

# Do Pregnant Women need to Take Vitamins and Minerals' Supplements routinely?

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## Introduction

Pregnancy represents a period of rapid change in the maternal physiology and nutritional requirement. These biological changes allow the mother to fulfill the needs of growing fetus and placenta and these changes occur within weeks of commencement of pregnancy. Vast majority of dietary recommendations during pregnancy has focused on maintaining adequate caloric intake while avoiding substances that may potentially harm the growing fetus. Most of the pregnant women take prenatal vitamins and some mineral supplements. Some of these vitamins have been studied directly, example folic acid and their recommended allowance comes from solid evidence, but for most of the vitamins, data are limited, and studies results can be biased by confounding factors. Good nutrition and healthy eating with essential macro and micronutrients are the corner stone for growing babies and pregnancy outcome. Pregnant women may spend extra efforts to have healthy balanced diet, but this will be reflected as a major health benefit for the women and their babies. Pregnancy is a good chance to change the bad old habits of eating and balanced diet and changing to healthy new ones and this may extend throughout pregnancy and breastfeeding period.

## Basis of Dietary Recommendation

The discussion focuses primarily on the data gained from the developed world, because the nutritional challenges of the developing world are distinct. That's why advising the pregnant women to take specific supplementation is a difficult task because so many different formulations are available in the pharmacies and shopping malls. Since 1997, the institute of medicine (IOM) food and nutrition board has been publishing dietary references intake (DRIs) for healthy people throughout lifetime including pregnancy. These tables include recommended daily allowance (RDAs) for which the committee believed that there was sound evidence to make such a recommendation. In some instances, the

food and nutrition board did not have enough data to determine RDAs, therefore, the available information combined with the expert opinion was used to estimate adequate intake value. The American College of Obstetrician and Gynecologists has approved and incorporated these tables into their recommendation for nutrition during pregnancy. Women that pay careful attention to their diets besides they don't need extra supplement they have less risk of negative pregnancy outcome. Healthy eating includes the knowledge of how much a pregnant woman should eat beside a balanced diet, if you extra well-chosen calories. Finding a balance between getting enough nutrients for the growing baby and maintaining a healthy weight although it is difficult to achieve sometimes, but it represents a safeguard for the future mother and contribute to normal fetal development. Any woman who has been pregnant is usually put huge efforts to gain a good healthy diet that keeps her in the ultimate health throughout pregnancy. Many pregnant women tend to take prenatal vitamin supplements to optimize their chances of conceiving healthy babies and eventually intelligent children. However, majority of research done have been suggesting that multivitamins and mineral preparations promoted for use during pregnancy are unlikely to be needed and some experts have gone more far and warned that many of these daily vitamins are of little or no use.

The Australian research (involving almost 550 pregnant women) published in the journal of American Medical Association found that there was little evidence of benefit after half of the women were given daily supplements while the others have taken placebo. After their pregnancies, their babies were examined and tested at regular intervals until 7 years old. The results showed no difference between children's general intelligence. Overall level of IQ or language skills whether their mothers have taken supplements during pregnancy or not. These findings had supported other research published in the Drug and Therapeutic Bulletin 2016

which found no evidence that supplements during pregnancy will improve the health of women or their babies. Researchers had to reach to a conclusion that most women who are planning for pregnancy or those who are already pregnant, multivitamin and mineral preparations promoted (not recommended) for us in the market are unlikely to be needed, besides they are considered as an unnecessary expense. Interestingly, the head of RSCI's (Department of Obstetrics and Gynecology) Fergal Malone, had announced in favor of this study by this advice we agree with those studies that show no benefit for routine vitamin supplements in healthy pregnant women unless they have specific dietary deficiency and he affirmed that iron supplements are only recommended if the patient shows evidence of iron deficiency Anemia and report from the American College of Obstetrics and gynecology, using routine iron early in pregnancy may put some pregnant women at risk of hypertension during mid trimester of pregnancy and glucose intolerance throughout pregnancy , therefore its potentially harmful effect should be questioned regarding effectiveness . Only exception for all that we illustrated and the department of health recommends taking 400 $\mu$ g of Folic Acid daily and Folic Acid is important for pregnancy as it can help to prevent neural tubular defects including Spina bifida. Women who have already had a pregnancy affected by neural tubular defects or a history of such condition are advised to take higher dose of 5mg folic acid per day at least during the first trimester of pregnancy. Good nutrition is the basis of healthy pregnancy, so expectant mothers who are eating a healthy, balance diet with minimum or processed foods are unlikely to need supplemental vitamins except for folic acid. Although there haven't been a lot of studies proving that taking prenatal supplements are harmful to the mothers and their babies. Vitamin D supplementation is important especially in some geographical zones where by some exposure is limited and individuals cannot absorb enough vitamin D from their diet. Low vitamin D levels are associated with increasing risk of complications for the pregnant woman.

## Probiotics

Many experts claim that probiotics can be beneficial both from natural and supplemental are usually considered safe during pregnancy and it is beneficial in a group of people where their diet contains lots of processed foods. Therefore, consuming probiotics can improve the environment the proper environment for the gut bacteria and could support the gut health and boost the immune system and reduce the inflammation in the body. A large Norwegian study support this view and probiotics could reduce the risk of pre-eclampsia. Other studies also show improvement in the psychological status of the pregnant mother and ameliorate their anxiety and depression. But that will not underestimate the advice of caring physician before starting any supplement in pregnancy. Some experts argue against non-supplementing diet and support the notion of supplementing the vitamin and minerals needed for the mother and the baby especially in early pregnancy which

