

Caress with care

An informative nutrition guide to
pregnant woman



A safe motherhood initiative of Vatsala
Hospital, Lucknow, India
&
Consumer wellness Center, Arizona,
US



Congratulations!!

You are a would be mother now. Your doctor has just now examined you and declared finally that your tests are positive for pregnancy. You must be exited with the news but is little apprehended too if this is your first pregnancy. If you are an experienced mother, the grade of apprehension may reduce a little but does not completely vanish. How to make this period of waiting to be a proud mother, uneventful and even a memorable one requires some small precautions and care on your part .This small intervention would not only keep you away of the day to day ill feelings in pregnancy but also will keep your baby growing safe and protected .

Of all interventions required during pregnancy, Nutrition is of foremost importance. Role of Iron, Calcium, Folic acid, DHA is well known for their importance to growing fetus. This is surprising to see that with some simple modifications in diet, most of these requirements can nicely be met with. However, because of some specific taste perversions during pregnancy, the dietary preparations also require a customization as per the individual requirement.

Nutrition in pregnancy, despite of its immense importance, has not been given the impetus it deserves in routine Obstetric practice. We at Vatsala Hospital, have identified this gap and with collaboration to Consumer wellness center, Arizona, US, have worked out a nutritional intervention plan specially designed to the requirement of expectant mothers.

In following pages we will come out with few simple and handy nutritional tips which can help you making a real difference.



Nutrition in pregnancy: Magnitude of the problem

Maternal under-nutrition and malnutrition are major problems in developing countries and are generally considered to be of importance for the high prevalence of low birth weight and fetal growth retardation. Limited access to high quality foods is the major reason for under-nutrition, but traditional food habits, food taboos and limited knowledge may also contribute to under nutrition.

The important role of low birth weight and prematurity for perinatal mortality and morbidity in developing countries and its association with under-nutrition and malnutrition in the mothers has motivated various attempts to improve pregnancy outcome through food supplementation and also through spreading awareness about the ideal nutrition during pregnancy.

India unfortunately has ranked ridiculously high for its poor maternal health care. To a great surprise, about 20% of total maternal mishaps are related to easily

preventable dietary means like iron and folic acid which make a considerable contribution to the development of anemia and calcium which adds to the poor coagulability in post natal period.

Nutritional requirements during pregnancy

You need some special nutrition to meet out the requirements essential to ensure optimal growth of the fetus and also to prepare your self for the upcoming changes and challenges during pregnancy and then after. This is also important to learn that it is not only the requirements are to be identified to meet them effectively , but also the method of their intake which makes a substantial difference in their effective bioavailability to the tissue. This is how this seems important to have a look of what changes are expected during pregnancy in deviation to the routine and in what way they can effectively be undertaken. We would be discussing few important points in relation to your dietary planning during pregnancy which can make a substantial difference to the final out come.

Plenty of fluid

Your body weight increases substantially during pregnancy. This weight gain may range between 12-18 Kg in a normal woman. This is important to recognize that a substantial amount of this weight gain is in the form of an increase in blood Volume by 35-40% (3-4 kg in a full tem lady).Amniotic fluid also contributes significantly to this increase of body weight. To meet out these requirements, an increased intake of liquid substances during initial Antenatal period is highly recommended. Fruit juices, Milk, Curd and Buttermilk are ideal for this supplementation as they are further rich in various nutrition required during pregnancy. Plenty of water intake is also advised during these days.

Weight gain

Average weight gain in a normal pregnancy is about 12.5 Kg. This is however variable with different weight to height groups of women. This is recommended that women who are obese should try to gain weight at lower level where as women with lower body weight should try to gain weight on the higher side to avoid pregnancy related and consequential complications of weight gain. Following is the tentative recommendation of weight as per the differential BMI

Weight for height

Low (BMI<19.8)	12.5-18 Kg
Normal (BMI 19.8-26.0)	11.5-16 Kg
High (BMI>26-29)	7-11.5 Kg

Specific Dietary requirements

Protein

About 70gm/day protein is required to meet out the requirements during pregnancy.

Iron

About 27 mg /day is required to meet out the requirement during pregnancy. Iron in excess is required to meet out the heamatopoetic changes during pregnancy .

