families* (ed. 2). Philadelphia: F.A. Davis. 303-307.

ACKNOWLEDGEMENTS

Research Advisor: Jean S. Coffey, PhD APRN