

The Necessary Nutrients for Optimal Growth and Development of Fetus during Pregnancy

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INTRODUCTION

Pregnancy is a transformative period marked by significant physiological and psychological changes. Proper nutrition management during this time is crucial, not only for the health of the mother but also for the optimal growth and development of the fetus. A well-balanced diet provides the necessary nutrients to support these changes and helps prevent potential complications. The study explores about the essential guidelines for nutrition management during pregnancy.

DESCRIPTION

Caloric intake and weight gain

During pregnancy, a woman's caloric needs increase to support the growing fetus and changes in her body. In the first trimester, caloric intake may remain the same as before pregnancy. However, in the second and third trimesters, an additional 300-500 calories per day is recommended. The exact caloric needs vary based on factors such as the mother's age, pre-pregnancy weight and activity level.

Healthy weight gain during pregnancy is essential. The general recommendations are:

- Underweight women (BMI<18.5): Gain 28-40 pounds
- Normal weight women (BMI 18.5-24.9): Gain 25-35 pounds
- Overweight women (BMI 25-29.9): Gain 15-25 pounds
- Obese women (BMI ≥ 30): Gain 11-20 pounds

Macronutrients: Carbohydrates, proteins and fats

Carbohydrates are the primary source of energy. Complex carbohydrates, such as whole grains, fruits and vegetables, should be prioritized over simple sugars to ensure sustained energy levels and provide fiber for digestive health.

Proteins are vital for the growth of fetal tissues, including the brain and maternal tissues such as the uterus and breasts. Pregnant women should aim for about 70 grams of protein per

day, incorporating sources like lean meats, poultry, fish, eggs, dairy, legumes, nuts and seeds.

Fats are crucial for the development of the fetal brain and nervous system. Omega-3 fatty acids, particularly DHA, play a significant role. Sources include fatty fish like salmon, flaxseeds, chia seeds and walnuts. It's advisable to limit saturated and trans fats, focusing on healthy fats from avocados, nuts, seeds and olive oil.

Micronutrients: Vitamins and minerals

Folic acid: Essential for preventing neural tube defects. Pregnant women should consume 600 micrograms daily, which can be found in leafy green vegetables, legumes, nuts and fortified cereals, along with a prenatal supplement.

Iron: Vital for the production of hemoglobin and preventing anemia. The recommended daily intake is 27 milligrams. Iron-rich foods include lean meats, beans, spinach and iron-fortified cereals. Pairing iron with vitamin C-rich foods can enhance absorption.

Calcium: Important for the development of fetal bones and teeth. Pregnant women need 1,000 milligrams daily, obtainable from dairy products, fortified plant-based milks, leafy greens and tofu.

Vitamin D: Supports calcium absorption and bone health. The recommended intake is 600 IU daily, which can be sourced from sunlight, fortified foods and supplements.

Iodine: Crucial for thyroid function and fetal brain development. The daily requirement is 220 micrograms, available in iodized salt, dairy, seafood and eggs.

Choline: Supports fetal brain development and placental function. Pregnant women need 450 milligrams per day, which can be found in eggs, meat and fish.

Hydration

Adequate hydration is essential during pregnancy to support increased blood volume, amniotic fluid production and overall

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health. Pregnant women should aim to drink at least 8-10 cups of water per day. Additionally, consuming water-rich fruits and vegetables can contribute to hydration.

Foods to avoid

Certain foods pose risks of foodborne illnesses and should be avoided:

- **Raw or undercooked meats, fish and eggs:** These can harbor harmful bacteria and parasites.
- **Unpasteurized dairy products:** These can contain listeria, which can cause serious infections.
- **Certain fish high in mercury:** Such as shark, swordfish, king mackerel and tilefish.
- **Excessive caffeine:** Should be limited to 200 milligrams per day (about one 12-ounce cup of coffee).
- **Alcohol:** Should be completely avoided as it can lead to fetal alcohol spectrum disorders.

Special considerations

Pregnant women with specific dietary preferences or restrictions, such as vegetarians or vegans, should pay extra attention to nutrient intake, particularly for iron, vitamin B₁₂ and DHA. Consulting with a healthcare provider or a registered dietitian can ensure a well-rounded diet.

CONCLUSION

Proper nutrition during pregnancy is foundational for the health of both mother and baby. By following these guidelines, expecting mothers can ensure they are providing the necessary nutrients to support a healthy pregnancy and fetal development. Regular prenatal check-ups and consultations with healthcare providers are essential to make the nutritional needs to individual circumstances. Prioritizing balanced meals, appropriate supplements and hydration will pave the way for a healthy and enjoyable pregnancy journey.