Calcium

About 1000 mg /day is required to meet out the requirement during pregnancy. Much of this calcium is required for bone and teeth formation in fetus. This is also required subsequently to meet out the lactation requirements.

Folic Acid

About 600 mg /day is required to meet out the requirement during pregnancy. Folic acid is identified as one of the most important ingredient which is required to ensure the normal organ formation in growing fetus including normal brain formation. Any deficiency of folic acid may lead to various congenital malformations. Green leafy vegetables and fresh fruits are the best sources of folic acid. They should however not be over cooked to

avoid destruction of folic acid while making a preparation.

Iodine

About 220 mcg /day are required to meet out the requirement during pregnancy. Any deficiency of iodine during pregnancy may lead to deleterious effects to growing fetus specially to its brain development and cognitive and motor functions .A simple use of iodized salt can easily take care of iodine deficiency in mother .1 gm iodized salt provides about 70mcg of iodine .This is how, even after destruction of some iodine during cooking, a good amount remains which can easily meet out the requirements in pregnancy.

Choosing the right food

Now after getting an idea as in what amount the different nutritional supplements are required to maintain a fruitful pregnancy, you would be surprised to know that there are plenty of dietary alternatives which can meet out the dietary requirements during pregnancy. Presented below is the table showing the rich dietary sources of some commonly required nutrition during pregnancy.

Iron rich food (in 100 gm of servings)

Black Sesame seed	56.7 mg
Beaten rice flakes	20.0
Mint leaves	15.6mg
Cumin seeds	11.7
Soya	10.0
Roasted Grams	9.5
White Sesame seeds	9.3
Black millet	8.0
Dry coconut	7.8
Dry Dates	7.3
Kidney beans	5.1
Wheat flour	4.9
Jaggary	2.6
Spinach	1.1

A daily requirement of 30 mg iron can easily be met with a combination of different substances as mentioned in the table. For example, a sweet made of black sesame seeds and jaggary can effectively meet the daily iron requirement. Similarly a snack made of beaten rice flakes and roasted grams and sprinkled with cumin powder and mint leaves can also effectively meet out the iron requirement during pregnancy.

Contrary to the usual belief, Spinach is only a poor source of iron and there are plenty of more rich sources which can be used in daily dietary consumptions. You can choose any one or a combination from the above list to make a tasty and nutritious diet during your pregnancy. This is also important to note that it is not only the choice of food, but also the method of its preparation and also the method of consumption which makes a difference to the finally available amount of the consumed nutrition.

There are certain precautions which can increase the iron absorption and hence increase its bioavailability.

Following are the general measures which can increase the iron absorption in the body.

1. Soya, gram, millet and kidney beans are rich source of iron. Soya or gram flour can be the easiest way to supplement iron if added with wheat flour to make chapattis. Conventionally, $\frac{1}{4}$ Soya flour can be added to $\frac{3}{4}$ of wheat flour.
2. Iron is effectively absorbed under the presence of Vit C. So iron rich foods if added with citrus juices can do wonders for iron absorption. Beaten rice flakes and roasted gram can nicely be added with lemon juice or a Til -Jaggary sweet can nicely be supplemented with orange juice.
3. Meat if added with vegetables can enhance the iron absorption from vegetables

4. Fortification of food can be tried by making various combinations as adding spinach to lentils, soups, vegetables or even to chapattis.
5. Cooking in Iron utensils can fortify the food with iron. Suji halwa made in iron pot can be a good recipe for iron supplementation.
6. Processed and ready to eat food are generally devoid of iron. Noodles, pasta, chips, polished rice are better to be avoided.
7. A calcium combination with iron can interrupt with their absorption. So an iron rich food should not be mixed with milk, curd or cheese.
8. Drinking coffee or tea with food is possibly the commonest error which leads to interruption of iron absorption. Tannins in these beverages bind with iron to make them unavailable to body. A cup of tea with an iron rich breakfast can block $\frac{3}{4}$ iron quantity from absorption.

Calcium rich food

Approximately 1000mg calcium is required during pregnancy and lactation to meet out the requirement of the growing fetus as well as to meet out the lactation requirements.