can be difficult to manage a balanced diet in presence of morning sickness which can be managed naturally by eating frequent small meals enriched with palatable and nourishing servings. Although others support the idea of supplementation that render the pregnant mother reassurance of their pregnancy outcome. Others have said that improvement to the diet are far more beneficial in most cases than taking supplements. The exception to this is anemic individuals that may need some dietary modification like providing red meat and enough fruits and vegetables in their diet. Lean red meat, chicken, turkey and oily fish are the best sources of iron in the diet. Liver has lots of iron, but should be avoided during pregnancy because of high content of Vitamin A. Other foods that contain modest amounts of iron include peas, beans, lentils, eggs, dried fruit, wholegrain bread, green vegetables and some breakfast cereals. Consuming vegetable salads, citrus fruits or fruit juice with meal will enhance iron absorption. Iron supplement should be always advised from caring physician. Extra calcium may be needed in diet of pregnant women which will improve the mother's as well as the baby's bone. The best source of natural calcium in diet are dairy products, milk, cheese and yoghurt. Pregnant women should have at least 5 servings of dairy products per day. Other foods that contain modest calcium content include green leafy vegetables such as broccoli or cabbage, tinned fish where the bone can be eaten like sardines and salmons. Nuts, soya products, baked beans, calcium enriched juice drinks, bread and breakfast cereals are to name a few.

## Folic Acid

It is an integral vitamin for the synthesis and maintenance of DNA, metabolism of amino acids, production of red blood cells and growth of fetus and placenta. Folic acid is one of the B vitamins as we mentioned earlier, found in some foods like green leafy vegetables (i.e. foliage, which gave it its name, spinach, lettuce), brown rice, orange juice and some breakfast cereals However, it is difficult to get the amount of folate recommended for pregnancy from food alone as it is not practical that's why it's important to take folic acid supplements. Strong evidences have linked folic acid supplementation to a decreased incidence of neural tube defects, therefore, all the authorities agreed upon increased allowance for women of child bearing age. A Cochrane review from randomized and quasi-randomized trial of daily folic acid supplementation 360 $\mu$ g- 4000mg and concluded that it was effective in reducing both primary as well as recurrent neural tube lesions in this meta-analysis which included 5 trials and 6105 women. No negative effects were reported. Folic acid supplementation maybe beneficial for preventing other congenital anomalies such as clef lip or palate and cardiac anomalies. Fortification of grain product with folic acid in 1999 in the United States has subsequently decreased the incidence of neural tube defects since then. Because the neural tube closes by the 7 to 8 weeks of gestation, so it is prudent for all women of child bearing age to take supplemental folic acid as approximately 50% of pregnancies are unplanned. ACOG recommends 400 $\mu$ g per day

and 4mg daily for high risk women such as women with a history of affected pregnancy with neural tube defect and those taking anti-epileptic medications. So, supplementing the diet with this natural food to get the full amount that pregnant woman needs. Folic acid supplements are available on the counter in the drug store and some supermarkets and can be part of multivitamin supplements. 400 $\mu$ g of folic acid should be the least in the formula.

## Vitamin D

Vitamin D works with calcium to build up the baby's bone and teeth and important for the healthy skin and eyesight. It has also many biological benefits for the pregnant women more than the bone health boosting the immune system and production of some hormones. Pregnant women and breastfeeding may need 600IU of vitamin D daily and most of the supplemental vitamin preparations contain at least 400IU of this vitamin per tablet. Diets that consider source of this vitamin are the fortified milk, breakfast cereals, and salmon and egg yolks. In the UK, pregnant women and nursing women are advised to take vitamin D supplements containing an amount of 10ug of Vitamin D each day. Because Vitamin D is found in only small number of foods, and we get most of our vitamin D from the exposure to the sun. Therefore, vitamin D supplementation is considered necessary especially in low sun exposure areas and special ethnic groups like Blacks and Asians usually that with most low vitamin D levels. In these settings, caring physicians may ask to check the level of the vitamin in the blood. Therefore, if it is below normal, pregnant women may need more than the requirements mentioned above. Fish and omega fats, omega-3 and omega-6 in specific proportions are presumed important for the developing baby's brain and eyes. Diet rich in these fatty acids is oily fish (such as herring, sardines, salmon, mackerel, white fish (like cod, plaice), some vegetable oils like rapeseed, canola, flaxseed, and walnut. Two portions of fish, one of which is oily is advised for the pregnant women.

## Vitamin A

All the panels had agreed upon non-vitamin A supplementation and from whether supplemental vitamins or fish liver oil or liver that better to be avoided as they contain high vitamin A and multivitamins should not contain vitamin A which has deleterious and probably teratogenic effect on the babies.



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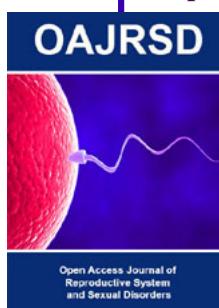
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## Conclusion

We might strongly conclude that vitamins and mineral supplement during pregnancy cannot replace healthy and well-balanced diet, moreover there are no enough high-quality data to recommend those supplements routinely for all pregnant women, the only exception is folic acid supplementation weather for the low or the high-risk women for development of neural tube defect. Multivitamin supplementations are exceptionally recommended for pregnant woman RDAs throw ordinary food intake, the target women should be identified before conception, those pregnant women at risk include: very young (adolescent). Psychologically handicapped, multiple gestations, substance abuse (drugs, narcotics, tobacco), those with eating disorders or absorption disorders weather organic or due to medications and strict vegetarians, otherwise normal pregnant women have not been recommended for supplemental vitamins and mineral supplement by most of the researchers and more recognized health institutions and some of the researchers had concluded the non-benefit of routinely giving supplements and even it might have some negative effects if they are not well titrated below the upper limits of supplementations per IOM guidelines, except for folic acid supplementation (in some other strict deficiencies) is considered not cost effective and might be harmful [1-13].

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