

Preconception Nutrition

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Abstract

Preconception health care is an essential part of preventive care and nutritional status of the mother is an important determinant of embryonic and fetal growth and development. A healthy diet optimizes maternal health and reduces the risk of medical problems. Consuming a well-balanced and healthy diet including fruits and vegetables, iron and calcium-rich foods, protein-containing foods as well as 400 µg of folic acid daily helps to have a healthy baby.

Keywords: Preconception; Maternal Health; Folic Acid.

Introduction

Preconception health care is an essential part of preventive care for all women of childbearing age which help to minimize health risks to both mothers and infants. Nutritional status of the mother is an important determinant of embryonic and fetal growth and development. Consuming a well-balanced and healthy diet including fruits and vegetables, iron and calcium-rich foods, protein-containing foods as well as 400 µg of folic acid daily helps to have a healthy baby [1].

Benefits

A healthy diet optimizes maternal health and reduces the risk of medical problems. Also, it reduces the risk of birth defects, suboptimal fetal growth and development, and chronic health problems in their children [2].

Components of Preconception Nutrition

Folate and Folic Acid

Among nutrition-specific interventions, preconception supplementation of folic acid has the strongest evidence of preventing 70% of recurrent neural tube defects such as spina bifida [3]. Folate is the form of vitamin found naturally in foods and folic acid is the form used in fortification of grain products and in vitamin supplements. All women capable of becoming pregnant are advised to consume 400 mcg of folic acid daily in fortified foods or supplements, in addition to a diet rich in folate containing foods such as green leafy vegetables, whole grains and fruits [4]. For women with a previously affected child, the CDC recommendation is 4 mg/day from 4 weeks before conception through the first 3 months of pregnancy [5].

Vitamin A: Vitamin A is found in fruits and leafy vegetables, eggs, and dairy products and should

be included in a healthy diet. Vitamin A taken in excessive amount can be toxic, hazardous and teratogenic [1].

Vitamin D: It promotes calcium absorption and bone mineralization. Although there is no increased requirement for vitamin D in the preconception period or during pregnancy, low levels are associated with impaired fertility and problems during pregnancy [6]. Vitamin D deficiency occurs mainly for women who are not exposed to enough sunlight and whose dietary vitamin D intake is low. The major dietary sources are milk, fatty fish (salmon, mackerel, tuna, sardine), egg yolks, beef liver, and cheese, orange juice, and some breakfast cereals [7].

Iron

It is important to make sure that iron levels are adequate in the preconception period of a woman so that these levels can be more easily maintained during pregnancy. Iron helps to maintain healthy immune system and prevents anemia. The best source of iron is red meat, chicken, fish, legumes, green leafy vegetables, and iron-enriched breakfast cereals. Consuming foods that contain vitamin C helps the body to absorb iron contained in non-meat sources. During the preconception period, women should check with their doctor about having their levels tested and whether they require a supplement [1,7].

Calcium

It is important to build calcium reserves before becoming pregnant. It is recommended that women get at least 1,000 mg (three 8 oz glasses of skim milk) of calcium a day if they are considering getting pregnant. Calcium may be obtained from natural sources such as low-fat yogurt, canned salmon, sardines, rice, and cheese [7].

Iodine

If the iodine nutrition of mother during preconception is adequate, her iodine stores will be sufficient to meet the increased demand for production of thyroid hormone and the transplacental transfer to her fetus. But there are likely to be adverse obstetric and fetal

consequences, if maternal thyroid gland cannot meet the demands of pregnancy on thyroid hormone production due to insufficient dietary iodine intake. The main dietary sources of iodine are milk and dairy products, seafood, iodized salt, processed foods with added iodized salt such as bread [5].

Things to Avoid

Women must be aware of nutritional risk factors and teratogenic substances and avoid it. It include illegal drugs and over the counter medications, consumption of alcohol and tobacco [1].

Key messages

Evidence shows that the mother's nutrition and lifestyle affect the long term health of her children. Establishing healthy dietary habits and body composition particularly in adolescent girls and young women are priorities to promote good periconceptional health and health of the next generation [7].

References

1. Gardiner PM, Nelson L, Shellhaas CS, Dunlop AL, Long R, Andrist S, Jack BW. The clinical content of preconception care: nutrition and dietary supplements. *American journal of obstetrics and gynecology*. 2008 Dec 1;199(6):S345-56.
2. Kaiser L, Allen LH. Position of the American Dietetic Association: nutrition and lifestyle for a healthy pregnancy outcome. *J Am Diet Assoc*. 2008 Mar 1; 108(3):553-61.
3. Dean SV, Lassi ZS, Imam AM, Bhutta ZA. Preconception care: nutritional risks and interventions. *Reproductive health*. 2014 Dec;11(3):S3.
4. Lowdermilk DL, Perry SE, Cashion MC. *Maternity Nursing-E-Book*. Elsevier Health Sciences; 2013 Dec 27.
5. Kovacs G, Norman R, editors. *How to Improve Preconception Health to Maximize IVF Success*. Cambridge University Press; 2018 Feb 22.
6. Lewis S, Lucas RM, Halliday J, Ponsonby AL. Vitamin D deficiency and pregnancy: from preconception to birth. *Molecular nutrition & food research*. 2010 Aug 1;54(8):1092-102.
7. Moran VH, Robinson S. *Pregnancy and lactation*. Human Nutrition. 2017:337.