Following is a non exhaustive list of some dietary substances which can help in meeting this regular requirement of calcium during pregnancy.

Sesame seeds	1740 mg /100gm
Paneer	730 mg
Cheese	630
Yogurt	630
Milk	420
Soya bean	420
Kidney bean	406
Roasted gram	331
Penuts	104
Spinach	50

This is apparent that milk and milk derivatives are reasonably good sources of calcium. Additionally, they

are also rich sources of protein which is again a much required nutrition during pregnancy.

There are certain facts about the maximization of calcium availability to human body. By their observation, you can certainly enhance the calcium availability to your body and hence can ensure an optimal bone and teeth growth to your baby.

These facts are following

1. Sprouted lentils are good source of calcium in comparison to the cooked lentils.
2. Soya is a good source of calcium as well as iron. A small addition of Soya flour to normal wheat flour can do substantially good for provision of both of these elements.
3. Dry fruits are usually enriched with Calcium.
4. Excess frying hinders the calcium absorption in body
5. Purified, processed and ready to eat foods are usually devoid of calcium
6. Chocolate and cocoa obstruct with usual absorption of calcium
7. Soft drinks and beverages obstruct with normal calcium absorption
8. excess fat in diet obstructs calcium absorption
9. Sun light helps in synthesis of Vit. D which is essential for calcium absorption in body

GENERAL DIETARY GUIDELINES

As recommended by National Institute of Nutrition, Hyderabad

1. A nutritionally adequate diet should be consumed through a wise choice from a variety of foods.
2. Additional food and extra care be required during pregnancy and lactation.
3. Exclusive breast-feeding should be practiced for upto 6 months. Breast-feeding can be continued upto two years.

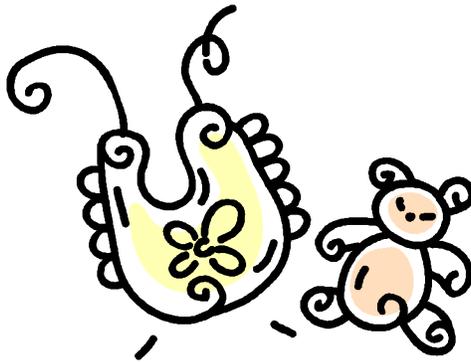
4. Food supplements should be introduced to infants after 6 months.
5. Adequate and appropriate diet should be taken by children and adolescents, both in health and disease.
6. Green leafy vegetables, other vegetables and fruits should be used in plenty.
7. Cooking oils and animal foods should be used in moderation, and vanaspati/ghee/butter should be used only sparingly.
8. Over-eating should be avoided to prevent over-weight and obesity. Proper physical activity is essential to maintain desirable body weight.
9. Salt should be used in moderation.
10. Foods consumed should be safe and clean.
11. Healthy and positive food concepts and cooking practices should be adopted.
12. Water should be taken in adequate amounts and beverages should be consumed in moderation.
13. Processed and ready-to-eat foods should be used judiciously. Sugar should be used sparingly.
14. The elderly should eat a nutrient-rich diet to keep fit and active.

Enjoy being a would be mother

Being a mother is to create some thing alike your own. This is some thing which either God can do who has created all of us or a mother. Feel this immense power of creation within your self. Feel that you are going to create some thing live out of your own blood and flesh. Human body has been the master piece of the greatest ever artiste and you are going to be the part of his magical performance, the dance of creation. Enjoy every moment of this performance as this is going to be the rarest of the rare experience. A simple care observed this period can make it an adorable experience .Following is a brief enumeration of what is optimally required for you while you are pregnant.

- Take care of every unusual symptom
- Stick to the medications and care which are advised

- Take care of your food
- Make a balance in work, rest and relaxation
- Tailor the work schedule as per your pregnancy status
- Reach to the hospital in time in case of any unusual happening
- Be optimistic for being a would be mother
- Ask you doctor for any query or any clarification required on some issue.



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Contents mentioned there in are only informative and in no way substituting to regular medical consultation during pregnancy or other wise. Patients are advised to consult their medical consultants before making any gross changes to their diet in individual conditions.
