



Review the Nutrition of the Pregnant and its Effect on the Fetal Development

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DOI: 10.31080/ASMS.2022.06.1340

Received: June 13, 2022

Published: July 07, 2022

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Abstract

This study was designed to find out the relationship between the nutrition of the pregnant and the fetal growth of child, as the study dealt with the importance of good nutrition for the mother during pregnancy and the most important nutrients that must be available in food and its connections with the growth of the fetus as being influencing factors, the study also dealt with the type of food to be eating during pregnancy, food to be avoided, vaccines given to pregnant mothers and the result obtained from this study. The importance of good nutrition during pregnancy: Building the bones and blood cells of the fetus. Reducing hassles and problems of pregnancy. Boost immunity to prevent infectious diseases. Prevention of iron deficiency anemia. Strengthening the body in preparation for childbirth. Promote milk formation for breastfeeding.

Keywords: Pregnancy; Milk; Nutrition

Introduction

Good nutrition is important during pregnancy; to maintain the health of the mother and the fetus, as the quality of food is more important than the quantity, so it is advised to choose healthy foods with high nutritional value, and avoid unhealthy. The diet of a pregnant woman affects the fetus, not only in the present, but also on its future [1]. The importance of good nutrition during pregnancy: Building the bones and blood cells of the fetus. Reducing hassles and problems of pregnancy. Boost immunity to prevent infectious diseases. Prevention of iron deficiency anemia. Strengthening the body in preparation for childbirth. Promote milk formation for breastfeeding.

Animal studies show that both maternal under nutrition and over nutrition reduce placental-fetal blood flows and stunt fetal growth [2]. Impaired placental syntheses of nitric oxide (a major vasodilator and angiogenesis factor) and polyamines (key regulators of DNA and protein synthesis) may provide a unified explanation for intrauterine growth retardation in response to the extremes of nutritional problems with the same pregnancy

outcome. There is growing evidence that maternal nutritional status can alter the epigenetic state (stable alterations of gene expression through DNA methylation and histone modifications) of the fetal genome [3]. This may provide a molecular mechanism for the impact of maternal nutrition on both fetal programming and genomic imprinting. Promoting optimal nutrition will not only ensure optimal fetal development, but will also reduce the risk of chronic diseases in adults. A pregnant woman, in particular, needs all the elements and food groups that help protect her health, nourish it, and work to build the health of her fetus in a good and healthy way, and these foods include.

The appropriate food for the pregnant mother is a balanced food, which contains all the elements and food groups important for the health of the mother and the fetus, including: proteins, iron, calcium, vitamins, because the ideal and correct nutrition for a pregnant woman supports her body and health and protects her from disease, and also protects her fetus from the risk of exposure. For birth defects and health problems [4].

Nutrient	Actual Dietary Intake		Recommended Average RDA Intakes
	Pregnant Female NVP (n = 77)	Pregnant Female Non-NVP (n = 33)	
	Mean ± SD	Mean ± SD	
Protein (g)	62 ± 48	74 ± 50	60
Thiamine (mg)	2.0 ± 1.0	2.1 ± 0.9	1.5
Riboflavin (mg)	2.7 ± 1.2	2.6 ± 1.2	1.6
Niacin (mg)	23.6 ± 11.2	23.1 ± 11.7	17
Vitamin A (µg of RE)	963 ± 512	1081 ± 655	800
Ascorbic Acid (mg)	153 ± 93	148 ± 88	70
Calcium (mg)	1212 ± 861	997 ± 418.7	1200
Iron (mg)	31 ± 27.3	29 ± 27.7	30
Vitamin B ₆ (mg)	2.4 ± 1.5	2.3 ± 1.4	2.2
Folate (µg)	493 ± 403	485 ± 412	400

Based on the 1989 RDA table (U.S. Standards)

Figure 1

Factors that affect fetal growth

Mother feeding

The mother’s blood carries glucose that crosses the placenta, providing energy for the fetus’s metabolism. It also contains amino acids that also cross the placenta and help produce the proteins needed for the development of the fetus. Finally, factors called “growth factors” also pass from the mother’s blood into the fetus’s blood; it helps support the development of many different tissues of the fetus. If a pregnant woman becomes malnourished, the fetus may not get enough nutrients or other factors that the fetus needs in order to grow properly, which slows down its growth and may lead to the birth of an underdeveloped baby. If the blood glucose level is too high, the mother may develop gestational diabetes, which may cause the baby to be too large and the mother to experience a difficult birth [5].

Special nutritional ingredients and their suitability for pregnancy

Calcium in sufficient quantity

Calcium is an essential component of a woman and a developing fetus. Calcium is important for building bones, for the functioning of the circulatory system and muscles, and for building and maintaining healthy teeth. Therefore, during pregnancy, the body’s demand for calcium increases. Main sources of calcium: Milk and dairy products (preferably rich in calcium), soy drink and delicious soy food. Other sources of calcium: cauliflower, cabbage, tahini from whole sesame, almonds, sardines with bones. Women who do not consume dairy products are advised to consult a nutritionist [6].

Eat foods low in saturated fats, low in cholesterol and no trans fats, Cholesterol levels rise naturally during pregnancy. However, we recommend fitting the feed to make sure it doesn’t get too high. We recommend choosing foods that are low in fat. Foods low in saturated fats and low in cholesterol should be preferred, such as 1% fat milk, dairy products up to 5% fat, lean beef, chicken and turkey without skin (before cooking). Non-recommended trans fats may be found in food products that contain solid vegetable fats, such as pastries, prepared foods and industrial pretzels. Foods that do not contain Trans fats should be preferred. The content and amount of fat can be known by recording in the nutritional value table. Some meat meals can be replaced with vegetarian meals, such as combining legumes (lentils, chickpeas, kidney beans) with whole grains, preferably whole (wheat, bulgur, buckwheat, quinoa, whole rice).Cooking with water or steam is better than frying. We recommend reading the list of ingredients and nutritional value on the back of the food package, paying attention to the fat content and choosing foods that are low in fat and sugar [7,8].

Dietary fiber

Some women suffer from constipation during pregnancy. Enhancing the consumption of dietary fiber (combining adequate drinking) can help regulate the functioning of the digestive system, and is also good for preventing chronic diseases. Fiber is found in whole grains (eg, oats and whole-grain bread), in legumes, in vegetables and in fruits. We recommend eating foods containing dietary fiber at every meal.

Drink water

Be sure to drink an adequate amount throughout pregnancy. The recommended drink is water. Water prevents dehydration and reduces the risk of developing preterm labor. We recommend drinking water during and between meals. The recommended amount of water varies from woman to woman and is affected by the level of physical activity and environmental conditions. Light color of urine is a good measure of adequate drinking. It is recommended to drink at least two liters of fluid per day [9,10].

Nutritional Supplements

And in any case you should take the following supplements: iodine, vitamin D, folic acid and iron. This supplement can be taken as a combined component of the existing multivitamins on the market. This supplement can be taken as a combined nutritional

supplement for pregnant women that can contain additional vitamins and minerals [12].

Importance of good nutrition during pregnancy

Building bones and blood cells for the fetus. Boost immunity to prevent infectious diseases. Prevention of iron deficiency anemia. Strengthening the body in preparation for childbirth. Strengthening the composition of milk for breastfeeding. These positive factors appear on the health of the fetus through good nutrition, and this is what many studies have confirmed [11]. B vitamins play a significant role in controlling energy metabolism, help to reduce insulin resistance and are important for growth, including development of the nervous system and the brain. A deficit of folic acid (folate) causes anemia and is also associated with neural tube defects, poor fetal development in the antenatal period, fetal malformations, premature birth and low birth weight. Neural tube defects are among the most common multifactorial hereditary fetal conditions, and use of folic acid supplements before conception can prevent up to 46% of cases. Children born to obese women are more prone to neural tube defects than the offspring of women of normal weight, and children born to obese women in disadvantaged social and economic communities are at even greater risk, as it is highly unlikely that mothers in these communities use dietary folic acid supplements. Folate deficiency is also a risk factor for cardiovascular diseases. Like other B vitamins, folates participate in the metabolism of homocysteine, which may contribute to the development of atherosclerosis by damaging the inner surfaces of arteries and creating blood clots. The level of homocysteine depends on genetic factors and the dietary intake of folates, vitamins B6 and B12: higher concentrations of these vitamins in the bloodstream correlate with lower homocysteine levels. Low levels of folic acid are associated with a higher life-long risk for fatal coronary heart disease and infarction. Laila. Meija, and Dace [13,14].

Lifestyle influence

Factors in cigarette smoke can transfer into the fetus's blood, causing potentially serious problems. Nicotine constricts the blood vessels, which slows down the movement of oxygen and nutrients into the cells of the fetus. Combined with other chemicals in smoke, it may cause low birth weight and an increased risk of developing asthma, digestive problems or obesity in newborns. Several studies have found that smoke agents can also increase the

risk of miscarriage or premature labor, and may also cause fetal neurological problems [15,16].

Some medicine

Some medications that can cross the placenta may also have negative effects on the fetus. These include tetracycline antibiotics, which can damage developing teeth, some blood thinners that can slow the growth of the nervous system, and chemotherapy drugs. Illegal drugs, such as heroin, also destroy fetuses especially during the early stages of pregnancy, but they May also harm the fetus at a later stage of development, slowing the fetus's growth and causing premature birth or, in rare cases, the death of the fetus [17,18].

Placental and birth weights

Nutrition has an essential role for the expectant mother, as it is impact is reflected on the health of the fetus, which in turn takes nutrients through the placenta. Therefore, whenever the placenta is in a healthy conditions, the fetus can be properly nourished, and this is indicated as it secretes metabolic hormones through it, so umbilical cord forms a food network of metabolic hormones such as placental lactogen and placental blood hormone, which alter insulin production and enhance the mother's insulin resistance [19,20]. 1998 for this matter the placenta is considered the food passage for fetus. Reference scales, percentile tables and regression equations are presented for placental weights according to the mode of delivery and for pw/bw ratios. Mean placental weight from vaginal deliveries was 76 g lighter than from Caesarean sections (545+/-107 g versus 621+/-139 g, respectively, P < 0.05). Mean placental weight increased by 60 g from 37 to 42 weeks irrespective of the mode of delivery. The pw/bw ratio decreased from 17.6 to 15.6 between 37 and 42 weeks [21].

Feeding a woman during in the first months of pregnancy

A healthy diet is an important lifestyle at all times, but the ideal food for a pregnant woman is especially necessary if the woman is pregnant or planning to become pregnant, for the healthy growth of the fetus during pregnancy, and the pregnant woman does not need a special diet, but rather must eat a variety of foods And healthy people to get all the nutrients they need from folic acid, vitamins and minerals, and they should avoid certain types of foods, which lead to malnutrition in the first months of pregnancy or the last months of pregnancy [22].

There is no doubt that the nutrition of a woman during pregnancy is directly related to the formation and health of the fetus, and its impact may extend to the next stages of its life, according to what studies have proven. It avoids many risks and helps maintain the mother's health and the pregnancy to proceed properly. Studies have shown that healthy nutrition during pregnancy reduces the risk of premature birth (read also: premature birth), low birth weight, or stillbirth [23].

For the five food groups

Pregnant women do not need nutritional supplements except for chickpeas folic in the first stage and iron and calcium in the last two stages if they adhere to the recommended number of servings and can continue to eat iron and calcium for several weeks after birth.

- Carbohydrate group
- Milk group
- Fruit and vegetables
- Meat
- Nuts.

Healthy nutrition for pregnant women in the sixth month

During pregnancy, the nutritional needs of women increase, so taking care to cover the body's need of the most important nutrients is necessary to support the growth of the fetus, and to maintain a healthy weight for the mother as well [22].

The symptoms of the sixth month differ from the other months, as it is the last month of the second stage of pregnancy (or the second third of pregnancy), and the pregnant woman during the second trimester of pregnancy is generally recommended to eat foods rich in the most important nutrients necessary to support the proper growth of the child [22,23] including; calcium, vitamin D; Where these elements help in the growth of the bones and teeth of the fetus, in addition to that, it is useful to eat foods that contain omega-3 fats necessary for the development of the child's brain, and to make sure to choose foods rich in magnesium for its benefit as well [24-26]. And some of necessary of food during this period.

- Carbohydrates eating foods rich in carbohydrates help provide the pregnant body with energy, and they also support the growth of the fetus. It is recommended to choose healthy types such as whole grains and some fortified products; it contains iron and folic acid, which are essential during pregnancy.

- Vegetables are rich sources of vitamins and minerals, including; Vitamin A, vitamin C, folic acid, in addition to iron and magnesium. It is also worth noting the importance of eating green leafy vegetables, as it is recommended to eat at least two servings of them daily.
- Fruits Eating fruits in appropriate quantities helps provide the body with the most important nutrients it needs, including; Vitamin A, vitamin C, potassium, in addition to fiber. The most important examples of fruits rich in vitamin C are: citrus fruits, melons, and berries. It is recommended to choose fresh fruits and juices, and avoid frozen or canned ones, and juices that contain sugar or artificial sweeteners. Dairy products Dairy products are a rich source of protein, calcium, and phosphorous, and it is preferable to choose free or low-fat types of them, to reduce the intake of more calories and cholesterol.
- Protein Foods belonging to this group are rich sources of B vitamins, iron, and zinc.
- Healthy fats and oils Fats provide long-term energy that is used in the growth process, and is also necessary for brain development in the fetus, and despite these benefits, it must be moderated in the diet [27,28].

Vaccines for pregnant women

Immunizations help protect the mother and the child from diseases that can be prevented by vaccinations, as the immunity that the mother acquires from the vaccine during pregnancy is transmitted to the child, which in turn provides immunity to the newborn against certain diseases during the first months of his life before receiving his vaccinations, and also helps to protect [29].

Conclusion

The nutrition of pregnant mother is great important in that it is reflected in the health of this nutrition on the fetus. I made this review to show the importance of nutrition in all months of pregnancy and for all stages of the fetus. Therefore we must pay attention to the mother's nutrition during pregnancy.

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